Student Debt and the Cinderella Effect*

Jess Cornaggia† Kimberly Cornaggia‡ Qiang Wang§ Han Xia¶

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Abstract

Unexpected intercollegiate athletic success generates exogenous changes at universities, known colloquially as the "Cinderella effect". Linking data on athletic contest outcomes, betting lines, student debt default rates, and post-college earnings data, we find that Cinderella events disrupt human capital development among incumbent students. Upon exiting college, treated students exhibit higher default rates and lower earnings. These results strengthen with exposure to treatment (freshmen are more affected than seniors) and are concentrated in low-ranked universities, which admit students with lower SAT scores in response to events, but show no changes in revenues or expenditures. In contrast, students at high-ranked universities have marginally lower default rates and higher earnings. These universities receive more applications, become more selective, and have marginally higher revenues and expenditures. Overall, we provide evidence that university characteristics affect human capital development, distinct from assortive matching between students and universities.

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†Smeal College of Business, Pennsylvania State University. Email: jnc29@psu.edu.
‡Smeal College of Business, Pennsylvania State University. Email: kjr15@psu.edu.
§Haskayne School of Business, University of Calgary. Email: qiang.wang3@ucalgary.ca.
¶School of Management, University of Texas at Dallas. Email: Han.Xia@utdallas.edu.

1 Introduction

Athletics are integral to the college experience at U.S. universities, with many students indicating a university's reputation in athletics drives college choice.[1] However, whether academics and athletics ought to coexist is a long-standing debate. As American journalist William C. Rhoden writes, "College football is no more of a minor league than, say, the universities' schools of journalism, engineering, or music are. We can argue at another time whether football should occupy the same space on campus as those disciplines, but for now, it does." Despite the first-order importance of athletics to universities, there exists little research on how campus sentiment toward athletics affects human capital development, ostensibly the primary purpose of higher education. This question is important in an era of mounting concerns over the value of a college degree, rising student debt burdens, and polarization over the role of universities in society.

Existing literature highlights the benefits of athletic success to universities, including advertising effects, increased applications, higher alumni donations, and improved graduation rates (e.g., McCormick and Tinsley, 1987; Tucker III and Amato, 1993; Murphy and Trandel, 1994; Mixon Jr and Hsing, 1994; Toma and Cross, 1998; Tucker, 2005; Pope and Pope, 2009; Anderson, 2017). However, survey evidence indicates that students increase alcohol consumption, reduce studying, and spend more time partying in response to athletic success (Lindo et al., 2012). Predating this evidence, and in spite of winning multiple national championships, the University of Chicago famously abandoned intercollegiate football in 1939 due to concerns that big-time college football was incompatible with the university's academic mission.

Football is the biggest college sport, generating more revenue than the next 35 college sports combined.[2] NCAA Division I FBS, formerly known as Division I-A, represents the highest level of college football competition. The National Collegiate Athletic Association (NCAA) Division I Football Bowl Subdivision (FBS) reported that total athletic operating expenses exceeded $14

[1] Fifteen percent of students report that athletics are a top factor of campus and student life that affects their college choice. See Students' Top Factors in College Choice and Admissions: 2023.

[2] The second-largest revenue-generating college sport is basketball, with football programs generating approximately four times the revenue of basketball programs. See Which College Sports Make the Most Money?

billion in 2024.[3] Our identification strategy exploits unexpected college football bowl game wins, which we refer to as "Cinderella events". Anecdotal evidence suggests that winning a college football bowl game can lead to a surge in applications and shift campus culture.[4]

Following Card and Dahl (2011), we define Cinderella events based on betting market outcomes. Under the assumption that, conditional on the betting line, the outcome of a college football bowl game is random, any differences are causal effects of the outcome of the game. We define the treatment group as universities that unexpectedly win a bowl game despite being at least four-point underdogs, and the control group as universities that unexpectedly lose despite being at least four-point favorites. Between the 2002 and 2019 academic years, there were 623 college football bowl games, of which we identify 122 Cinderella events involving 97 universities.

For each Cinderella event, we examine student loan default risk across three groups: (1) alumni cohorts who graduated before the event, (2) incumbent student cohorts enrolled during the event year, and (3) Cinderella cohorts who enroll in the first academic year following the event. The student loan cohort default rate is defined as the percentage of a school's borrowers who enter repayment on Federal Family Education Loans or Direct Loans and default within three years after entering repayment. Borrowers typically enter repayment after a six-month grace period that begins upon graduation or withdrawal from school. The cohort default rate captures the risk of loan default within a short period after graduation, providing a proxy for human capital accumulation during college.

Taking alumni cohorts as a benchmark, we find that the default rate for incumbent students increases from senior to freshman cohorts. The effect is strongest for freshmen, possibly because they have the longest remaining time in college. Upperclassmen, by contrast, represent partially treated cohorts, similar to the students in Eaton et al., 2020 who have completed at least one year of 2-year programs when their universities are bought by private equity investors. Incoming students are also more likely to default on their student loans compared to the control group, suggesting

[3] See College Athletics Database.

[4] The Cinderella effect is also referred to as the "Flutie effect". See The Flutie Effect: How Athletic Success Boosts College Applications. See also The Influence of Football on University Admissions and Campus Culture.

that campus culture changes following athletic success. The Cinderella effects are concentrated among relatively low-ranked universities, while high-ranked universities show no evidence of significant changes in student loan cohort default rates. In fact, default rates decline among students at high-ranked universities, although the effect is not statistically significant.

To further explore the mechanisms underlying the Cinderella effect, we examine its impact on earnings up to six years after graduation. We use individual-level data on college enrollment periods, majors, and earnings. Our sample uses data from Revelio Labs and includes more than two million students who began their undergraduate studies between 1995 and 2020, covering a wide range of majors, including business, engineering, education, economics, and biology. For each student, we collect annual salary data for six years after graduation. We then analyze the effect of Cinderella events on average earnings over both the short term (years 0 to 3 after graduation) and the long term (years 4 to 6 after graduation).

We find that both incumbent students and incoming students at low-ranked treated schools earn lower salaries after graduation, consistent with higher student loan default rates. In contrast, students at high-ranked schools earn significant higher salaries, suggesting that students at these schools benefit from athletic success. The results hold when comparing students who graduate in the same year and major in the same field.

We test the robustness of our results by examining the effects of universities' bowl game appearances. Most FBS schools play 12 regular-season games, and eligibility for a bowl game generally requires at least six wins. Rather than focusing on the outcomes of singular postseason games, this approach captures a university's success in football over the entirety of a season. We compare universities that narrowly qualify for bowl games (i.e., those with a 6–6 regular-season record) and appear in bowl games to those that miss qualification (i.e., those with a 5–7 record) and do not appear in bowl games. Under the assumption that these universities are otherwise similar, differences in outcomes are driven by bowl game appearances. Consistent with our main findings, students at universities that marginally qualify and appear in bowl games also have higher student loan default rates and lower income after graduation.

Our main results suggest that at low-ranked schools, campus culture changes after Cinderella events, and students devote less effort to academic pursuits. We next examine whether athletic success increases applications and donations. We find that low-ranked schools do not benefit from such advertising effects documented in the literature. In contrast, high-ranked schools receive more applications, become more selective, generate higher revenue, and increase scholarship spending. These changes help explain why students at high-ranked schools earn higher salaries after graduation.

Our paper contributes to several strands of literature. First, we contribute to the broad literature on human capital development. Studies identify determinants of human capital formation, including financial shocks (e.g., Lovenheim, 2011; Lovenheim and Reynolds, 2013; Charles et al., 2018; Cornaggia et al., 2024), the effectiveness of education (e.g., Maturana and Nickerson, 2020; Dinerstein et al., 2022; Gofman and Jin, 2024), and non-cognitive characteristics (e.g., Duckworth et al., 2007; Heckman et al., 2006; Cornaggia et al., 2021).

Closely related papers examine interventions aimed at improving postsecondary performance, including monetary incentives for schools and teachers (e.g., Lavy, 2002; Lavy, 2009; Goodman and Turner, 2013; Brownback and Sadoff, 2020), reducing college costs (e.g., Dynarski, 2002; Dynarski, 2003; Cornwell et al., 2006; Deming and Dynarski, 2009), providing students with information (e.g., Oreopoulos and Dunn, 2013; Bettinger et al., 2012; Bergman et al., 2019), and reducing complexity and uncertainty in college pricing (e.g., Dynarski et al., 2021). We contribute to this literature by examining whether athletic programs, a large expenditure for U.S. universities, affect human capital accumulation.

Prior studies document advertising benefits associated with athletic success, including increases in alumni donations (e.g., Brooker and Klastorin, 1981; Sigelman and Bookheimer, 1983; Baade and Sundberg, 1996; Rhoads and Gerking, 2000; Tucker, 2004; Anderson, 2017), growth in applications (e.g., McCormick and Tinsley, 1987; Tucker III and Amato, 1993; Murphy and Trandel, 1994; Mixon Jr and Hsing, 1994; Toma and Cross, 1998; Tucker, 2005; Pope and Pope, 2009; Anderson, 2017), and improvements in graduation rates (e.g., Tucker, 2004).

However, collegiate football is also associated with increased crime, higher alcohol consumption, and lower academic performance (Glassman et al., 2007; Rees and Schnepel, 2009; Glassman et al., 2010), which can reduce students' incentives to devote effort to academics. For example, Lindo et al. (2012) examine the impact of athletic success on academic performance at the University of Oregon and find that it reduces student grades, particularly among male students with low SAT scores. Similarly, Metcalfe et al. (2019) document that international football ("soccer", in American parlance) tournaments negatively affect student academic performance in England. We contribute to this literature by focusing on the causal effects of athletic success on students' financial outcomes. In particular, we study student loan default, which has important consequences for individuals' credit scores and access to credit markets.

We contribute to the literature on the determinants of student debt outcomes (e.g., Looney and Yannelis, 2015; Looney and Yannelis, 2022; Armona et al., 2018; Mueller and Yannelis, 2019; Parise and Peijnenburg, 2019; Eaton et al., 2020; Yannelis and Tracey, 2022; Cornaggia and Xia, 2024). For example, Cornaggia et al. (2021) find that perseverant behavior during college predicts lower student loan default rates. Chakrabarti et al. (2023) show that increases in tuition reduce graduation rates and increase student loan balances. We extend this literature by isolating the effects of college athletic programs from the influence of students' pre-college characteristics and the cost of education.

2 Data desription

2.1 Sports betting data and Cinderella events

We identify Cinderella events as college football bowl games that beat betting market expectations. Betting markets are particularly valuable in this context because they represent a publicly observable and unbiased forecast of game outcomes that aggregates information from a wide variety of sources, including expert assessments, team statistics, injury reports, and historical performance trends. Prior research in finance and economics frequently relies on betting markets as proxies for ex ante

expectations, following Card and Dahl (2011), given their ability to incorporate information in real time.

To construct our dataset, we collect betting lines and game outcomes from Sportsbook Review and Odds Shark, two widely used repositories of historical wagering data. The betting line represents the number of points by which the favored team is expected to win, which provides us with a clean measure of relative expectations. For instance, if Team A is favored by four points, a bet on Team A pays off only if the team wins by more than four points. If Team A wins by exactly four points, the result is considered a "push" and wagers are refunded. We carefully exclude push games from the analysis to ensure that our definition of unexpected outcomes strictly reflects cases where realized results diverged from expectations.

Between the 2002 and 2019 academic years, we identify 144 Cinderella events. To sharpen our empirical strategy, we categorize universities into treatment and control groups. Treatment universities are those that unexpectedly win a bowl game despite being underdogs by at least four points, while control universities are those that unexpectedly lose despite being favored by at least four points. This threshold is chosen to ensure that the outcome is unlikely to reflect random variation around a balanced line and instead captures a substantial surprise. Table A.1 lists the 75 universities in the treatment group, while Table A.2 lists the 65 universities in the control group.

