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**Universities Behaving Badly:
The Impact of Athletic Malfeasance on
Student Applications and Enrollment**

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Abstract: Collegiate sports programs are often characterized as the front porch of a university, serving to publicize the institution and draw students to the door. We analyze if athletic malfeasance, as measured by NCAA postseason tournament bans of men's basketball, negatively affects either the quantity or quality of student applications or enrollment. Our findings suggest that athletic malfeasances that result in postseason tournament bans lowers both the quantity and quality of students enrolling at the infracting university. Our results demonstrate that impropriety by an athletics program serves as signal to prospective students regarding the overall quality of the university.

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"Athletics truly is a front porch to the University. It is not the most important room in the house but it is the most visible and what comes with that is opportunity and responsibility." --Scott Barnes (University of Pittsburgh Athletic Director 2015)

Introduction

University athletic programs are uniquely situated to serve as a visible and accessible liaison between a school and the general public. Since it can be difficult for people outside a university to discern if an institution is being managed or operated efficiently, members of the public could view a school's athletic successes or failures as a measure regarding the overall quality of a college. This association between sports and education helps to explain why institutions of higher learning invest significant monetary resources in athletics as opposed to more traditionally academic endeavors. Furthermore, Jacob et al. (2018) found that students place a high value on consumption amenities, such as sports, student activities, and dormitories. In their view, universities also serve as country clubs that not only provide academics, but also use consumption amenities to entice students to attend as well.

The purpose of our study is to examine the impact of athletic malfeasance on a university's student academic profile. In the past, there have been multiple studies (discussed in the next section) that illustrate how athletic successes lead to increases in the quality and quantity of applicants in the overall student body. Our findings indicate that there is a negative effect on the student profile when bad events occur. We find that when gross malfeasance in an athletic program is detected, which ultimately leads to the imposition of an NCAA men's basketball postseason tournament ban, a negative impact occurs on both the quantity and quality of students choosing to attend a university.

Related Literature

Most of the related literature on this topic has focused on the influence of athletic success on student enrollment. One of the earliest works in this area, McCormick and Tinsley (1987), used a 1971 to 1984 data set consisting of quartiles of SAT scores of applicants from sixty-three schools they considered to have “big-time” football programs. For these schools, they found a positive correlation between a winning football season and an increase in the incoming year’s freshman SAT scores. Murphy and Trandel (1994) found that “improvement in a school’s football winning record appears to boost a school’s advertising in a way that produces an increase in the number of applicants to that school.”

Toma and Cross (1998) analyzed the effects of winning a NCAA National Championship in football or men’s basketball on the number of applications submitted to a school. Their study was the first to claim that college athletics are a “front-door” to a university because sports are the only aspect of an institution that reach outside the academic world. They found a significant positive increase in applications after a National Championship win. Later, McEvoy (2005) analyzed data from sixty-two Division I-A schools in the six major NCAA conferences from 1994 to 1998. In their study they also found a positive correlation between win percentages and total number of applicants to a school.

Pope and Pope (2008) measured athletic success in terms of playoff berths. Using a sample of 330 universities from 1983 to 2002, Pope and Pope found that a school’s success in football or men’s basketball is often accompanied by an increase of 2% to 8% in applications received. Then focusing on the SAT scores of these applicants, they found that the increase was comprised of both low and high scoring applicants, allowing schools to be more selective in the makeup of their incoming freshman class.

The following year, Jones (2009) studied NCAA Football Bowl Games from 2002 to 2008 and found that simply appearing in a Bowl Game caused an increase in applications received and admission yield, but only for male students. Additionally, Jones found that the applications received and admission yield for both male and female students were positively correlated with the Nielsen Rating of the Bowl Game.

Hansen (2010) analyzed athletic success and its accompanied media exposure on prospective students' college choice decisions. Hansen used a stated preference survey to gather information from the 2009 freshman class at Texas Tech, measuring the effect of the previous season's athletic performance on college choice decision. While the study resulted in a significant correlation between past athletic performance and college choice preference, the survey is limited to Texas Tech and a single freshman class.

