JOURNAL OF INTERCOLLEGIATE SPORT

What Factors Drive NCAA Division I Women's Volleyball Attendance; Do Free Tickets Equal More Fans?

Katrina Konopka[1], Nels Popp[1], Jonathan A. Jensen[2], and Craig A. Morehead[3]

[1] University of North Carolina
[2] Texas A&M University
[3] Indiana State University

Volleyball is growing in popularity throughout the United States, both as a participatory and spectator sport, particularly at the collegiate level. Little prior research, however, has examined demand variables driving NCAA Division I volleyball attendance. In particular, the current study examines whether selling tickets, as opposed to allowing spectators to attend a match without paying for a ticket, is correlated with attendance. Using a random effects regression model, the current investigation found factors such as promotions, home team success, visiting team success, and proximity of schools all have a positive correlation with attendance. The practice of selling tickets for entry, however, does not have a significant relationship with fan attendance when controlling for a wide variety of time/environment-related, game-related, performance-related, and market-related variables.

Keywords: ticketing, attendance, volleyball, pricing

What Factors Drive NCAA Division I Women's Volleyball Attendance; Do Free Tickets Equal More Fans?

The sport of women's volleyball is gaining popularity across the United States. According to the National Federation of State High School Associations (NFHS), volleyball (547,775) ranked well ahead of basketball (383,362) in the total number of girls' high school participants in 2022-23 (NFHS, 2023). Driven by high levels of participation at the high school level, it has been suggested the sport is being embraced by sport fans in younger demographics (Petit, 2023). Additionally, according to a survey of women's sports fandom in America, volleyball is the sport U.S. adults most enjoy watching (Burns, 2023).

Journal of Intercollegiate Sport, 2024, 18.3

In particular, interest in NCAA Division I women's volleyball has grown exponentially, as television ratings for women's collegiate volleyball surged in 2023 (Hamel, 2023). On October 29, 2023, a Big Ten Conference regular-season match between Wisconsin and Minnesota became the most-watched in NCAA Division I volleyball history with 1.66 million viewers on Fox, averaging more viewers than Formula 1 racing on ABC, the Premier League on NBC, and the NFL Countdown on ESPN on that same day. This broke the previous record from 2021, when 1.19 million viewers watched Wisconsin beat Nebraska to win the national championship on Dec. 18 in Columbus, Ohio. As another example of the growing popularity of volleyball as a spectator sport, Nebraska's volleyball victory over Wisconsin on October 21, 2023 averaged more broadcast viewers (612,000) than the Nebraska football game (560,000) that same day on the same Big Ten Network (Hruby, 2023).

Perhaps the biggest story in collegiate volleyball for the 2023 season, however, came when more than half a million television viewers tuned in to watch Nebraska sweep Omaha in an early non-conference contest. What was most striking about that particular match was its location and the number of fans in the stands. On what was dubbed "Volleyball Day in Nebraska," the NCAA Division I record for women's volleyball attendance was shattered when 92,003 attendees packed into Memorial Stadium in Lincoln, Nebraska to watch the match (NCAA, 2023). Not only did this set a new standard for women's college volleyball attendance, but it also broke the world record for *any* women's sporting event, surpassing the previous standard set at a 2022 UEFA Women's Champions League match at Camp Nou. Two weeks later, the NCAA Division I women's volleyball indoor regular season attendance record was broken when Wisconsin beat Marquette at Milwaukee's Fiserv Forum in front of 17,037 fans.

These record-breaking spectator numbers reflect a surge in consumer interest in collegiate women's volleyball, particularly for marquee matches. Growth in paid attendance may also help athletics departments which face continued pressure to be more self-sufficient and fiscally responsible (e.g., McMillen & Kirwan, 2021; Ridpath et al., 2015). With growing concerns over the financial solvency of NCAA Division I athletic departments and increased pressure to generate more income, administrators are increasingly challenged to seek additional sources of external revenue. More specifically, schools are seeking generated revenues such as ticket sales, NCAA and conference distributions, contributions, and concessions, rather than allocated revenues such as student activity fees, direct governmental support, and direct institutional support (NCAA, 2022a). While clearly an outlier among women's collegiate volleyball programs, Nebraska volleyball generated more than $2 million in ticket revenue during the 2021 season, twice the revenue of any other women's volleyball program, demonstrating the potential viability of the sport to be self-sustaining (Akabas, 2023).