To contextualize these events, it is worth noting that the bowl system itself carries important institutional significance. Bowl games often take place during the winter break period, which means that campus sentiment builds in anticipation of the event and lingers into the following semester. Media coverage surrounding such games is also disproportionately high compared to regular-season contests, amplifying the cultural salience of a victory or loss. These characteristics make bowl games particularly suitable for studying how sudden changes in athletic success filter through to student outcomes.

2.2 Cohort default rate and earnings after graduation

For each Cinderella event, we collect data on student loan cohort default rates and earnings after graduation for three groups: (i) alumni cohorts who graduated before the event, (ii) incumbent student cohorts who were enrolled at the university during the year of the event, and (iii) Cinderella cohorts who enrolled in the first academic year following the event. The alumni cohorts include students who graduated three years, two years, and one year prior to the event, as well as those who just graduated before the event. The incumbent student cohorts include students who were freshmen, sophomores, juniors, or seniors during the Cinderella event.

We obtain cohort default rate data from the Federal Student Aid office. The period is from academic years 1999 through 2016. A school's cohort default rate is the percentage of its borrowers who enter repayment on Federal Family Education Loans (FFEL) or William D. Ford Federal Direct Loans and default within three years after borrowers enter repayment.[5] For most federal student loans, borrowers enter repayment six months after graduation, withdrawal, or dropping below half-time enrollment.

We obtain data on earnings from Revelio Labs. Revelio Labs compiles unstructured workforce data from publicly available online profiles and job postings. The data contains detailed professional histories of individuals, including information on employment roles, education, skills, gender, ethnicity, salary, seniority, and geographic location. We first identify individuals who belong to the alumni cohorts, incumbent cohorts, or Cinderella cohorts in our sample. For each individual, we collect six years of annual salary data starting from their graduation year. For example, for a student graduating in 2010, we obtain salary data from 2010 through 2016. We require that individuals have at least one year of salary information within the six-year window after graduation in the Revelio database.

[Insert Table 1 here.]

[5]The FFEL loans included subsidized and unsubsidized Federal Stafford Loans. The Direct Loans include Federal Direct Subsidized Stafford/Ford Loans and Federal Direct Unsubsidized Stafford/Direct Loans.

Panel A of Table 1 presents summary statistics on cohort default rates and earnings after graduation. The average student loan default rate is 4.01%, with a standard deviation of 2.63 percentage points. Average earnings in the year of graduation (Year 0) are $50,170, with a standard deviation of $26,690. Earnings increase gradually following graduation. The average salary over the first three years after graduation (Years 0–3) is $56,570, with a standard deviation of $27,480, while the average salary between Years 4 and 6 rises to $67,580, with a standard deviation of $34,490. Panel B of Table 1 reports the distribution of majors in our sample. Among individuals with major information reported in their profiles, the majority studied Business or Engineering during college. Specifically, 36.38% majored in Business, and 28.44% majored in Engineering.

2.3 University characteristics

We collect data on university characteristics from the Integrated Postsecondary Education Data System (IPEDS). Our data include application and admissions statistics, as well as SAT scores, for incumbent student cohorts, Cinderella cohorts, and up to four cohorts following the Cinderella events. We gather information on the number of applicants, admitted students, enrolled students, and the 25th and 75th percentile SAT scores of enrolled students. Panel A of Table 1 reports summary statistics for these university characteristics. On average, universities in our sample receive 19,650 applications per year, admit 10,840 students, and enroll 4,070 students. The average acceptance rate is 62.26%, with a standard deviation of 19.25%, and the average admission yield is 40.16%, with a standard deviation of 12.00%. The average 25th percentile SAT score is 1,077.03, and the average 75th percentile SAT score is 1,293.63.

We also collect data on universities' financial conditions from the IPEDS. On average, universities in our sample generate $1.48 billion in total revenue per year, with a standard deviation of $1.46 billion. The average revenue from tuition and fees is $295.55 million. Average revenues from grants, contracts, and appropriations are $206.49 million from federal sources, $237.39 million from state sources, and $130.79 million from local and private sources, respectively. Universities generate an additional $125.73 million on average from auxiliary enterprises. The average total expense is $1.37

billion per year with a standard deviation of $1.33 billion. On average, universities spend $349.69 million on instruction, $233.83 million on research, and $101.76 million on academic support activities. Average expenses on public service, institutional support, scholarships, and auxiliary enterprises are $76.51 million, $84.85 million, $34.28 million, and $136.55 million, respectively.

3 The Cinderella effect on human capital development

3.1 Student debt outcomes

We begin by examining the causal impact of Cinderella events on student debt outcomes. We estimate the following equation using ordinary least squares (OLS):

$$\begin{aligned} Cohort\ Default\ Rate\ \%_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i \\ + Fixed\ effects + \epsilon_{i,c}, \end{aligned} \tag{1}$$

where i indexes schools and c indexes cohorts. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ are indicators for different student cohorts: those who graduated prior to the Cinderella event, incumbent students (freshman, sophomore, junior, and senior cohorts during the game year), and the Cinderella cohort (students enrolling in the first academic year following the event). The default rate for students who graduated before the Cinderella event serves as the reference group. The coefficients β_s capture the impact of Cinderella events on student loan default rates for incumbent students and the Cinderella cohort. Standard errors are clustered at the school level to account for serial correlation and at the year level to account for cross-sectional correlation.

We further examine the heterogeneous effects of athletic success on student debt outcomes by school type. As suggested by Lindo et al. (2012) and Metcalfe et al. (2019), athletic events are more likely to reduce educational achievement for low-ability students who have the lowest tercile of prior test scores. Students who are less academically prepared before college are more susceptible

to distraction from collegiate athletic success. If athletic events act as a distraction, we expect the Cinderella effect on student debt outcomes to be more pronounced among low-ranked schools.

We estimate Equation 1 separately for each ranking group. Table 2 reports the results. The impact of Cinderella events on student loan default rates is most pronounced among low-ranked schools. Column (1) includes $University$ fixed effects to control for time invariant differences across universities and $Year$ fixed effects to account for time varying shocks in the broader student debt sector. The results show that the default rate for incumbent students increases from senior to freshman cohorts, suggesting that the distraction is most severe for freshmen, who have the longest remaining time in college. This effect is economically meaningful: the default rate for freshman cohorts in treated schools is 1.238 percentage points higher than that for freshman cohorts in control schools, representing approximately 31 percent of the mean default rate in our sample (1.238/4.01). Column (2) includes $University$ fixed effects and $Game\ Pair$ by $Year$ fixed effects, which restrict comparisons to universities that played against each other in the same bowl game in a given year. The results remain consistent.

[Insert Table 2 here.]

The Cinderella cohort at treated schools, who enroll in the first academic year following the event, is also more likely to default on their student loans compared to their counterparts at control schools. The cohort default rate increases by 1.059 percentage points relative to the corresponding cohort at control universities. These results remain robust when controlling for $University$ fixed effects and $Game\ Pair$ by $Year$ fixed effects. This evidence suggests that the distraction from athletic success extends to incoming students, either because they are drawn to the school by the athletic achievement or because the overall campus culture changes in ways that affect them after the Cinderella events.

Consistent with the findings of Lindo et al. (2012) and Metcalfe et al. (2019), we find that athletic success is less likely to affect middle-ranked or high-ranked schools. Columns (3) and (4) of Table 2 show that neither the Cinderella cohort nor the incumbent cohorts at middle-ranked schools exhibit significant changes in student loan default rates. Columns (5) and (6) present the results for

high-ranked schools, where we also find little evidence of changes in default rates for either the freshman cohort or the Cinderella cohort.

The causal interpretation of our estimates relies on the parallel trend assumption. In the absence of Cinderella events, student loan default rates for the treatment and control groups would evolve similarly. To assess this assumption, we estimate Equation 1 by cohort and plot the coefficients β_s. The model includes $University$ fixed effects and $GamePair$ by $Year$ fixed effects. Figure 1 displays the estimated differences in cohort default rates between treated and control universities across cohorts using the graduate cohort as the baseline.

[Insert Figure 1 here.]

The red line in Figure 1 plots the estimates for low-ranked schools. The results show that default rates followed parallel trends prior to the Cinderella events. We find no significant differences in default rates for the 1-year, 2-year, and 3-year alumni cohorts between treated and control groups. In contrast, default rates for the incumbent and Cinderella cohort in the treated group significantly increase relative to the default rate of the control group. For middle- and high-ranked schools, represented by the green and blue lines, there are no significant differences in default rates for the Cinderella cohort or incumbent students relative to the baseline graduate cohort.

One concern is that control schools change after an unexpected loss. Then the estimation is biased because we are using bad controls. To address this concern, we examine whether the results could be driven by the effects of schools' unexpected losses. We plot the average cohort default rate for the low-ranked treated schools and control schools. Figure A.1 shows that the cohort default rate spiked for the incumbent cohorts and Cinderella cohorts at treated low-ranked schools but not cohorts at control schools, suggesting the results are not driven by the losing schools.

3.2 Labor market outcomes

Next, we investigate the mechanism underlying the effects of Cinderella events on student debt default risk. Prior studies suggest that athletic success reduces educational achievement. We

hypothesize that graduates with lower academic achievement are less competitive in the labor market, leading to lower earnings and higher default rates. To test this hypothesis, we examine whether affected students earn less after graduation. We estimate Equation 1 using Poisson pseudo-maximum likelihood (PPML), with the dependent variable defined as the average salary from Year 0 to Year 3 after graduation.

Table 3 presents the results. Columns (1) and (2) report estimates for low-ranked universities. The specification in Column (1) includes $University$ fixed effects and $Game\ Pair$ by $Year$ fixed effects. We find that incumbent students who experience unexpected athletic success earn lower salaries after graduation. Specifically, the freshman cohort earns 1.8 percent less and the Cinderella cohort earns 2.4 percent less after graduation, explaining the higher default risk observed for these cohorts. Column (2) adds $Game\ Pair$ by $Year$ by $Major$ fixed effects, restricting comparisons to students who graduate in the same year, major in the same field, and attend treatment and control universities that played in the same bowl game. The results remain consistent under this stricter identification strategy.

[Insert Table 3 here.]

Incumbent students and Cinderella cohorts at middle-ranked schools also earn less after graduation. The freshman and Cinderella cohorts earn 1.5 percent and 2.3 percent less, respectively, compared to students at control universities. In contrast, high-ranked universities exhibit positive Cinderella effects. As shown in Column (5), the freshman and Cinderella cohorts earn 1.3 percent and 1.9 percent more, respectively, after graduation.

[Insert Figure 2 here.]

We plot the percentage changes in salary outcomes for different cohorts in Figure 2, using the graduate cohort as the benchmark. The results support the parallel trends assumption, as salary outcomes for the treatment and control groups do not differ significantly for the one-year, two-year, and three-year alumni cohorts. In contrast, incumbent students at low-ranked treated schools earn significantly less than their counterparts in the control group, particularly the sophomore and freshman cohorts. Earnings for Cinderella cohorts at treated schools are also significantly lower.

Students at middle-ranked schools experience negative labor market effects, as shown by the green line, while students at high-ranked schools earn higher salaries after graduation, as shown by the blue line. We further examine whether the Cinderella effect on earnings persists in the longer term by testing for differences in average salary from Year 4 to Year 6 after graduation. Figure 3 and Table 4 indicate that the patterns in labor market outcomes persist for at least six years after graduation.

[Insert Figure 3 here.]

[Insert Table 4 here.]