Li, Regas, and Kander (2012) suggested that athletic success should be defined by using a ranking system known as the Athletic Directors' Cup Standing. This measurement attempted to rank colleges and universities on overall athletic achievement rather than success in a specific sport. Their study focused on the optimal allocation of funds to achieve a high ranking in the Athletic Directors' Cup Standing, making a compelling argument for using this system for measuring institutional athletic success. Segura and Willner (2016) used an exclusive measure of athletic success by focusing on football Bowl Game invitations. They found that Bowl Game invitations served to increase the median SAT scores at the participating universities. Additionally, their study found that regular season wins had little effect on admissions, but the advertising effect from a FBS Bowl Game increased total number of applications and median SAT scores of those applicants by 8-21 points.

Lastly, Smith (2009) posited that positive changes in student quality are not attributable to wins or other commonly used measures of athletic success. Instead he argued that increases in student quality are a function of the sports culture and tradition surrounding a school. This study claims that the advertising effect from on-field success is minimal when compared to non-athletic indicators. Smith found that prolonged success in athletics is much more beneficial for a university than a single upset win or acute advertising effects from playoff berths or bowl games. The contention here is that continued athletic success leads to a more solid sports culture and therefore a higher perceived quality of the institution.

The literature in this area of study overwhelmingly suggests that athletic success positively influences both the quantity and quality of students at a university. To our knowledge only Smith (2015) has analyzed the influence of athletic malfeasance on a university's academic profile. In his study, Smith measured the effect that NCAA sanctions levied against a football program had on student applications and found no significant change in number of applications received by a school. He concluded his study by stating, "Overall, the results suggest that colleges and universities suffer little economic or reputational damage when their athletic programs are penalized for violating Association rules." Our research, however, differs from Smith by focusing on basketball instead of football sanctions, and by analyzing the effects of those sanctions not only on student applications, but also on student admission and enrollment. Additionally, instead of including all potential categories of NCAA sanctions in this study, our research focuses solely on men's basketball postseason tournament bans.

Methods and Results

To test the impact of athletic malfeasance on a university as measured by NCAA men's postseason basketball tournament bans, we use data from 119 Division I men's basketball programs from 2000 to 2013 for a fourteen year panel. We identify the postseason tournament bans using a dummy variable equal to one if a school received an NCAA tournament ban during the postseason. A basketball tournament ban occurs when an athletics program at a university egregiously violates one of the rules outlined in the NCAA Division I Manual (NCAA rules). During the fourteen year period of our study, only nine Division I men's basketball postseason tournament bans occurred. The schools sanctioned with postseason tournament bans are listed in Table 1 along with the year of the ban. Although only a few universities (seven percent of the schools studied) received postseason tournament bans in men's basketball, the following section demonstrates that the impact of athletic malfeasance leading to a postseason tournament ban can be quite detrimental for these institutions.

Postseason tournament bans are generally levied from one to several years after the NCAA has detected gross athletic malfeasance at a university. Barnhart (2012) outlined four stages that are part of a major infractions case brought by the NCAA against a university. The first stage involves investigating the infraction, the second is charging of the athletic program, the third is a hearing conducted by the NCAA Committee of Infractions (COI), and finally a deliberation phase during which the CIO can impose sanctions. Given the due process protections afforded by the NCAA to a university, the lag between the detected malfeasance and the subsequent ban can be substantial. The types of malfeasance that are considered major infractions that have led to tournament bans include academic fraud, improper payments to student athletes, recruitment violations, illicit drug violations, and loss of institutional control.

Since the detection, and normally the publication, of the alleged athletic impropriety occurs before the imposition of the sanction, we include two lead variables in our analysis to measure the influence of the detected malfeasance on both the quality and quantity of students at a university that might occur before the ban is officially implemented. We also include two lag variables after the ban to measure if the detected malfeasance has a lasting effect on the university.