Nebraska volleyball's success in driving revenue, along with prominent women's basketball programs such as South Carolina, UConn, and Louisville, as well as programs such as Oklahoma softball or Utah women's gymnastics, suggest women's sports may be a legitimate revenue source for college athletic departments (Fink et

al., 2002; Kallam, 2010; Martinson et al., 2015). As Morehead et al. (2021) suggest, however, not all college athletics departments view event ticket sales with an eye on maximizing profits. As the researchers noted, some college athletics administrators and coaches would rather keep ticket prices low in order to maximize attendance, fearing high ticket prices would drive away potential attendees. In fact, some NCAA Division I institutions do not require tickets at all, believing free admission will grow program legitimacy by enabling events to attract the largest size crowds possible, theoretically creating a greater home court advantage and aiding in player recruitment (Stensland & Bass, 2017).

As Morehead et al. (2021) note, different stakeholders may have conflicting perspectives on this phenomenon; the volleyball coach may prefer to not charge admission because he/she wants as large a crowd as possible, while the department's chief financial officer might prefer to charge admission because ticket revenue may offset operating expenses. Thus, stakeholder theory provides an appropriate lens from which to view this query. Emerging from the business literature, stakeholder theory espouses firms are not solely beholden to their shareholders (and thus should only be driven to deliver profit), but to all stakeholders that enable an organization to operate successfully, such as employees, suppliers, and customers (Freeman, 1984). Several authors have noted the applicability of stakeholder theory to modern college athletics departments where a variety of stakeholders, such as coaches, administrators, donors, and athletes, may seek organizational objectives other than maximizing revenue (Huml et al., 2018; Morehead et al., 2021; Schmidt et al., 2024; Stensland & Bass, 2017), typically the driving force behind professional sport organizations.

Of note in this discussion is that while many assume free admission to sporting events results in an increase in attendance (Smith, 2024; Morehead et al., 2021; Myran-Schutte, 2019; Stensland & Bass, 2017), research suggests this may not be true in some sport settings, such as minor league baseball (Paul et al., 2009). Numerous sport demand studies, as summarized by Krautmann & Berri (2007), have pointed out sports tickets are often priced in the inelastic portion of the demand curve, implying increases in ticket price do not necessarily have an inverse relationship with attendance. Virtually none of these prior sport demand studies, however, examine the impact on attendance when the cost of entry is free. In a handful of studies examining patronage of the arts, some evidence has suggested free admission does not necessarily equate to greater attendance (Akadele & King, 2006; Luksetich & Partridge, 1997).

What prior sport demand studies have found is several factors have a significant relationship with sport event attendance (Borland & Macdonald, 2003; Schreyer & Ansari, 2022). Variables, such as environmental factors (game date, event promotion, etc.) or match competitiveness factors (team/opponent quality, historical success, etc.), have been found to impact event attendance in a variety of contexts. Traditional sport demand studies enter a combination of independent variables in a regression model to determine factors possessing a significant relationship with attendance. To date, the only examinations of collegiate women's volleyball attendance have either utilized fan surveys to (a) determine intrinsic motivations (Zapalac et al., 2010), (b)

identify barriers to attendance (Mayer, et al., 2017), or (c) have included volleyball with other collegiate women's sports in demand modeling (Shackelford & Greenwell, 2005).

The primary purpose of the current study is to determine whether allowing free admission to collegiate women's volleyball matches results in improved attendance, when controlling for a variety of other factors. Such a finding will provide college athletics stakeholders with an improved understanding of which factors to anlayze when deciding whether to ticket or not. NCAA Division I women's volleyball provides an ideal context for this investigation, given that many programs charge admission while a significant number do not. A secondary goal of this study is to determine what other factors may impact demand for women's collegiate volleyball aside from whether a department charges admission, in line with prior demand studies in other (predominately male, high revenue) sport settings. Thus, the current investigation seeks to answer the following two research questions:

> *RQ1*: What factors are significant drivers of attendance for NCAA Division I power women's volleyball programs?
> *RQ2*: Does ticketing at the NCAA Division I power level have a significant relationship with fan attendance for women's volleyball?