Overall, the results in this section suggest that athletic success can divert students' attention away from academics, particularly for students at low-ranked universities. Incumbent students at low-ranked universities experiencing unexpected athletic success are more likely to default on their student loans, as they are less competitive in the labor market and earn lower salaries after graduation. These effects are not limited to incumbent students but also extend to incoming students, who may be drawn to enroll by the athletic success or influenced by the campus culture.

3.3 The effects of bowl game appearance

To further support our finding that athletic success can be a distraction, we use an alternative identification strategy by examining the effects of bowl game appearance. Most FBS schools play 12 games in the regular season. To be eligible for a college football bowl game, a team generally needs to win at least six games during the regular season. Figure 4 shows that the probability of appearing in a bowl game jumps from close to zero to around 70 percent when a team wins six games. The probability approaches 100 percent when a team wins seven or more games. We compare universities with five or six wins that appear in a bowl game to universities with five or six wins that do not appear in a bowl game. Under the assumption that universities with similar regular-season records are otherwise comparable, the estimated effects on student loan default risk can be attributed to bowl game appearances.

[Insert Figure 4 here.]

We estimate Equation 1 using a sample of schools that win five or six regular-season games, where $Treated_i$ equals one for schools that appear in a bowl game. The other variables are defined as above. Table 5 presents the results. Consistent with the effects of unexpected athletic wins, we find that the freshman and Cinderella cohorts at treated schools are more likely to default on their student loans. In Column (1), which includes $University$ and $Year$ fixed effects, the freshman cohort at treated schools has a 0.711 percent higher default rate than the corresponding cohort at control schools, while the Cinderella cohort has a 0.848 percent higher default rate. Column (2) adds $University$ fixed effects and Game Year $\times$ $Year$ fixed effects, restricting comparisons to treated and control schools with five or six regular season wins in the same event year. The results remain similar. Columns (3) through (6) show little evidence of significant changes in default rate for middle-ranked schools or high-ranked schools. Overall, these findings align with our main results, indicating that athletic success can be a distraction for incumbent students and that such campus culture may also affect incoming students.

[Insert Table 5 here.]

Figure 5 plots the estimated differences in cohort default rates between treated and control universities across cohorts, using the graduate cohort as the baseline. The results indicate that default rates followed parallel trends prior to bowl game appearances. For low-ranked treated schools, default rates for the incumbent and Cinderella cohorts are significantly higher than those in the control group. We also examine the effects of bowl game appearances on short-term labor market outcomes and report results in Figure A.2 and Table A.3. Lower earnings for the incumbent and Cinderella cohorts at low-ranked schools explain their higher default risk.

[Insert Figure 5 here.]

3.4 Robustness

We have shown that athletic success can be a distraction for incumbent students. An alternative explanation is that athletic success attracts students who are more interested in football and less focused on academics. These students may have negative peer effects on incumbent students,

particularly on the freshman cohort. To test this hypothesis, we compare the freshman cohort, which is closer to the Cinderella cohort, with the junior cohort, which is less proximate to the Cinderella cohort but has the same amount of time remaining in college. Specifically, the sample includes two groups: the freshman cohort that takes four years to graduate and the junior cohort that takes six years to graduate. When the bowl game occurs in December or January, both the junior and freshman cohorts have around 3.5 years remaining until graduation. We then test for differences in outcomes between these two cohorts using the following specification:

$$Avg.\ Salary\ (Year\ 0\ to\ Year\ 3)^{u}_{i,c} = \beta_s Freshman_c \times Treated_i + \delta_c Freshman_c + \gamma_i Treated_i + University\ FE + Fixed\ effects + \epsilon^{u}_{i,c}, \quad (2)$$

where $Freshman_c$ is an indicator equal to one for the freshman cohort. The other variables are defined as above. The coefficient β_s measures the impact of Cinderella events on earnings for the freshman cohort relative to the junior cohort, who have the same number of years remaining in college but are less proximate to the Cinderella cohort. If the results are driven by peer effects from the Cinderella cohort, we would expect β_s to be negative, indicating that the freshman cohort earn lower salaries than the junior cohort because they are closer to the Cinderella cohort.

[Insert Table 6 here.]

Table 6 presents the results. We find that earnings for the freshman cohort are not significantly lower than those for the junior cohort, suggesting that peer effects from the Cinderella cohort do not explain our findings. We also conduct the same test using the bowl game appearance specification and find no significant differences in earnings between the freshman and junior cohorts either.

4 The Cinderella effects on universities' applications and financial conditions

The previous section shows that athletic success can be a distraction. In this section, we test whether the large spending on athletic programs can be justified by the advertising effects of athletic success, such as increased applications and alumni donations.

4.1 Application outcomes

We estimate Equation 1 using the PPML estimation. The model includes four pre-event cohorts, the Cinderella cohort, and four post-event cohorts, with the dependent variable being the number of applications received by each university. Using the pre-Cinderella cohorts as the baseline, we estimate percentage changes in application volumes for the Cinderella cohort and subsequent cohorts.

Table 7 presents the results. Column (1) shows that the number of applications for the Cinderella cohort does not change significantly. Next, we estimate Equation 1 using ordinary least squares (OLS), with the dependent variable denoting one of acceptance rate, admission yield, or the 25th and 75th percentile SAT scores. Columns (2) and (3) show no significant changes in acceptance rates or admission yields. Columns (4) and (5) show that Cinderella cohorts exhibit significantly lower SAT scores, particularly at the 75th percentile. Using pre-Cinderella cohorts as the baseline, Column (5) indicates that the 75th percentile SAT score for Cinderella cohorts at treated schools is 10.85 points lower than that for control schools. These findings suggest that Cinderella cohorts are less academically prepared and may be more motivated by a university's athletic success than by academic fit when deciding to enroll.

[Insert Table 7 here.]

Table A.4 reports the Cinderella effects on application outcomes for middle and high-ranked schools. We find that only high-ranked schools experience a significant increase in applications and become more selective following athletic success. Panel B of Table A.4 shows that the number of

applications for cohorts after the Cinderella cohort increases by 8.2 percent, the acceptance rate decreases by 4 percent, and the admission yield increases by 1.6 percent.

4.2 Financial outcomes

Next, we examine whether athletic success affects universities' revenue and expenditure. We estimate the following equation using Poisson pseudo-maximum likelihood (PPML):

$$Y_{i,t} = \beta_s Treated_i \times Post_t + \delta_t Post_t + \gamma_i Treated_i + Fixed\ effects + \epsilon_{i,t},$$

where $Y_{i,t}$ denotes the revenue or expenditure of university i in year t. The variable $Treated_i$ is an indicator equal to one for universities that unexpectedly win a bowl game, and $Post_t$ is an indicator equal to one for years following the Cinderella event. The model uses financial data for the three years preceding the event, the event year, and five subsequent years. As shown in Table 1, college students typically graduate in four years. The five-year post-event window captures the financial conditions of the university when both the freshman and Cinderella cohorts enroll. The coefficients β_s measure the impact of Cinderella events on revenues and expenditures. Standard errors are clustered at the university level to account for serial correlation and at the year level to account for cross-sectional correlation.

[Insert Table 8 here.]

Table 8 presents the results for low-ranked schools. Panel A shows no evidence that Cinderella events significantly affect university revenues. Across various revenue categories, there are no significant changes relative to the control group following the events. Panel B reports the results for university expenditures. Spending across different categories also remains unchanged after Cinderella events, except for a decrease in expenditures on public services.

We also examine whether Cinderella events influence revenues and expenditures for middle-ranked and high-ranked schools. Table A.5 shows that high-ranked schools experience an increase in total revenue following Cinderella events, along with higher expenditures on scholarships. These

changes may help explain the observed improvement in salary outcomes among students at high-ranked schools.

Overall, the evidence suggests that low-ranked universities do not benefit from the advertising effects of athletic success in terms of increasing the applicant pools or generating higher revenues. We find some evidence that high-ranked schools do receive such advertising benefits.

5 Conclusion

This paper provides evidence that unexpected intercollegiate athletic success can disrupt human capital development among students at universities. Unexpected college football bowl game wins generate exogenous changes in incumbent student behavior. We find that incumbent students at low-ranked universities are more likely to default on their student loans and earn less after graduation following shifts in campus sentiment toward athletics.

Such effects also extend to incoming students who enroll in the first academic year following the events. These students are more likely to default on their student loans and earn less after graduation, indicating that campus culture changes after athletic success. Moreover, we find no evidence that low-ranked universities receive more applications, become more selective, or generate higher revenues following athletic success. However, we observe generally opposite results for high-ranked universities. Students at the universities exhibit marginally lower default rates and earn higher salaries. Overall, our results show that athletic success has a heterogenous relationship with academic pursuits, distracting students at low-ranked universities while providing benefits to students at high-ranked universities. In short, (athletic) winners and losers create (academic) winners and losers. These results shed scarce light on the effects of universities on human capital development. Students and universities assortively match, commonly referred to as student ”fit”. We show that university characteristics matter for human capital development apart from fit-driven selection effects.

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Figure 1: The Cinderella effect on student loan default risk

This figure plots the estimates of β_s coefficients from the following OLS regression: $Cohort\ Default\ Rate\ \%_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + University\ FE + Game\ Pair \times Year\ FE + \epsilon_{i,c}$, where i indexes schools and c indexes student cohorts. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate one to three years before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The cohort default rate for the most recent graduates serves as the baseline. The red, green, and blue lines represent estimated changes in default rates for low-ranked, middle-ranked, and high-ranked schools, respectively. Standard errors are two-way clustered at the school and year levels. The bars surrounding each coefficient represent the 5% and 95% confidence intervals.

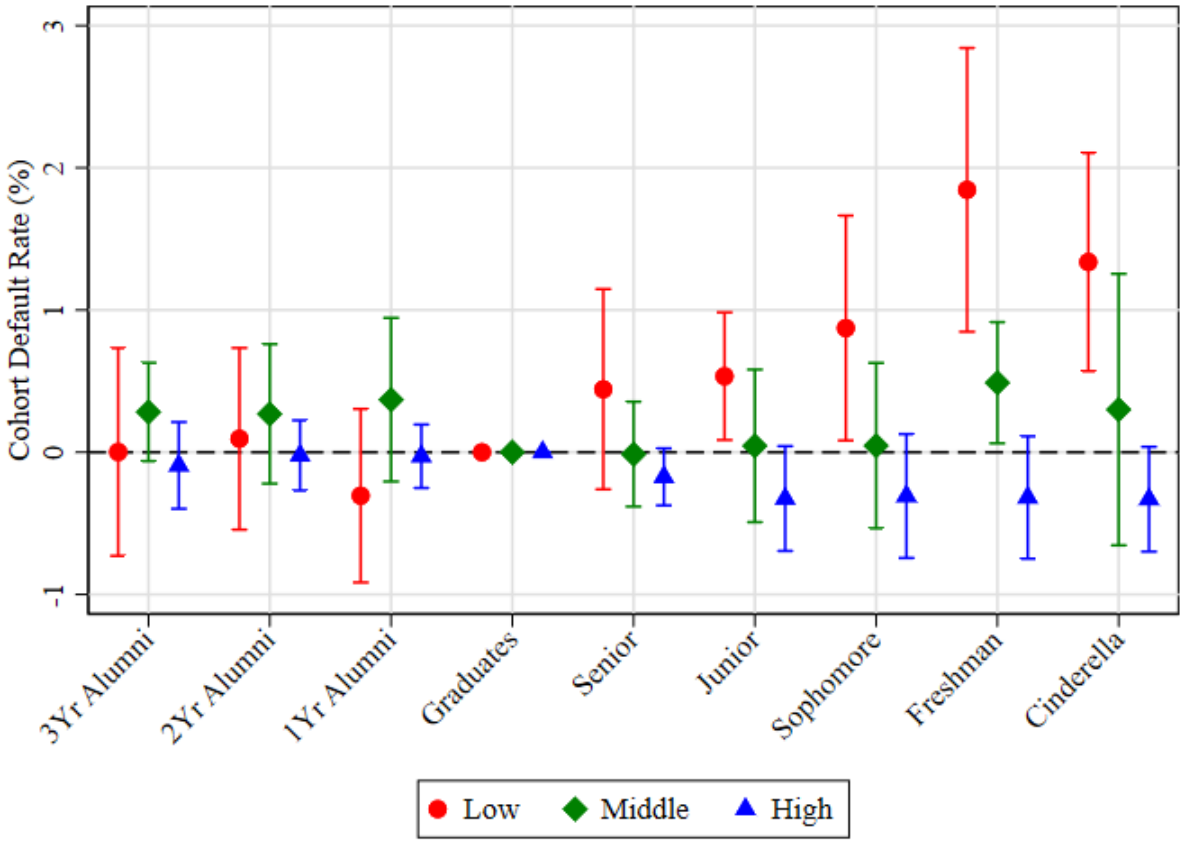


Figure 2: The Cinderella effect on short-term labor market outcomes

This figure plots the estimates of β_s coefficients from the Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 0\ to\ Year\ 3)^u_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + University\ FE + Game \times Year\ FE + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate one to three years before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The earnings for the most recent graduates serve as the baseline. The red, green, and blue lines plot the estimated changes in earnings for low-ranked, middle-ranked, and high-ranked schools, respectively. Standard errors are two-way clustered at the school and year levels. The bars surrounding each coefficient represent the 5% and 95% confidence intervals.