To control for team quality, we include the win percentage, along with the post season tournament ban data statistics, as our independent variables. For our dependent variables we use data from the NCAA and the Peterson Undergraduate Data Set, which provides our measure of both male and female freshman applications, admissions, and enrollment. We also examine the student quality at these universities by the percentage of the incoming freshman class that were in the top ten percent, top twenty-fifth percent, and the top fiftieth percent of their high school class as well as the high school grade point average of the incoming freshman class.

Using a fixed effect regression technique to control for differences between universities and differences over time, we analyze how gross athletic malfeasance leading to an NCAA men's basketball tournament ban influences applications, admissions, and enrollment as well as both the quality of students enrolled at these schools. The model we estimate is:

$$Y_{it} = \beta_1 \text{lead2Ban} + \beta_2 \text{leadBan} + \beta_3 \text{Ban} + \beta_4 \text{lagBan} + \beta_5 \text{lag2Ban} + B_i \text{University} \\ + B_t \text{Time} + \varepsilon$$

We report the means and standard deviation of both the dependent and independent variables in Table 2. The average basketball win percentage at the schools was .562. The average number of student applications were 6,360 men and 7,086 women. The average number of freshman admitted were 3,644 males and 4,275 females, and the average number of freshman

enrolled were 1,554 males and 1,716 females. In our analysis to account for differences in size between the universities, we log the number of applications, admissions, and enrollment. In terms of measuring student quality, we find that 34% of freshman enrolled came from the top ten percent of their high school class, 58% of freshman from the top twenty-five percent of their high school class, and 79% come from the top fifty percent of their high school class. We also find that the mean grade point average of enrolled freshman was 2.57.

We report our results of basketball tournament bans on students in Tables 3 through 5. In Table 3, we report the influence of athletic impropriety leading to a tournament ban on male applications, acceptance rates, and enrollment. To help clarify our results, we convert the coefficient on the log variable to a percentage. Our results show that postseason basketball bans lower male applications by 17% two years before the ban, 13% one year before the ban, and 9% the year of the ban; however, the ban appears to have no lasting impact on these figures in the two years following the ban. A postseason basketball ban also lowers male admittance to a university by 14% two years before the ban, 12% one year before the ban, and 11% the year of the ban with no significant effect after the ban. Lastly for males, the ban lowers male enrollment by 7% the year before the ban and 6% the year of the ban with no significant influence after the ban.

Our results demonstrate that athletic malfeasance, which ultimately leads to a postseason tournament ban in men's basketball, significantly lowers the number of male applications, admittances, and enrollment at the sanctioned university. Further, our results show that the largest negative effect of this malfeasance is on male applications, which shrinks the pool of applicants a university can choose to admit and enroll. Given the smaller pool of applicants available to the university, the institution then generally elects to admit and enroll fewer male

students. At the mean level of enrollment, a decrease of six and seven percent translates into a freshman class including on average 93 fewer male students the year before the ban and 109 fewer male students the year of the ban.

In Table 4 we report the influence of an NCAA postseason tournament ban on female applications, acceptance rates, and enrollment. For females we find that athletic malfeasance culminating in a postseason tournament ban lowers female applications by 18% two years before the ban, 12% one year before the ban, and 10% the year of the ban with no significant influence after the ban. In addition, the ban lowers female admittance to a university by 13% two years before the ban, 9% one year before the ban, and 10% the year of the ban. The ban also lowers female enrollment 7% the year before the ban.

Our results suggest that athletic malfeasance as measured by a postseason tournament ban in men's basketball profoundly reduces female freshman applications, admittance rates, and enrollment at a sanctioned university the years preceding the ban but not the years following the ban. The results on female applications, admittances, and enrollment are about the same magnitude for males and follow the same pattern, with the biggest effect on applications and the smallest on enrollment. The only significant difference between the male and female statistics presented indicates there is no change in female enrollment the year of the ban, while there is for males. In terms of magnitude, evaluated at the mean level of enrollment, a decrease in enrollment of seven percent translates into a freshman class including on average 120 fewer female students the year before the ban..