Different stakeholders within college athletics seek a variety of organizational objectives. In regard to collegiate women's volleyball, some stakeholders seek revenue in the form of gate receipts, while others seek to maximize live attendance, a phenomenon explored in prior work by Morehead et al. (2021) and Stensland and Bass (2017). Yet no prior research has empirically examined whether the process of charging admission conclusively achieves one of these stakeholder objectives at the expense of the other. In a sport that is growing rapidly in popularity, such as NCAA Division I women's volleyball, a more nuanced understanding of the impact of charging admission on event attendance could have a large impact on the administration and maturity of the sport.

Literature Review

General Sport Demand Literature

Factors which affect game attendance have long been an important consideration in sport management literature. Borland and Macdonald (2003) and Schreyer and Ansari (2021) have summarized the general findings of such sport demand studies. In trying to better understand consumer behavior, Byon et al. (2013) posited market demands may be context-specific, suggesting core market demand may include such factors as team performance, star players, or competitiveness, which are largely out of the control of marketers. They also noted, however, peripheral factors representing controllable aspects of an event experience, such as venue amenities, customer service, scheduling, and elements related to profit margins, such as ticketing and promotions, can also play a key role. In the majority of sport demand studies, the pri-

mary factors driving spectator attendance can be categorized into some form of four significant areas: (a) consumer preferences and game-related variables (e.g., intrinsic motivations, specific game marketing tactics, etc.); (b) time/environmental variables (e.g., day of the week, start time, venue attributes, etc.), (c) performance-related variables (e.g., home and opponent strength metrics, game outcome uncertainty, etc.), and (d) home market/economic variables (e.g., ticket price, household income, etc.; Schreyer & Ansari, 2021; Shapiro et al., 2021).

Among these categories of variables, no prior studies have managed to capture all elements. In many cases, authors either elect to capture intrinsic motivations of attendees (typically through the use of spectator surveys) or utilize secondary data to examine external market and event factors such as competitor quality or venue attributes. While ticket price is likely an important influence on sport demand, it is frequently not included in modelling because of a lack of accurate data or due to too many price points, as well as researchers not knowing how many attendees received complimentary tickets, possess season tickets, or bought tickets on the secondary market. In the 195 sport demand studies examined by Schreyer and Ansari (2022), only three had a specific focus on the relationship between ticket price and attendance.

Demand for (Collegiate) Women's Sport

Schreyer and Ansari (2021) called specifically for more demand modelling studies within women's sport, which is vastly underrepresented in the literature. Specific to profit motive in women's sports, Qian et al. (2023) found economic considerations (i.e., ticket price, concession price, and licensed commodities price) were a determining factor for future attendance at a women's professional tennis event, and suggested dissatisfaction in event pricing could be a sign of an endowment effect due to value incongruence between the event organizer's willingness-to-accept and attendees' willingness-to-pay. Similarly, Mumcu et al. (2016) found entertainment price was one of two significant predictors of intent to consume women's sporting events. In fact, some have suggested lower ticket costs should serve as an effective marketing point of differentiation among women's sports (Fink et al., 2002).

To our knowledge, no prior authors have conducted a demand study specifically investigating attendance within collegiate women's volleyball. Shackelford and Greenwell (2005) did conduct a demand study using a small number of relatively non-traditional independent variables (e.g., number of professional sports teams within a 50-mile radius of the athletics department) to examine attendance at several collegiate women's sports, including volleyball. Prior work utilizing fan surveys has suggested attractiveness of the competition and attachment to the sport do positively predict ticket purchases for collegiate women's volleyball spectators, while market demand factors such as game promotion and affordability have a significant positive relationship with both attendance frequency and season ticket ownership (Zaplac et al., 2010). In addition, Zapalac et al. found an even split of male and female attendees, who were primarily Caucasian (57%), with a mean age of 32.7, and predominantly supporting the home team (85%), although the majority of attendees

were single (51%), students (41%), and attending with a friend (36%). Respondents received free admission (59%), had attended 1-2 matches so far that year (42%), and did not spend any money on concessions (39%) or merchandise (over 90%). Mayer et al. (2017b) investigated non-attendance decisions for women's volleyball among a sample of college students and cited financial cost as a reason why students never attended a match.