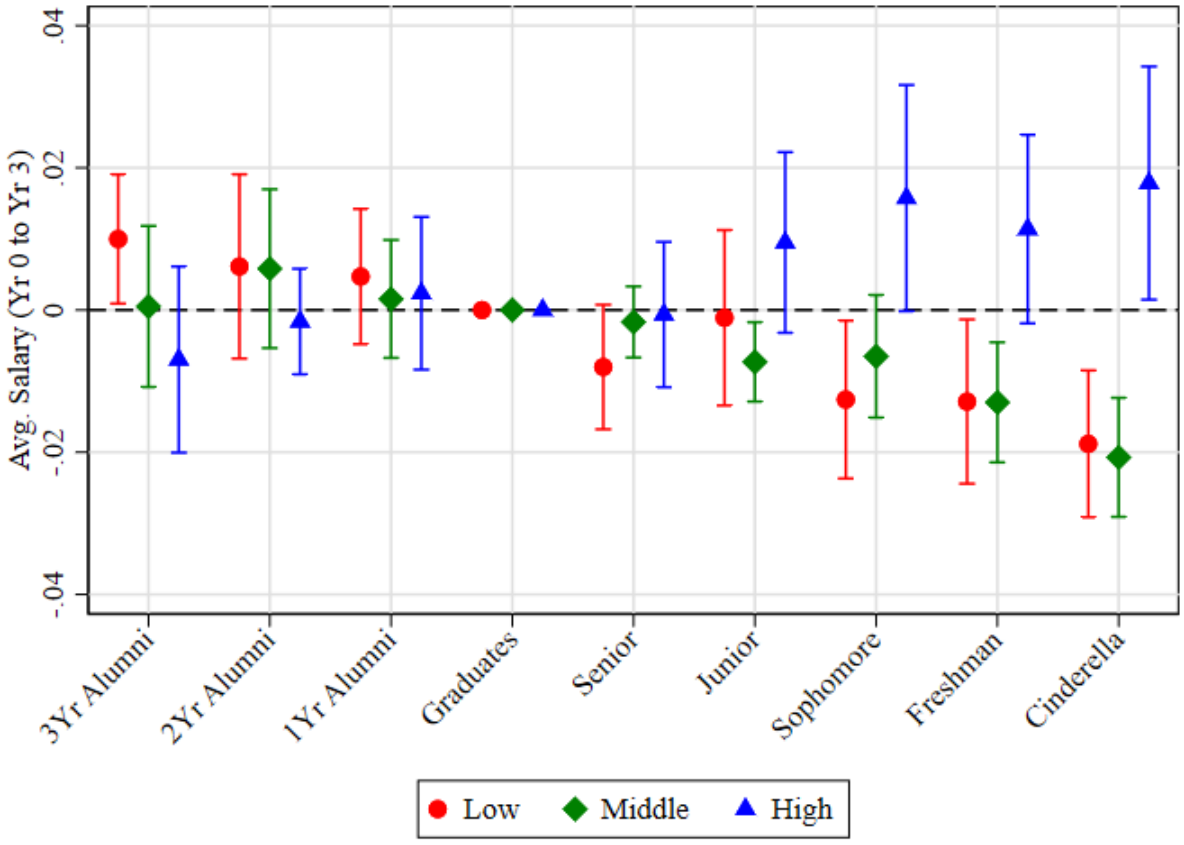


Figure 3: The Cinderella effect on long-term labor market outcomes

This figure plots the estimates of β coefficients from the Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 4\ to\ Year\ 6)^u_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + University\ FE + Game \times Year\ FE + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate one to three years before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The earnings for the most recent graduates serve as the baseline. The red, green, and blue lines plot the estimated changes in earnings for low-ranked, middle-ranked, and high-ranked schools, respectively. Standard errors are two-way clustered at the school and year levels. The bars surrounding each coefficient represent the 5% and 95% confidence intervals.

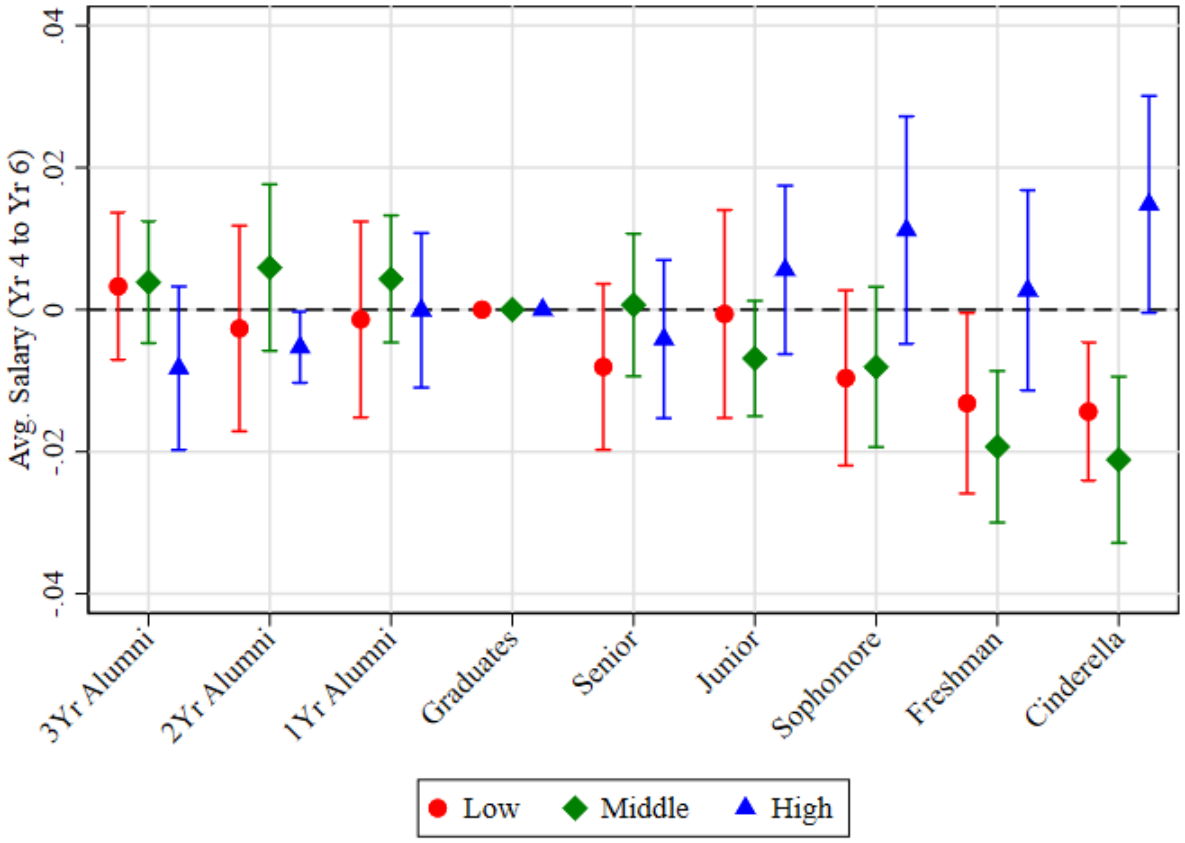


Figure 4: Regular-season wins and bowl game eligibility

This figure shows regular-season winning records and bowl game eligibility. The x-axis represents the number of regular-season wins, and the y-axis indicates the percentage of schools that appeared in a bowl game. The sample is from 2002 to 2019.

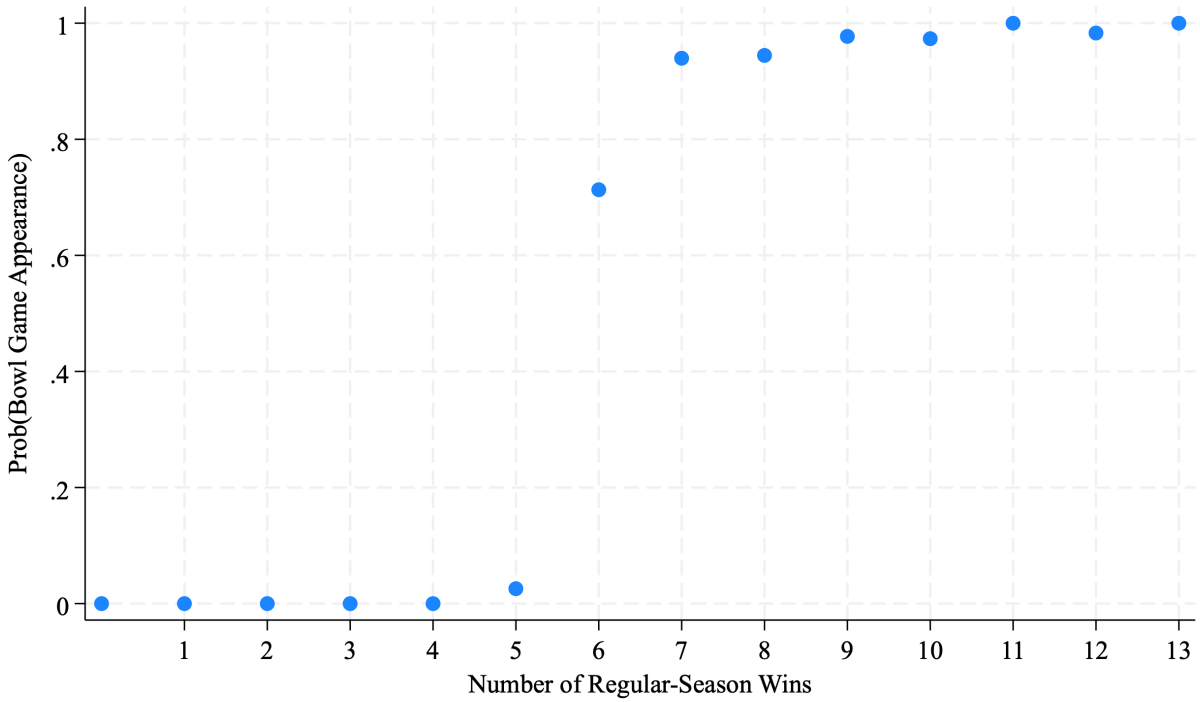


Figure 5: The bowl game effect on student loan default risk

This figure plots the estimates of β_s coefficients from the following OLS regression: $Cohort\ Default\ Rate\ \%_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + University\ FE + Game\ Event\ Year \times Year\ FE + \epsilon_{i,c}$, where i indexes schools and c indexes student cohorts. The sample includes schools that win five or six regular-season games. $Treated_i$ is an indicator equal to one for schools that appear in a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate one to three years before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The cohort default rate for the most recent graduates serves as the baseline. The red, green, and blue lines represent estimated changes in default rates for low-ranked, middle-ranked, and high-ranked schools, respectively. Standard errors are two-way clustered at the school and year levels. The bars surrounding each coefficient represent the 5% and 95% confidence intervals.