In Table 5, we report the results of how a postseason men's basketball ban can affect the quality of freshman enrolled at a university. Our results show that athletic malfeasance leading to a postseason tournament ban lowers the number of enrolled students from the top 10% of their

high school class by 14% in the year of the ban, 7% the year after the ban, and 6% two years after the ban. We also find that bans lower the number of enrolled students from the top 25% of their high school class by 18% the year of the ban. Lastly, in terms of student quality we find that bans lower the number of enrolled students from the top 50% of their high school class by 21% the year of the ban, and lowers the enrolled students' average high school GPA by .53 two years after the ban. Unlike the results pertaining to the quantity of students, where the influence of the malfeasance occurred before and during the tournament ban years, the influence of the malfeasance has a lasting effect on student quality even in the years after the postseason ban occurs. Our results are consistent with the supposition that prospective students use athletics as a signal for university quality. Given that high academically achieving students are sought after by many universities, the detected malfeasance of an infracting sports program could serve as a signal to these high academically achieving students to choose another university given their large choice set of universities available.

Overall, our results indicate that gross malfeasance in a men's basketball program that leads to a postseason tournament ban lowers both the quantity and quality of male and female students enrolling in the school, with a more lasting influence on student quality. When compared to athletic successes, our results are much greater in magnitude. For instance Pope and Pope (2008) found that athletic success increased applications by two to eight percent. We find that a postseason tournament ban in men's basketball lowers male applications up to seventeen percent and females up to eighteen percent. Although these findings are profound, there are studies that show a negative effect can actually be more significant and profoundly detrimental than the gain effectuated from a positive outcome (Kahneman and Tversky 1979). We suggest that just like loss aversion, a negative signal of university quality as measured by a postseason

tournament ban, has a greater impact than the positive signal of university quality as measured by athletic success. Furthermore, because postseason tournament bans in men's basketball are rare, this negative signal of university quality could provide a greater weight in the decision process for prospective students.

Discussion and Conclusion

In their article, "The National Collegiate Athletic Association Cartel: Why it Exists, How it Works, and What It Does," Sanderson and Siegfried (2018) posit the question: "How have over 100 of the top 128 athletics departments persuaded their university presidents and trustees to continue devoting scarce general funding to intercollegiate sports? When these institutions incur financial losses on athletics, universities seem to double down, spending even more on salaries for coaches and improving physical facilities, rather than viewing losses as a signal to redeploy assets and efforts."

Sanderson and Siegfried (2018) offer three answers to the above question: first, intercollegiate athletics might attract greater appropriations from state legislators; second, intercollegiate athletics may boost private donations; and third, high-profile sports programs, like other campus amenities, may attract more applicants and thus additional enrollment. Using Peterson's Undergraduate Data Set, coupled with NCAA's data on men's basketball wins, losses, and tournament bans, we empirically address the impact of athletic malfeasance, as measured by tournament bans, on the quantity and quality of student applications, admissions and enrollment. We indeed find that athletics matters to both to both the quantity and quality of students the university attracts.

The results of our study demonstrate that athletic malfeasance leading to an NCAA postseason tournament ban in men's basketball has a significant reduction to both the quantity

and quality of students opting to attend the sanctioned university. Given the negative media attention surrounding a postseason tournament ban, these events may serve as a signal to prospective students regarding the overall quality of the university, which in turn could lead the most qualified students to seek other institutions of higher learning. Our results show that malfeasance in college athletics not only negatively affects the sports team, but can also have significant effects on non-athlete students and the university as a whole. If collegiate athletics departments abuse NCAA basketball regulations, the result can be a decrease in more academically achieving students attending the university. Ultimately, our study demonstrates that university athletics are indeed the front porch to a university leading students to the door to enroll.