Stakeholder Theory and College Athletics

Creating positive benefits for, and satisfying the needs of, various internal and external contingents is the goal for most organizations, a premise defined by stakeholder theory (Freeman, 1984). Prior to Freeman's work, Friedman (1962) had suggested in a capitalistic environment, the only stakeholders a firm should satisfy are shareholders; in other words, the primary concern for firms should be maximizing profit. Freeman (1984) astutely articulates, however, if other organizational stakeholders are not accounted for and satisfied, the organization could very well cease to exist or operate. In organizations such as collegiate athletics departments, which are non-profit organizations rather than for-profit, competing stakeholder groups will often vie for managerial priority, a process called stakeholder salience (Huml et al., 2017; Mitchell et al., 1997). Within intercollegiate athletics, important stakeholder groups that are often identified include athletes, prospective students, current students, alumni, faculty, community members, and administrators (Putler & Wolfe, 1999). However, it is also important to differentiate between internal (i.e., supply-side) stakeholders who schedule, market, and price events, as opposed to external (i.e., demand-side) stakeholders who purchase tickets and attend games. Competing stakeholder groups will utilize power, legitimacy, and urgency to build relationships which can help lead to their causes and goals being realized by management. Furthermore, taking time to investigate trends and understand factors important to demand-side stakeholders is important to organizational success, especially in an intercollegiate athletics environment that is increasingly relying on generated revenue.

In some of the earliest utilizations of stakeholder theory related to ticketing policies in intercollegiate athletics, Covell investigated season-ticket holders in both ice hockey (2004) and football (2005), finding that stakeholders with strong attachment and allegiance impact athletic policy, which may include ticket purchase decisions. Both Morehead et al. (2021) and Stensland and Bass (2017) have also examined the concept of ticketing for college athletics sporting events through the lens of stakeholder theory. Morehead et al. (2021), in particular, found competing stakeholder groups within college athletics departments sought different objectives when it came to the key decision-making process of setting ticket prices. In interviews with representatives of various internal stakeholder groups, they identified four objectives for setting ticket prices: (a) revenue-orientation or maximizing profits, (b) patronage-orientation or ensuring ticket affordability to as many as possible, (c) operations-orientation or balancing revenue generation with maximizing attendance, and (d) attendance-orientation or a singular focus on maximizing attendance, with no

regard for revenue generation. Their work clearly demonstrates college athletics administrators must make decisions regarding ticket pricing that may not satisfy all stakeholder groups. Such decisions have clear implications for athletics departments, including economic sustainability, but also reputation and legitimacy among external groups such as season-ticket holders, department donors, and recruits (Stensland & Bass, 2017). The common assumption in these studies is that charging admission for less popular sports will likely drive down already low attendance, which would fail to satisfy key internal stakeholder groups such as coaches and marketers, and may negatively impact athletes as well.

Sport Ticketing – Paid Versus Free Admission

In general, the ticketing landscape for intercollegiate athletics is complex, with many different methodologies, practices, policies, and price points to generate revenue, while still operating under the NCAA model of a non-profit organization (McEvoy et al., 2013; Morehead et al., 2017). The topic of ticket sales in the collegiate environment has grown in recent years. For example, using a case study of one athletic department considered to have a successful ticket sales program, Bouchet et al. (2011) provided propositions for improving sales operations and revenue in college sport. Additional investigations of sales operations have found proactive outbound ticket sales efforts have led to increased revenue (Popp et al., 2019), and in-house ticket sales teams outperform third-party models for ticket sales within intercollegiate athletic departments (Popp et al., 2020). Research regarding ticket sales for specific areas of college venues have also intensified, especially for high-yield premium seating (Mayer et al., 2017a; Mayer, 2023).