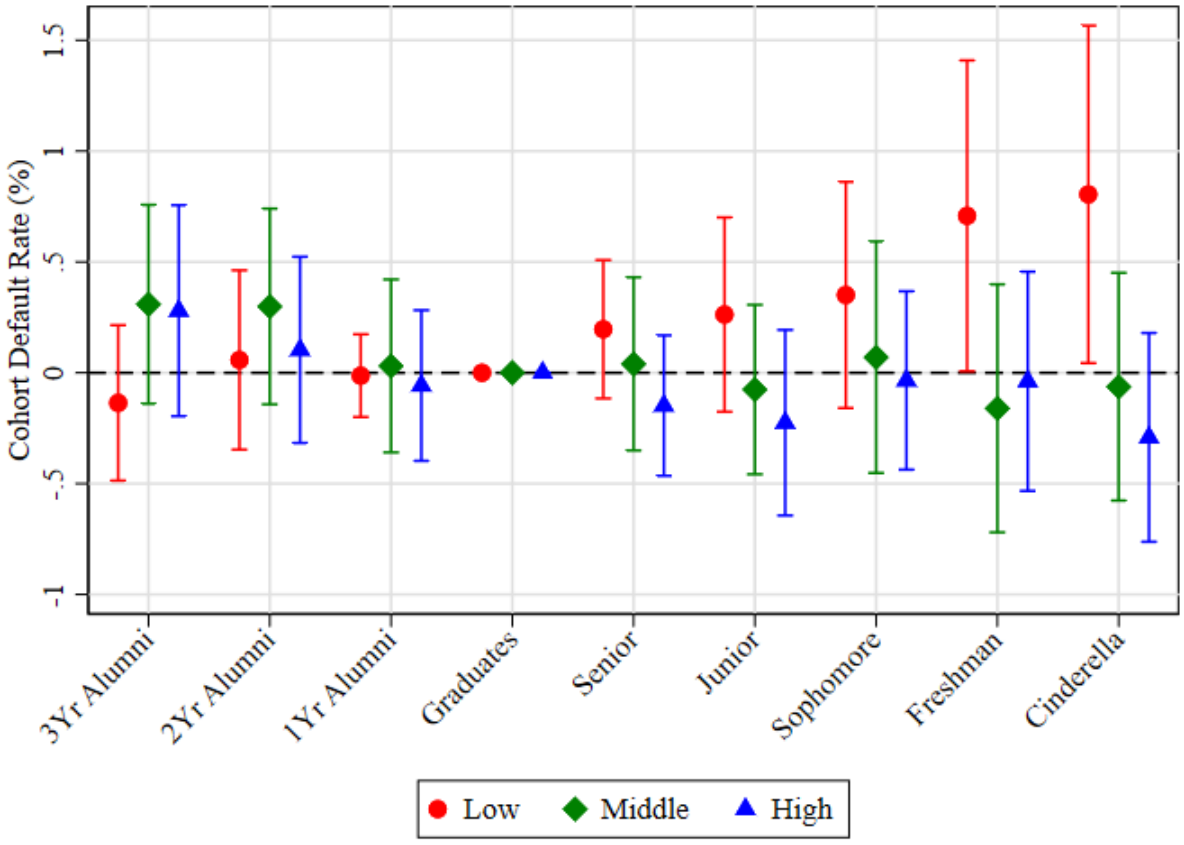


Table 1: Summary statistics

This table provides variable definitions and summary statistics. Panel A reports summary statistics on cohort default rate, earnings, applications, and financial conditions. *Cohort Default Rate (%)* is the percentage of a university's borrowers who enter repayment on Federal Family Education Loans or Direct Loans in a given year and default within three years after entering repayment. *Years of Undergraduate Study* refers to the number of years a student enrolled in an undergraduate program. *Salary (Year 0, T)* and *Salary (Year 1, T)* represent earnings (in thousands) in the graduation year and the first year after graduation, respectively. *Avg. Salary (Year 0 to 3)* and *Avg. Salary (Year 4 to 6)* denote the average earnings (in thousands) between Year 0 to Year 3 and between Year 4 to Year 6 after graduation, respectively. *Applicants (T)*, *Admitted (T)*, and *Enrolled (T)* are the number of first-time undergraduate applicants, admitted students, and enrollees, respectively, measured in thousands. *Acceptance Rate (%)* is calculated as $Admitted/Applicants \times 100$, and *Admission Yield (%)* as $Enrolled/Admitted \times 100$. *SAT25th* and *SAT75th* are the 25th and 75th percentile SAT scores of enrolled students. *Total Revenue (B)* denotes total university revenue, measured in billions. *Tuition (Revenue, M)* is revenue from all tuition and fees for educational purposes, measured in millions. *Federal (Revenue, M)*, *State (Revenue, M)*, and *Local and Private (Revenue, M)* refer to revenues from federal-level, state-level, and local or private-level grants, contracts, and appropriations, respectively. *Auxiliary (Revenue, M)* refers to revenue from auxiliary enterprises such as residence halls, food services, student health services, intercollegiate athletics, college unions, college stores, and movie theaters. *Total Expense (B)* is the sum of all university expenditures, measured in billions. *Instruction (Expense, M)* is the expense for academic instruction, occupational and vocational instruction, community education, preparatory and adult basic education, and remedial and tutorial instruction conducted by the teaching faculty for the institution's students. *Research (Expense, M)* is the spending on activities organized to produce research outcomes. *Academic (Expense, M)* is the expense associated with activities and services that support the institution's primary missions of instruction, research, and public service. *Public Service (Expense, M)* includes spending on non-instructional services such as advisory services, community outreach, and conferences. *Institute Support (Expense, M)* is the expense associated with administrative and operational services such as management, legal, fiscal, space, HR, and public relations. *Scholarship (Expense, M)* is the spending on scholarships and fellowships. *Auxiliary (Expense, M)* refers to spending related to self-supporting campus services, such as residence halls, food services, student health services, intercollegiate athletics, college unions, college stores, faculty and staff parking, and faculty housing. Panel B presents the distribution of undergraduate majors in the sample. All variables are winsorized at the 1st and 99th percentiles.

Panel 1.A - Cohort default rate, applications, and financial conditions

Variable	Obs	Mean	Std. dev.	P25	P50	P75
Cohort Default Rate (%)	1,598	4.01	2.63	2.10	3.40	5.20
Years of Undergraduate Study	3,924,509	3.77	1.04	3.00	4.00	4.00
Salary (Year 0, T)	3,006,804	50.17	26.69	32.19	43.11	60.70
Salary (Year 1, T)	3,342,890	55.37	28.53	35.46	48.59	68.15
Salary (Year 2, T)	3,472,697	58.73	29.98	37.66	52.03	72.33
Salary (Year 3, T)	3,458,163	61.99	31.88	39.51	55.06	76.31
Salary (Year 4, T)	3,378,487	65.14	33.85	41.24	57.96	80.19
Salary (Year 5, T)	3,180,786	68.14	35.80	42.79	60.60	83.88
Salary (Year 6, T)	2,587,454	70.96	37.97	44.12	62.80	87.26
Avg. Salary (Year 0 to 3, T)	3,736,033	56.57	27.48	37.43	50.45	68.84
Avg. Salary (Year 4 to 6, T)	3,507,978	67.58	34.49	43.09	60.54	83.11
Applications (T)	1,828	19.65	11.77	10.96	16.87	25.79
Admitted (T)	1,828	10.84	5.07	6.94	10.20	13.99
Enrolled (T)	1,828	4.07	1.70	2.87	3.89	5.14
Acceptance Rate (%)	1,828	62.26	19.25	50.63	64.02	76.91
AdmissionYield (%)	1,828	40.16	12.00	31.75	38.80	46.00
SAT25th	1,718	1,077.03	123.76	990.00	1,070.00	1,160.00
SAT75th	1,718	1,293.63	110.97	1,220.00	1,290.00	1,360.00
Total Revenue (B)	1,895	1.48	1.46	0.61	0.97	1.77
Tuition (Revenue, M)	1,895	295.55	222.85	146.93	235.93	366.99
Federal (Revenue, M)	1,895	206.49	206.78	68.77	134.77	274.62
State (Revenue, M)	1,895	237.39	173.09	109.82	204.06	321.32
Local and Private (Revenue, M)	1,895	130.73	157.15	33.58	69.46	154.83
Auxiliary (Revenue, M)	1,895	125.73	92.53	63.51	105.11	163.50
Total Expense (B)	1,895	1.37	1.33	0.56	0.93	1.61
Instruction (Expense, M)	1,895	349.69	282.40	174.40	265.30	384.37
Research (Expense, M)	1,895	233.82	237.99	54.64	162.92	311.23
Academic (Expense, M)	1,895	101.76	95.85	43.10	72.03	114.82
Public Service (Expense, M)	1,895	76.51	98.46	15.06	51.93	96.55
Institute Support (Expense, M)	1,895	84.85	68.56	40.43	64.81	101.67
Scholarship (Expense, M)	1,895	34.28	32.27	13.57	24.88	43.64
Auxiliary (Expense, M)	1,895	136.55	100.34	75.54	112.80	179.88

Panel 1.B - Distribution of major

Major	Freq.	Percent
Accounting	63,170	3.4
Architecture	36,179	1.95
Biology	58,477	3.15
Business	675,288	36.38
Chemistry	26,579	1.43
Economics	93,092	5.01
Education	105,673	5.69
Engineering	527,935	28.44
Finance	59,028	3.18
Information Technology	10,974	0.59
Law	7,197	0.39
Marketing	71,318	3.84
Mathematics	28,414	1.53
Medicine	3,850	0.21
Nursing	68,658	3.7
Physics	12,163	0.66
Statistics	8,435	0.45
Total	1,856,430	100.00

Table 2: The Cinderella effect on student loan default rates

This table reports the estimates of β coefficients from OLS regression: $Cohort\ Default\ Rate\ \%_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + Fixed\ effects + \epsilon_{i,c}$, where i indexes schools and c indexes student cohorts. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The default rate for students who graduate before the Cinderella events serves as the baseline. Columns (1) and Column (2), Column (3) and Column (4), and Column (5) and Column (6) report the effects of athletic success for low-ranked, middle-ranked, and high-ranked schools, respectively. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Low	Low	Middle	Middle	High	High
Dept. Variable:	Cohort Default Rate (%)					
Graduates and Alumni×Treated	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Senior×Treated	0.218	0.495	-0.239	-0.244	-0.099	-0.137
	(0.311)	(0.333)	(0.199)	(0.201)	(0.169)	(0.083)
Junior×Treated	0.224	0.587	-0.259	-0.186	-0.184	-0.290**
	(0.325)	(0.339)	(0.161)	(0.229)	(0.128)	(0.135)
Sophomore×Treated	0.623	0.925**	-0.265	-0.184	-0.191	-0.272
	(0.382)	(0.395)	(0.247)	(0.263)	(0.183)	(0.168)
Freshman×Treated	1.238***	1.897***	0.206	0.258	-0.050	-0.282
	(0.337)	(0.503)	(0.258)	(0.213)	(0.216)	(0.164)
Cinderella×Treated	1.059***	1.390***	0.048	0.070	-0.237	-0.295
	(0.364)	(0.319)	(0.443)	(0.458)	(0.196)	(0.178)
Year FE	Yes	No	Yes	No	Yes	No
University FE	Yes	Yes	Yes	Yes	Yes	Yes
Game Pair×Year FE	No	Yes	No	Yes	No	Yes
Observations	990	380	1,131	666	1,071	546
R-squared	0.922	0.961	0.889	0.941	0.916	0.973