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Table 1: List of NCAA Men's Basketball Tournament Bans

University	Year of Ban
Baylor University	2004
Fresno State University	2003
Fresno State University	2006
University of Georgia	2003
University of Michigan	2003
New Mexico State University	2001
The Ohio State University	2005
University of Nevada Las Vegas	2001
University of Southern California	2010

Table 2: Means

Independent Variables	Mean (Standard deviation)
Basketball Win Percentage	.562 (.168)
Basketball Tournament Bans	.0055 (.074)
Dependent Variables	Means (Standard deviation)
Male Application	6360 (4328)
Female Application	7086 (4890)
Male Admissions	3644 (2231)
Female Admissions	4275 (2586)
Male Enrollment	1554 (814)
Female Enrollment	1716 (893)
Top 10% High School	34% (25)
Top 25% High School	58% (27)
Top 50% High School	79% (28)
Grade Point Average High School	2.57 (1.53)

Colleges = 119 years=10

Table 3: Influence of Tournament Basketball Bans on Males

	Log Male Applications	Log Male Admissions	Log Male Enrollment
Basketball Win Percentage	.0241 (.031)	.015 (.026)	.017 (.021)
Lead2: Tournament Ban	-.193** (.066)	-.155** (.056)	-.020 (.046)
Lead: Tournament Ban	-.143** (.056)	-.129** (.048)	-.076** (.039)
Tournament Ban	-.091* (.053)	-.112** (.045)	-.064* (.036)
Lag: Tournament Ban	.035 (.048)	.040 (.039)	.053 (.033)
Lag2: Tournament Ban	.000 (.048)	.067 (.041)	.035 (.033)
School fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes
R-sq			
Within	.561	.458	.255
Between	.004	.001	.012
Overall	.038	.23	.011

Schools=119 Years=10

Table 4: Influence of Tournament Basketball Bans on Females

	Log Female Applications	Log Female Admissions	Log Female Enrollment
Basketball Win Percentage	.007 (.031)	-.019 (.027)	.001 (.021)
Lead2: Tournament Ban	-.198** (.056)	-.137** (.057)	-.034 (.046)
Lead: Tournament Ban	-.129** (.057)	-.096** (.048)	-.071* (.039)
Tournament Ban	-.107** (.053)	-.106** (.045)	-.035 (.037)
Lag: Tournament Ban	.023 (.049)	-.011 (.042)	.068** (.033)
Lag2: Tournament Ban	-.020 (.049)	.051 (.042)	.034 (.034)
School fixed effects	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes
R-sq			
Within	.543	.414	.183
Between	.0001	.003	.001
Overall	.038	.014	.004

Schools=119 Years=10

Table 5: Influence of Tournament Basketball Bans on Student Quality

	Percent of Freshman Top 10% HS	Percent of Freshman Top 25% HS	Percent of Freshman Top 50% HS	Freshman High School GPA
Basketball Win Percentage	.874 (2.09)	2.04 (3.38)	1.79 (4.21)	.022 (.194)
Lead2: Tournament Ban	2.41 (4.48)	2.18 (7.41)	.65 (9.20)	.061 (.424)
Lead: Tournament Ban	-.989 (3.59)	-2.40 (5.79)	-4.39* (7.20)	.146 (.332)
Tournament Ban	-13.78** (3.64)	-18.04** (5.88)	-20.51** (7.31)	-.466 (.337)
Lag: Tournament Ban	-6.68** (3.36)	-6.05 (5.43)	-5.46 (6.75)	-.477 (.311)
Lag2: Tournament Ban	-6.17* (3.32)	-5.64 (5.37)	-5.29 (6.68)	-.525* (.308)
School fixed effects	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes
R-sq Within	.063	.051	.027	.017
Between	.001	.003	.065	.003
Overall	.011	.023	.027	.002

Schools=119 Years=10