The concept of pricing for live events has become increasingly sophisticated over time, with the implementation of demand-based variable ticket pricing and dynamic ticket pricing models. However, it is still common for many universities to utilize fixed ticket pricing, in the form of a "general admission" sales approach, where a static price is set for each game throughout the season without any differentiation based on opponent, day of the week, time of day, promotions, or other predictable factors known to impact attendance (Drayer et al., 2014). This general admission sales approach is particularly common in collegiate "non-revenue" Olympic sport settings such as softball, soccer, and volleyball. In some cases, when administrators consider reputation, legitimacy, value, and facility capabilities, they may decide to not charge admission at all for some sport events (Stensland & Bass, 2017). For example, while certain conferences and institutions, such as the Big Ten and Texas A&M, have sought to capitalize on all potential gate revenue regardless of magnitude (Wolverton, 2007), other schools such as Duke (n.d.) and Ole Miss (2018) only ticket for some sports, while instituting a blanket "free admission" policy for others.

To date, relatively little empirical research has investigated the relationship between a managerial decision to require tickets for entry and future event attendance. Paul et al. (2009) found no significant relationship between free ticket promotions and attendance at minor league baseball games, but several significant positive re-

lationships with other promotional variables such as fireworks shows, post-game concerts, and merchandise giveaways. Akdede and King (2006) suggested among patrons of live theater the distribution of free tickets did not improve attendees' willingness-to-pay for a future ticket. Furthermore, they found the distribution of free tickets had a negative correlation to paid attendance per performance in large cities, suggesting a free ticket did not increase attendance, and ultimately devalued the theatrical performance. Muller and Arthur (2008), on the other hand, suggested the distribution of free tickets to a greyhound racing track did result in a significant number of first-time attendees and netted a positive ROI when comparing patron's secondary spending within the venue compared to lost gate fees. Their investigation, however, failed to examine future attendance intentions or actions among those who received free entry. Therefore, from a stakeholder theory perspective it could be argued that free tickets may not necessarily have long-term stakeholder implications, thus reducing the likelihood to establish lifetime (or at least longer-term) customer value beyond the initial visit.

Summary

Within the sport management literature exists a robust examination of demand for live sport attendance (Borland & Macdonald, 2003; Schreyer & Ansari, 2021). While these studies examine a plethora of factors which predict sport attendance, very few of them examine women's sport and virtually none of them have examined the impact of free admission on drawing spectators. Due to a common but virtually untested assumption that offering free admission will draw more fans than the same event where admission is charged (Smith, 2024; Stensland & Bass, 2017), stakeholders within college athletics advocate for competing objectives when it comes to setting ticket prices (Morehead et al., 2021). As such, the current investigation is novel in that a traditional attendance demand model is developed for collegiate women's volleyball utilizing several common independent variables. Included in these variables, however, is also a measure of whether a college athletics department has elected to sell tickets to patrons or allow free entry. The results of such an examination could shed light on the financial and popularity impact of athletics administrators' decisions to ticket for collegiate women's volleyball.

Method

Data

To determine whether significant relationships exist between predictor variables (including the key metric of whether a department issued tickets for volleyball home matches) and home match attendance, a regression model was developed. Data for the model were collected from NCAA Division I schools in former "power" conferences (i.e., Atlantic Coast Conference, Big Ten Conference, Big 12 Conference, Pac-12 Conference, and Southeastern Conference) that sponsored volleyball during the 2022 season (Oklahoma State and Vanderbilt did not sponsor a women's volleyball team that season). All data were obtained from school, conference, or NCAA web-

sites, as has been common practice in previous college sport-based literature (e.g., Popp et al., 2019). The dataset does not include conference championships or NCAA tournament events, as well as neutral site events, as conferences and the NCAA may have predetermined ticketing policies for championship events (Morehead et al., 2017).

Variables

Multiple control variables were collected for the study. Based upon previous demand literature, the following groups of variables were utilized: (a) time/environmental variables, (b) game-related variables, (c) performance-related variables, and (d) home market variables (Shapiro et al., 2021). Day of game, time of game, and distance between schools were included when examining the time/environmental variables. Game-related variables included conference affiliation and promotional activities, as listed on team schedules. Performance-related variables included team rankings, prior season performance data, and a measure of match competitiveness. Finally, market-related variables included venue capacity and ticketing policies. All variables, sources, and literature precedent can be found listed in Table 1.