Table 3: The Cinderella effect on short-term labor market outcomes

This table reports the estimates of β_s coefficients from Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 0\ to\ Year\ 3)^u_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + Fixed\,effects + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The earnings for students who graduate before the Cinderella events serve as the baseline. Columns (1) and Column (2), Column (3) and Column (4), and Column (5) and Column (6) report the effects of athletic success for low-ranked, middle-ranked, and high-ranked schools, respectively. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Low	Low	Middle	Middle	High	High
Dept. Variable:	Avg. Salary (Year 0 to 3)					
Graduates and Alumni×Treated	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Senior×Treated	-0.013***	-0.013**	-0.004	-0.003	0.001	0.004
	(0.004)	(0.005)	(0.003)	(0.004)	(0.005)	(0.005)
Junior×Treated	-0.006	-0.012	-0.009**	-0.013*	0.011*	0.006
	(0.007)	(0.008)	(0.005)	(0.008)	(0.006)	(0.006)
Sophomore×Treated	-0.018***	-0.023***	-0.008*	-0.000	0.017**	0.025***
	(0.006)	(0.007)	(0.005)	(0.006)	(0.008)	(0.008)
Freshman×Treated	-0.018***	-0.022***	-0.015***	-0.017**	0.013**	0.010
	(0.006)	(0.008)	(0.006)	(0.007)	(0.006)	(0.007)
Cinderella×Treated	-0.024***	-0.026***	-0.023***	-0.025***	0.019**	0.018**
	(0.006)	(0.007)	(0.004)	(0.005)	(0.008)	(0.007)
University FE	Yes	Yes	Yes	Yes	Yes	Yes
Game Pair×Year FE	Yes	No	Yes	No	Yes	No
Game Pair×Year×Major FE	No	Yes	No	Yes	No	Yes
Observations	770,439	357,533	1,483,781	717,763	1,481,813	715,720
Pseudo R-squared	0.036	0.122	0.033	0.116	0.053	0.136

Table 4: The Cinderella effect on long-term labor market outcomes

This table reports the estimates of β coefficients from Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 4\ to\ Year\ 6)^u_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + Fixed\,effects + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. $Treated_i$ is an indicator equal to one for schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The earnings for students who graduate before the Cinderella events serve as the baseline. Columns (1) and Column (2), Column (3) and Column (4), and Column (5) and Column (6) report the effects of athletic success for low-ranked, middle-ranked, and high-ranked schools, respectively. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Low	Low	Middle	Middle	High	High
Dept. Variable:	Avg. Salary (Year 4 to 6)					
Graduates and Alumni × Treated	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Senior×Treated	-0.008	-0.008	-0.003	0.001	-0.001	0.003
	(0.006)	(0.007)	(0.004)	(0.005)	(0.005)	(0.007)
Sophomore×Treated	-0.009*	-0.025***	-0.011**	-0.006	0.014*	0.024***
	(0.005)	(0.008)	(0.005)	(0.007)	(0.008)	(0.008)
Sophomore×Treated	-0.009*	-0.025***	-0.011**	-0.006	0.014*	0.024***
	(0.005)	(0.008)	(0.005)	(0.007)	(0.008)	(0.008)
Freshman×Treated	-0.013**	-0.019***	-0.023***	-0.024***	0.006	0.001
	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)	(0.008)
Cinderella×Treated	-0.014**	-0.019***	-0.025***	-0.025***	0.018***	0.018**
	(0.006)	(0.007)	(0.005)	(0.007)	(0.007)	(0.007)
University FE	Yes	Yes	Yes	Yes	Yes	Yes
Year×Game Pair	Yes	No	Yes	No	Yes	No
Year×Game Pair×Major	No	Yes	No	Yes	No	Yes
Observations	713,568	324,597	1,409,258	671,420	1,385,152	656,185
Pseudo R-squared	0.038	0.113	0.028	0.097	0.047	0.115

Table 5: The bowl game effect on student loan default rates

This table reports the estimates of β coefficients from OLS regression: $Cohort\ Default\ Rate\ \%_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + Fixed\ effects + \epsilon_{i,c}$, where i indexes schools and c indexes student cohorts. The sample includes schools that win five or six regular-season games. $Treated_i$ is an indicator equal to one for schools that appear in a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The default rate for students who graduate before the Cinderella events serves as the baseline. Columns (1) and Column (2), Column (3) and Column (4), and Column (5) and Column (6) report the effects of athletic success for low-ranked, middle-ranked, and high-ranked schools, respectively. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Low	Low	Middle	Middle	High	High
Dept. Variable:	Default Rate (%)					
Graduates and Alumni×Treated	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Senior×Treated	0.184	0.222	-0.165	-0.129	-0.229	-0.239
	(0.183)	(0.204)	(0.159)	(0.156)	(0.147)	(0.174)
Junior×Treated	0.240	0.289	-0.299	-0.245	-0.324*	-0.316
	(0.252)	(0.250)	(0.181)	(0.188)	(0.180)	(0.189)
Sophomore×Treated	0.319	0.377	-0.196	-0.099	-0.210	-0.125
	(0.224)	(0.230)	(0.212)	(0.225)	(0.208)	(0.215)
Freshman×Treated	0.711**	0.734**	-0.357	-0.330	-0.257	-0.129
	(0.286)	(0.279)	(0.233)	(0.253)	(0.242)	(0.253)
Cinderella×Treated	0.848**	0.831**	-0.246	-0.233	-0.440*	-0.382
	(0.333)	(0.330)	(0.224)	(0.233)	(0.237)	(0.244)
Year FE	Yes	No	Yes	No	Yes	No
University FE	Yes	Yes	Yes	Yes	Yes	Yes
Game Year×Year FE	No	Yes	No	Yes	No	Yes
Observations	2,106	2,106	2,153	2,153	2,162	2,162
R-squared	0.890	0.894	0.888	0.891	0.895	0.899

Table 6: Ruling out the peer effect channel

This table reports the estimates of β_s coefficients from Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 0\ to\ Year\ 3)^u_{i,c} = \beta_s Freshman_c \times Treated_i + \delta_c Freshman_c + \gamma_i Treated_i + Fixed\ effects + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. $Freshman_c$ is an indicator equal to one for the freshman cohort. The sample includes two groups: freshman cohorts who take four years to graduate and junior cohorts who take six years to graduate. The earnings for students who graduate before the Cinderella events serve as the baseline. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)
Sample:	Low	
Dept. Variable:	Avg. Salary (Year 0 to 3)	
Junior×Treated	Baseline	Baseline
Freshman×Treated	0.009	-0.031
	(0.025)	(0.029)
University FE	Yes	Yes
Year×Game Pair	Yes	No
Year×Game Pair×Major	No	Yes
Observations	147,126	72,433
Pseudo R-squared	0.076	0.178

Table 7: The Cinderella effect on undergraduate application, acceptance rate, admission yield, and incoming student characteristics

This table reports the estimates of β_s coefficients from the following specification: $Y_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + Fixed\,effects + \epsilon_{i,c}$, where i indexes universities and c cohorts. $Y_{i,c}$ is one of number of applications, acceptance rate, admission yield, 25th percentile SAT score and 75th percentile SAT score. $Treated_i$ is an indicator equal to one for low-ranked schools that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: four pre-event cohorts, the Cinderella cohort, and four post-event cohorts. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Sample:			Low		
Dept. Variable:	Applications	Acceptance Rate (%)	Admission Yield (%)	SAT25th	SAT75th
Cohorts before Cinderella Cohort×Treated	Baseline	Baseline	Baseline	Baseline	Baseline
Cinderella Cohort×Treated	0.037	-1.507	-0.653	-5.494	-10.850**
	(0.033)	(1.400)	(1.153)	(5.200)	(4.923)
Cohorts after Cinderella Cohort×Treated	0.051	-0.143	-1.180	-0.353	-4.511
	(0.055)	(1.683)	(1.275)	(5.119)	(5.721)
University FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	1,146	1,146	1,146	1,077	1,077
Pseudo R-squared	0.961	0.883	0.801	0.969	0.961

Table 8: The Cinderella effect on universities' financials

This table reports the estimates of β_s coefficients from Poisson pseudo-maximum likelihood regression: $Y_{i,t} = \beta_s Treated_i \times Post_t + \delta_t Post_t + \gamma_i Treated_i + Fixed\,effects + \epsilon_{i,t}$, where $Y_{i,t}$ denotes the revenue or expenditure of university i in year t. $Treated_i$ is an indicator equal to one for low-ranked schools that unexpectedly win a bowl game. $Post_t$ is an indicator equal to one for years following the Cinderella event. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Revenue

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Low					
Dept. Variable:	Tuition	Federal	State	Local and Private	Auxiliary	Total Revenue
Treated×Post	-0.053	-0.004	0.032	-0.055	-0.024	-0.006
	(0.034)	(0.031)	(0.039)	(0.055)	(0.030)	(0.023)
University FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,188	1,188	1,188	1,188	1,188	1,188
Pseudo R-squared	0.986	0.989	0.978	0.977	0.962	0.990

Panel B: Expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample:	Low							
Dept. Variable:	Instruction	Research	Academic	Public Service	Institute Support	Scholarship	Auxiliary	Total Expense
Treated×Post	-0.019	-0.016	0.021	-0.112*	-0.021	-0.007	0.006	-0.027
	(0.034)	(0.048)	(0.029)	(0.065)	(0.040)	(0.098)	(0.029)	(0.025)
University FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,188	1,188	1,188	1,170	1,188	1,114	1,188	1,188
Pseudo R-squared	0.991	0.991	0.980	0.962	0.968	0.914	0.972	0.995

Internet Appendix for

Student Debt and the Cinderella Effect

Figure A.1: The average cohort default rate

This figure plots the average cohort default rate for different student cohorts: alumni cohorts who graduate one to three years before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The red dots represent the average cohort default rate for low-ranked treated schools, and the blue dots represent the average default rate for all control schools.