Table 1

List of Variable Data, Sources and Justifications

Time and Environment Related Variables			
Variable	**Definition**	**Source**	**Justification**
Day of Game	Day of week in which the game is played: either weekend or weekday	Team Websites	(Falls & Natke, 2014; Popp et al., 2018; Shapiro & Drayer, 2012)
Time of Game	Time of day in which the game is played: either day time (9 AM-5 PM) or night game (after 5 PM)	Team Websites	(Falls & Natke, 2014; Popp et al., 2018; Shapiro & Drayer, 2012)
Proximity	The geographical distance between institutions. Proximity was classified by 3 distinct groups: Short distance, (<50 miles apart), moderate distance (50< *n* <150 miles), long distance (>150 miles)	Google Maps	(Falls & Natke, 2014; Forrest et al., 2002; Popp et al., 2018; Shapiro & Drayer, 2012)
Game Related Variables			
Home Team Conference	NCAA Conference of which the home institution is a member	Conference Websites	(Falls & Natke, 2014; Paul et al., 2012)
Away Team Conference	NCAA Conference of which the visiting institution is a member	Conference Websites	(Falls & Natke, 2014; Paul et al., 2012)

Promotions	Marketing strategies to drive attendance (giveaways, theme games, discount days, or senior day)	School Website	(Kappe et al., 2014)
Attendance	Total number of match attendees as reported by the home institution	Box Scores of individual games	(Popp et al., 2019)
Performance Related Variables			
Home Team 2022 Final Ranking	Home team's NCAA RPI ranking for the 2022 season	NCAA Statistics	(Coates et al., 2014; Fort, 2004; Humphreys & Miceli, 2020; Paul et al., 2012; Rottenberg, 1956; Schreyer & Ansari, 2021)
Away Team 2022 Final Ranking	Home team's NCAA RPI ranking for the 2022 season	NCAA Statistics	(Coates et al., 2014; Fort, 2004; Humphreys & Miceli, 2020; Paul et al., 2012; Rottenberg, 1956; Schreyer & Ansari, 2021)
Home Team Ranking from Previous Season	Home team's NCAA RPI ranking for the 2020-2021 season	NCAA Statistics	(Coates et al., 2014; Fort, 2004; Humphreys & Miceli, 2020; Paul et al., 2012; Rottenberg, 1956; Schreyer & Ansari, 2021)
Away Team Ranking from Previous Season	Away team's NCAA RPI ranking for the 2020-2021 season	NCAA Statistics	(Coates et al., 2014; Fort, 2004; Humphreys & Miceli, 2020; Paul et al., 2012; Rottenberg, 1956; Schreyer & Ansari, 2021)
Competitiveness of Match	Teams with RPI rankings within 25 places of one another will be considered a close match	NCAA Statistics	(Coates et al., 2014; Fort, 2004; Humphreys & Miceli, 2020; Paul et al., 2012; Rottenberg, 1956; Schreyer & Ansari, 2021)
Market Related Variables			
Stadium Capacity	Number of seats within an arena	Team Websites	(Price & Sen, 2003; Rottenberg, 1956)
Ticket Policy	Whether an institution tickets or does not ticket for admission	Team Websites	(Falls & Natke, 2014; Fort, 2004; Price & Sen, 2003; Rottenberg, 1956)

Results

Descriptive Statistics

Data were collected from a variety of school, conference, and NCAA websites (*see Table 1*) resulting in 859 individual game observations throughout the 63 power schools participating in women's volleyball during the 2022 season (an average of 13.6 home matches per team). A total of 26 individual matches were excluded from the analysis because box scores indicated zero attendees. Descriptive statistics illustrate that of the remaining 833 volleyball matches, 630 (75.63%) required a ticket for admission. Throughout the 2022 season, the power institutions averaged 1,800 volleyball fans (*SD* = 1,747). Of note, the attendance data collected from individual institutions for the 2022 season was as expected when comparing post-COVID trends from the 2021 and 2023 seasons. As evidence, the average home attendance for each conference from the 2023 season was led by Big 10 schools averaging 3,626 attendees, followed by Pac 12 schools averaging 2,077, Big 12 averaging 1,910, SEC averaging 1,772, and ACC schools averaging 1,187 (NCAA, 2023). When accounting for the steady increase of live attendees since the pandemic (including record viewers for the 2023 season), this suggests a reliability of data when considering year-over-year comparisons of data compiled by the NCAA. Institutions which sold tickets had an average of 2,165 attendees (*SD* = 1,855) while those not selling tickets had an average attendance of 669 (*SD* = 406). For schools which charged admission, season ticket prices ranged from $25 to $180 (excluding any minimum donation requirements), with a mean price of $63.63 (*SD* = $33.88). Individual match ticket prices were publicly available for 36 programs, ranging from $5 to $35, with a mean of $11.64 (*SD* = $6.77). Additional descriptive statistics are listed in Table 2.

Statistical Analysis

Prior to constructing the statistical model, a correlation matrix was created to determine significant correlations and to minimize multicollinearity among variables. Variables that demonstrated significant statistical collinearity and resulted in variance inflation factors (VIFs) larger than 10 were removed from the regression model. A random effects regression model was utilized for statistical analysis as each individual game cannot be considered as independent of one another. A standard linear regression model would not be sufficient as an assumption of the linear regression is independence across observations and this necessitates a more sophisticated model to account for game-by-game similarities and ensure that each game is nested within an institution. Each institution was assigned a numerical school ID to prevent the independence assumption from being violated (Jensen, et al., 2020). The research questions were answered utilizing a random effects regression model with all performance-related variables, team-related variables, and market-related variables to fully understand what quantitative factors are related to attendance.

Table 2

Descriptive Statistics for 2022-2023 NCAA Division I Volleyball Season

Variable	Measure	Count (%) (N = 833)	*M*	*SD*	Min, Max
Time & Environment Related Variables					
Close Schools (<50 miles)	Binary	25 (3.00%)			
Middle Distance (50<n<150)	Binary	58 (6.96%)			
Large Distance (>150 miles)	Binary	752 (90.28%)			
Day Game	Binary	369 (44.30%)			
Night Game	Binary	464 (55.70%)			
Weekday Game	Binary	449 (53.90%)			
Weekend Game	Binary	384 (46.10%)			
Game Related Variables					
Attendance	Continuous		1800	1747	30, 16833
Promotion Game	Binary	430 (64.08%)			
Discount Night	Binary	121 (18.39%)			
Giveaway Game	Binary	148 (22.06%)			
In-Conference Game	Binary	579 (69.51%)			
Senior Night	Binary	50 (7.45%)			
Theme Game	Binary	306 (45.60%)			
Performance Related Variables					
Home Team 2022 Rank	Continuous		70.65	57.35	1, 223
Away Team 2022 Rank	Continuous		87.50	72.01	1, 334
Close Match	Binary	226 (27.20%)			
Home Previous Season Rank	Continuous		64.86	56.36	1, 236
Away Previous Season Rank	Continuous		63.91	57.43	1, 236
Market Related Variables					
Stadium Capacity	Continuous		8074	5246	950,24535
Ticket Policy	Binary	630 (75.63%)			
Season Ticket Price	Continuous	539 (64.71%)	63.63	33.88	25, 180
Single Game Ticket Price	Continuous	494 (59.30%)	11.64	6.77	5, 35
Single Game Group Price	Continuous	345 (41.41%)	4.08	1.36	1, 7
Single Game Youth Price	Continuous	310 (37.21%)	4.66	1.55	1, 8

Note: N for continuous variables that do not have a listed count is 833.

Variable Selection

Variables were selected for the random effects regression model to limit collinearity through the utilization of a correlation matrix and the calculation of VIFs for the model. In determining the relationship between ticketing and attendance, the Pearson Correlation coefficient was calculated utilizing an $\alpha = .05$. Close distance and large distance were utilized in the model to capture both groups of institutions within 50 miles of one another and greater than 150 miles of one another. The middle-distance range, greater than 50 miles and less than 150 miles, was eliminated due to a strong, negative correlation ($r = -0.958$) to long distance schools and a moderate, negative correlation to the close distance schools ($r = -0.378$; Cohen, 1988). Additionally, to simplify the model, limit collinearity, and improve data reliability, the binary variable of "promotions" was selected to encompass all promotional events, rather than breaking into the individual categories of giveaways, theme game, discount games, or senior games. Binary variables including weekend vs. weekday games, and day vs. night games, were selected based on a positive correlation with attendance. Weekend games had a weak, positive correlation with attendance ($r = 0.037$) while night games also had a weak, positive correlation with attendance ($r = 0.093$; Cohen, 1988).