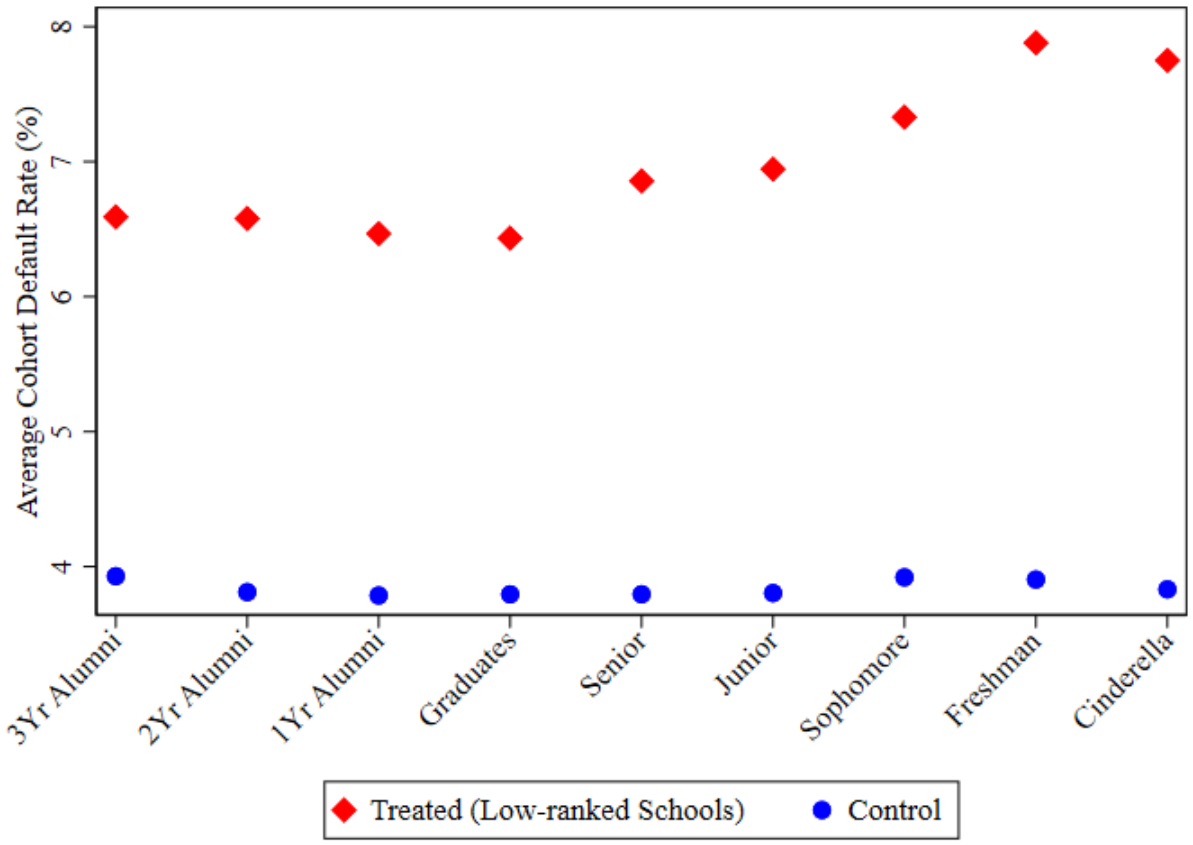


Figure A.2: The bowl game effect on short-term labor market outcomes

This figure plots the estimates of β_s coefficients from the Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 0\ to\ Year\ 3)^u_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + University\ FE + Game \times Year\ FE + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. The sample includes schools that win five or six regular-season games. $Treated_i$ is an indicator equal to one for schools that appear in a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate one to three years before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The earnings for the most recent graduates serve as the baseline. The red, green, and blue lines plot the estimated changes in earnings for low-ranked, middle-ranked, and high-ranked schools, respectively. Standard errors are two-way clustered at the school and year levels. The bars surrounding each coefficient represent the 5% and 95% confidence intervals.

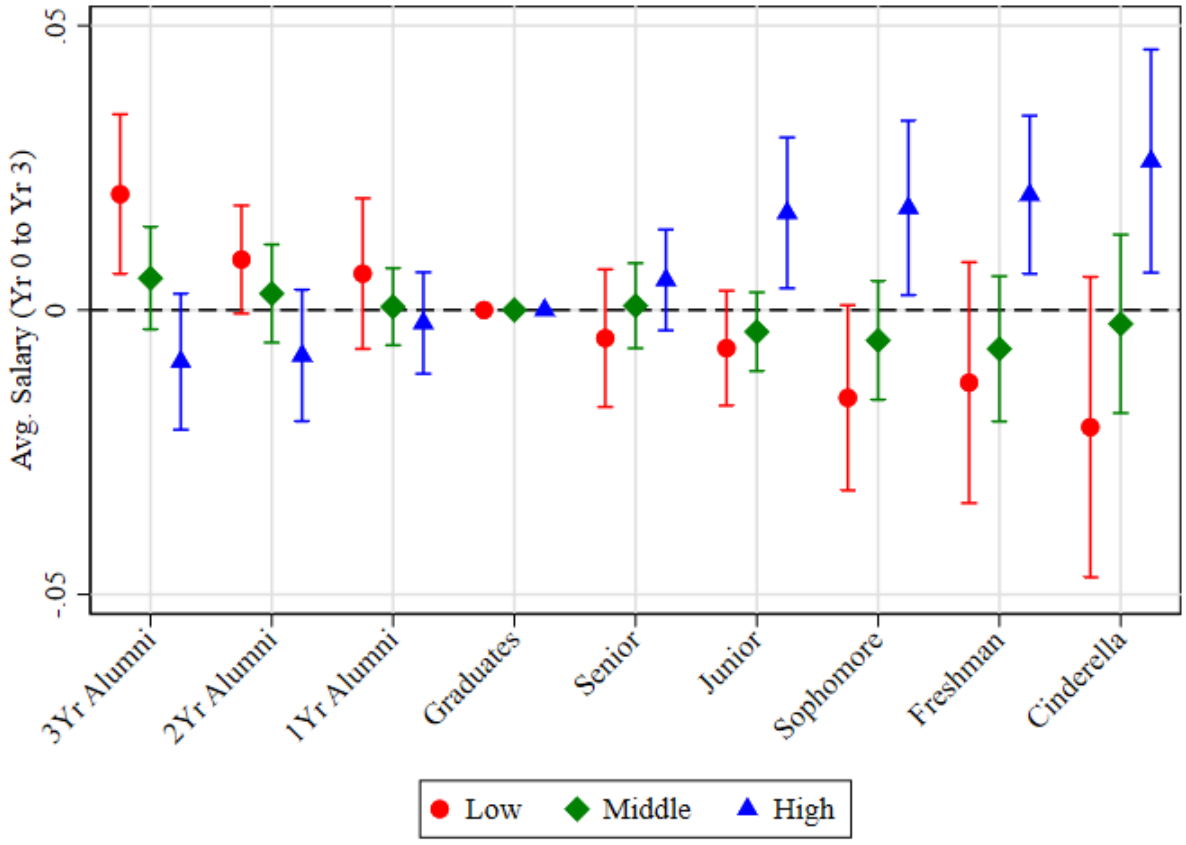


Table A.1: List of unexpected winning schools

This table lists the universities in the treatment group along with their ranking group (low, middle, or high), U.S. News ranking in 2002 (or the 2025 ranking if 2002 data are unavailable), Forbes ranking in 2025, an indicator for R1 school, number of applications (in thousands), acceptance rate for Fall 2018 admission, and 75th percentile SAT score.

Nr.	University	Group	US News Ranking	Forbes Ranking	R1 Schools	Applicants (T)	AcptRate (%)	SAT75th
1	Northwestern University	High	12	11	1	40	8	1550
2	University of Notre Dame	High	19	42	1	20	18	1550
3	Vanderbilt University	High	21	15	1	34	10	1560
4	University of Virginia	High	24	34	1	37	26	1500
5	University of Michigan	High	25	29	1	65	23	1510
6	Wake Forest University	High	26	88	0	13	29	
7	University of Florida	High	30	26	1	39	39	1440
8	University of Wisconsin	High	32	50	1	43	52	1450
9	Boston College	High	38	59	1	31	28	1490
10	Georgia Institute of Technology	High	41	38	1	36	22	1540
11	Ohio State University	High	41	86	1	48	52	1450
12	University of Washington	High	45	44	1	46	49	1460
13	Penn State University	High	46	196	1	53	56	1360
14	Tulane University of Louisiana	High	46	147	1	39	17	1490
15	University of Georgia	High	46	62	1	26	49	1410
16	The University of Texas at Austin	High	48	46	1	51	39	1480
17	Florida State University	High	54	65	1	50	37	1350
18	University of Minnesota	High	54	75	1	43	52	1480
19	Michigan State University	High	63	90	1	33	78	1310
20	University of Connecticut	High	70	85	1	35	49	1420
21	University of Pittsburgh	High	70	143	1	30	59	1430
22	Syracuse University	High	73	108	1	35	50	1370
23	Clemson University	High	80	98	1	29	47	1400

Table A.1: List of Unexpected Winning Schools

Nr.	University	Group	US News Ranking	Forbes Ranking	R1 Schools	Applicants (T)	AcptRate (%)	SAT75th
24	Baylor University	Middle	91	152	1	37	39	1370
25	Southern Methodist University	Middle	91	99	1	13	51	1460
26	University of South Florida	Middle	91	107	1	35	43	1330
27	Florida International University	Middle	98	138	1	19	59	1260
28	University of Iowa	Middle	98	155	1	27	83	1330
29	Auburn University	Middle	105	117	1	21	75	1310
30	Texas Christian University	Middle	105	220	0	20	41	1343
31	San Diego State University	Middle	109	77	1	69	35	1310
32	The University of Tennessee	Middle	109	142	1	20	78	1330
33	University of Oregon	Middle	109	148	1	24	83	1290
34	Arizona State University	Middle	121	109	1	27	85	1360
35	University of Central Florida	Middle	121	110	1	42	43	1340
36	University of South Carolina	Middle	121	163	1	31	63	1360
37	University of Oklahoma	Middle	132	113	1	16	78	1350
38	University of Utah	Middle	136	94	1	23	67	1350
39	University of Houston	Middle	144	115	1	22	62	1310
40	Colorado State University	Middle	148	330	1	24	84	1280
41	University of Kentucky	Middle	152	160	1	19	94	1300
42	University of Nebraska	Middle	152	191	1	15	80	1360
43	Kansas State University	Middle	165	183	1	9	93	
44	University of Hawaii at Manoa	Middle	171	172	1	9	84	1240
45	University of Mississippi	Middle	171	217	1	15	88	1270
46	California State University	Middle	179	185	0	18	58	1120
47	Louisiana State University	Middle	179	139	1	24	74	1290
48	Ohio University	Middle	179		1	23	78	1270
49	University of Idaho	Middle	179	281	1	8	77	1220
50	University of Louisville	Middle	179	252	1	14	72	1290
51	University of Tulsa	Middle	179	307	0	9	41	1410

Table A.1: List of Unexpected Winning Schools

Nr.	University	Group	US News Ranking	Forbes Ranking	R1 Schools	Applicants (T)	AcptRate (%)	SAT75th
52	East Carolina University	Low	189	313	1	17	82	1190
53	Florida Atlantic University	Low	189	188	1	17	59	1240
54	Georgia State University	Low	196	365	1	16	71	1250
55	Oklahoma State University	Low	196	171	1	14	74	1280
56	University of Nevada	Low	204	167	1	10	88	1280
57	Mississippi State University	Low	214	250	1	17	57	1330
58	Texas Tech University	Low	214	205	1	24	71	1240
59	University of North Texas	Low	220	209	1	20	71	1260
60	University of Wyoming	Low	220	189	1	5	96	1280
61	West Virginia University	Low	220	236	1	19	82	1240
62	Kent State University at Kent	Low	231		1	16	85	1210
63	New Mexico State University	Low	244	418	1	10	66	1160
64	Central Michigan University	Low	259	408	0	18	69	1200
65	Boise State University	Low	296	353	0	11	81	1220
66	Louisiana Tech University	Low	296	457	0	7	63	970
67	Marshall University	Low	315		0	5	91	1130
68	Arkansas State University	Low	342		0	5	77	1196
69	Georgia Southern University	Low	342	463	0	12	68	1200
70	University of Southern Mississippi	Low	342		1	9	98	
71	University of Akron Main Campus	Low	377		0	16	69	1250
72	University of Louisiana at Lafayette	Low	377		1	9	56	1250
73	Liberty University	Low	392		0	29	56	1200
74	Appalachian State University	Low		256	0	16	69	1270
75	Troy University	Low			0	7	88	1145

Table A.2: List of Unexpected Losing Schools

This table lists the universities in the control group along with their U.S. News ranking in 2002 (or the 2025 ranking if 2002 data are unavailable), Forbes ranking in 2025, an indicator for R1 school, number of applications (in thousands), acceptance rate for Fall 2018 admission, and 75th percentile SAT score.

Nr.	University	US News Ranking	Forbes Ranking	R1 Schools	Applicants (T)	AcptRate (%)	SAT75th
1	Stanford University	5	2	1	47	4	1570
2	Rice University	12	9	1	21	11	1560
3	University of California	20	5	1	90	15	1530
4	Vanderbilt University	21	15	1	34	10	1560
5	University of Virginia	24	34	1	37	26	1500
6	University of Michigan	25	29	1	65	23	1510
7	University of California	26	13	1	114	14	1520
8	University of North Carolina at Chapel Hill	28	31	1	42	23	1480
9	University of Florida	30	26	1	39	39	1440
10	University of Southern California	34	28	1	64	13	1530
11	Boston College	38	59	1	31	28	1490
12	Georgia Institute of Technology	41	38	1	36	22	1540
13	Ohio State University	41	86	1	48	52	1450
14	University of Washington	45	44	1	46	49	1460
15	Penn State University	46	196	1	53	56	1360
16	Purdue University	46	63	1	54	58	1410
17	University of Georgia	46	62	1	26	49	1410
18	Texas A & M University	48	70	1	36	68	1380
19	Florida State University	54	65	1	50	37	1350
20	University of Minnesota	54	75	1	43	52	1480
21	University of Miami	63	82	1	34	32	1430
22	University of Pittsburgh	70	143	1	30	59	1430
23	Clemson University	80	98	1	29	47	1400
24	Baylor University	91	152	1	37	39	1370
25	Southern Methodist University	91	99	1	13	51	1460
26	University of South Florida	91	107	1	35	43	1330
27	Florida International University	98	138	1	19	59	1260
28	Temple University	98	192	1	36	59	
29	University of Colorado Boulder	98	104	1	37	82	1360
30	Auburn University	105	117	1	21	75	1310
31	Texas Christian University	105	220	0	20	41	1343
32	San Diego State University	109	77	1	69	35	1310

Table A.2: List of Unexpected Losing Schools

Nr.	University	US News Ranking	Forbes Ranking	R1 Schools	Applicants (T)	AcptRate (%)	SAT75th
33	The University of Tennessee	109	142	1	20	78	1330
34	University of Missouri	109	116	1	19	78	1290
35	University of Oregon	109	148	1	24	83	1290
36	Arizona State University	121	109	1	27	85	1360
37	University of South Carolina	121	163	1	31	63	1360
38	University of Oklahoma	132	113	1	16	78	1350
39	University of Utah	136	94	1	23	67	1350
40	University of Houston	144	115	1	22	62	1310
41	Colorado State University	148	330	1	24	84	1280
42	University of Cincinnati	152	245	1	23	73	1370
43	University of Nebraska	152	191	1	15	80	1360
44	Kansas State University	165	183	1	9	93	
45	The University of Alabama	171	182	1	37	59	1280
46	University of Hawaii at Manoa	171	172	1	9	84	1240
47	California State University	179	185	0	18	58	1120
48	Louisiana State University	179	139	1	24	74	1290
49	University of Louisville	179	252	1	14	72	1290
50	Washington State University	189	144	1	23	77	1210
51	Ball State University	204		0	24	65	
52	University of Nevada	204	167	1	10	88	1280
53	Mississippi State University	214	250	1	17	57	1330
54	Texas Tech University	214	205	1	24	71	1240
55	West Virginia University	220	236	1	19	82	1240
56	Central Michigan University	259	408	0	18	69	1200
57	Utah State University	259	237	1	15	89	1290
58	Bowling Green State University	273		0	17	72	1100
59	Middle Tennessee State University	273	404	0	8	94	1240
60	Boise State University	296	353	0	11	81	1220
61	University of Toledo	296		1	11	94	1240
62	Georgia Southern University	342	463	0	12	68	1200
63	University of Louisiana at Monroe	352		0	4	71	
64	Western Kentucky University	377		0	9	97	1190
65	Troy University			0	7	88	1145

Table A.3: The bowl game effect on short-term labor market outcomes

This table reports the estimates of β_s coefficients from Poisson pseudo-maximum likelihood regression: $Avg.\ Salary\ (Year\ 0\ to\ Year\ 3)^u_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + Fixed\,effects + \epsilon^u_{i,c}$, where i indexes universities, c cohorts, and u individuals. The sample includes schools that win five or six regular-season games. $Treated_i$ is an indicator equal to one for schools that appear in a bowl game. $Cohort_c$ includes indicators for different student cohorts: alumni cohorts who graduate before the event and the most recent graduates; incumbent students (freshman, sophomore, junior, and senior cohorts during the Cinderella event); and the Cinderella cohort who enroll in the next academic year following the event. The earnings for students who graduate before the Cinderella events serve as the baseline. Columns (1) and Column (2), Column (3) and Column (4), and Column (5) and Column (6) report the effects of athletic success for low-ranked, middle-ranked, and high-ranked schools, respectively. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Low	Low	Middle	Middle	High	High
Dept. Variable:	Avg. Salary (Year 0 to 3)					
Graduates and Alumni×Treated	Baseline	Baseline	Baseline	Baseline	Baseline	Baseline
Cinderella×Treated	-0.029**	-0.026***	-0.005	0.001	0.031***	0.024***
	(0.014)	(0.010)	(0.009)	(0.006)	(0.011)	(0.007)
Freshman×Treated	-0.021*	-0.021**	-0.009	-0.005	0.025***	0.016**
	(0.011)	(0.009)	(0.008)	(0.005)	(0.009)	(0.007)
Sophomore×Treated	-0.024***	-0.018**	-0.007	-0.003	0.023***	0.019***
	(0.009)	(0.007)	(0.006)	(0.005)	(0.009)	(0.007)
Junior×Treated	-0.015***	-0.014***	-0.006	-0.002	0.022***	0.018***
	(0.006)	(0.005)	(0.004)	(0.004)	(0.007)	(0.006)
Senior×Treated	-0.013**	-0.012**	-0.001	0.005*	0.010*	0.010*
	(0.006)	(0.005)	(0.004)	(0.003)	(0.006)	(0.006)
University FE	Yes	Yes	Yes	Yes	Yes	Yes
Game Year×Year FE	Yes	No	Yes	No	Yes	No
Game Year×Year FE×Major	No	Yes	No	Yes	No	Yes
Observations	3,893,250	1,815,829	4,480,556	2,070,042	4,290,963	2,015,606
Pseudo R-squared	0.058	0.140	0.052	0.133	0.063	0.146

Table A.4: The Cinderella effect on undergraduate application, acceptance rate, admission yield, and incoming student characteristics

This table reports the estimates of β_s coefficients from the following specification: $Y_{i,c} = \beta_s Cohort_c \times Treated_i + \delta_c Cohort_c + \gamma_i Treated_i + University\ FE + Year\ FE + \epsilon_{i,c}$, where i indexes universities and c cohorts. $Y_{i,c}$ is one of the number of applications, acceptance rate, admission yield, 25th percentile SAT score, and 75th percentile SAT score. $Treated_i$ is an indicator equal to one for middle-ranked schools (Panel A) or high-ranked schools (Panel B) that unexpectedly win a bowl game. $Cohort_c$ includes indicators for different student cohorts: four pre-event cohorts, the Cinderella cohort, and four post-event cohorts. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Sample:	Panel A: Middle				
Dept. Variable:	Applications	Acceptance Rate (%)	Admission Yield (%)	SAT25th	SAT75th
Cohorts before Cinderella Cohort×Treated	Baseline	Baseline	Baseline	Baseline	Baseline
Cinderella Cohort×Treated	-0.026	1.381	-0.310	-1.276	-0.364
	(0.034)	(1.379)	(0.733)	(2.638)	(3.575)
Cohorts after Cinderella Cohort×Treated	0.021	-0.681	-0.762	0.079	-1.585
	(0.025)	(1.198)	(0.721)	(4.589)	(4.286)
Observations	1,282	1,282	1,282	1,203	1,203
R-squared	0.956	0.885	0.836	0.968	0.961
Sample:	Panel B: High				
Dept. Variable:	Applications	Acceptance Rate (%)	Admission Yield (%)	SAT25th	SAT75th
Cohorts before Cinderella Cohort×Treated	Baseline	Baseline	Baseline	Baseline	Baseline
Cinderella Cohort×Treated	0.013	-1.119	0.835	-1.515	-0.672
	(0.030)	(1.293)	(0.647)	(4.612)	(4.543)
Cohorts after Cinderella Cohort×Treated	0.082**	-3.994**	1.684**	-4.176	-0.658
	(0.035)	(1.561)	(0.781)	(4.138)	(3.915)
Observations	1,222	1,222	1,222	1,161	1,161
R-squared	0.949	0.907	0.851	0.966	0.964

Table A.5: The Cinderella effect on universities' financials

This table reports the estimates of β_s coefficients from Poisson pseudo-maximum likelihood regression: $Y_{i,t} = \beta_s Treated_i \times Post_t + \delta_t Post_t + \gamma_i Treated_i + University\ FE + Year\ FE + \epsilon_{i,t}$, where $Y_{i,t}$ denotes the revenue or expenditure of university i in year t. $Treated_i$ is an indicator equal to one for middle-ranked (Panel A and Panel B) or high-ranked (Panel C and Panel D) schools that unexpectedly win a bowl game. $Post_t$ is an indicator equal to one for years following the Cinderella event. The standard errors are two-way clustered at the school and year levels. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Revenue (Middle-ranked schools)

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Middle					
Dept. Variable:	Tuition	Federal	State	Local and Private	Auxiliary	Total Revenue
Post×Treated	-0.019	0.009	0.042*	-0.033	0.029	0.028
	(0.019)	(0.023)	(0.023)	(0.025)	(0.023)	(0.017)
Observations	1,329	1,329	1,329	1,329	1,329	1,329
Pseudo R-squared	0.982	0.985	0.976	0.971	0.959	0.987

Panel B: Expenditure (Middle-ranked schools)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample:	Middle							
Dept. Variable:	Instruction	Research	Academic	Public Service	Institute Support	Scholarship	Auxiliary	Total Expense
Post×Treated	0.005	-0.011	0.030	-0.015	0.012	-0.015	-0.015	0.019
	(0.013)	(0.022)	(0.025)	(0.063)	(0.031)	(0.043)	(0.022)	(0.015)
Observations	1,329	1,329	1,329	1,303	1,329	1,221	1,329	1,329
Pseudo R-squared	0.987	0.989	0.975	0.963	0.953	0.900	0.970	0.992

Table A.5: The Cinderella effect on universities' financials

Panel C: Revenue (High-ranked schools)

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	High					
Dept. Variable:	Tuition	Federal	State	Local and Private	Auxiliary	Total Revenue
Post×Treated	-0.011	-0.002	0.013	-0.041	0.031	0.023*
	(0.022)	(0.007)	(0.024)	(0.028)	(0.022)	(0.012)
Observations	1,272	1,272	1,272	1,272	1,272	1,272
Pseudo R-squared	0.982	0.984	0.982	0.974	0.946	0.980

Panel D: Expenditure (High-ranked schools)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sample:	High							
Dept. Variable:	Instruction	Research	Academic	Public Service	Institute Support	Scholarship	Auxiliary	Total Expense
Post×Treated	-0.004	-0.008	0.007	-0.014	0.001	0.076*	0.012	0.024*
	(0.014)	(0.016)	(0.031)	(0.047)	(0.029)	(0.042)	(0.022)	(0.014)
Observations	1,272	1,272	1,272	1,233	1,272	1,167	1,272	1,272
Pseudo R-squared	0.982	0.988	0.977	0.957	0.958	0.932	0.961	0.985