Findings

The results of the random effects model suggested a significant proportion of the total variation in attendance can be predicted utilizing: (a) home and away team ranking during the 2021 and 2022 seasons, (b) the differences in previous year rankings, (c) the difference in current season ranking, (d) if the schools were in the same conference, (e) proximity of schools, (f) date and time of game, (g) ticketing policies, (h) promotions, and (i) stadium capacity. The R^2 value of the model was 0.343, thus indicating approximately 34% of the variation in attendance was explained by the model and suggests a strong correlation (Cohen, 1988). The model included 523 matches, producing a k value of 34.87, indicating a statistically valid sample size. The average attendance when all multiple variables are equal to 0 was 2,761 and is statistically different from 0 ($z = 5.39$, $p < .001$). The mean VIF for the model was 1.62, ultimately determining the model does not have significant collinearity. The regression model, including partial standardized slopes and confidence intervals, can be found in Table 3.

Among the predictor variables in the model, six had a statistically significant relationship with attendance. The 2022 home team ranking was significant and had a negative relationship (ß = -7.381, $p < 0.014$), meaning that for every place the home team improved in ranking, attendance increased by 7.4 fans. (The highest rated team in the rankings was giving a value of 1, the second-best team a ranking of 2, etc., meaning lower numbers equaled a higher ranking, thus the inverse relationship.) Similarly, the away team ranking in both 2021 (ß = - 1.654, $p < 0.045$) and 2022 (ß = -2.792, $p < 0.001$) were also both significant and negative, suggesting for every place the away team's 2021 ranking improved, attendance rose by 1.7 fans and for every place the away team's 2022 ranking improved, attendance rose by 2.8 fans.

Table 3
Final Predictive Model

Variable	Unstandardized Coefficient	Standard Error	*z*	*P*
Home Team Rank 2021	-3.695	3.507	-1.05	0.292
Home Team Rank 2022	-7.381	3.005	-2.46	0.014*
Historical Ranking Difference	-4.613	4.538	-1.02	0.309
Away Team Ranking 2021	-1.653	0.825	-2.01	0.045*
Away Team Ranking 2022	-2.792	0.839	-3.33	0.001*
Match Up Ranking Difference	1.627	1.173	1.39	0.165
Weekend Game	147.869	110.688	1.34	0.182
In-Conference Game	-186.657	132.376	-1.41	0.159
Night Game	148.661	115.413	1.29	0.198
Close Match	94.879	115.174	0.82	0.410
Close Proximity Schools	1782.618	342.004	5.21	<0.001*
Large Proximity Schools	-395.767	178.458	-2.22	0.027*
Promotion Game	246.464	100.084	2.46	0.014*
Capacity	-0.0048	379.801	-0.17	0.868
Ticketing	558.618	379.801	1.47	0.141
Constant	2761.059	512.7054	5.39	<0.001*
**Significant at the 0.05 level*			*N*	523
			R^2	0.3432
			Average VIF	1.62

A match between opponents who were located fewer than 50 miles apart was a significant, positive predictor of attendance (ß = 1782.618. $p < 0.001$), while a match between opponents who were located more than 150 miles apart was a significant, negative predictor of attendance (ß = -395.767, $p < 0.027$). In other words, close opponents resulted in 1,783 more fans, while opponents located far from each other resulted in 396 fewer spectators. Finally, when departments held a promotion in conjunction with the match, it had a significant, positive relationship with attendance (ß = 246.464, $p < 0.014$), meaning promotional nights had nearly 250 more fans in attendance.

Of primary interest to this current study, whether a team ticketed home volleyball matches was not a statistically significant predictor of attendance at the .05 level. The unstandardized coefficient was positive and suggests an increase of 559 per home match when tickets are required to enter, but the lack of statistical significance suggests this result may be due to chance.

Discussion

A common assumption among college sport administrators is that ticket price may be a barrier to attendance and if that barrier is removed, attendance will be greater than if the barrier remains in place (Mayer et al., 2017b; Morehead et al., 2021; Stensland & Bass, 2017). If this assumption is true, these prior studies suggest various college athletics stakeholders will hold conflicting objectives in terms of a decision to sell tickets for athletics events. Among intercollegiate athletic administrators, it is likely that marketers want to see the largest crowd possible, while business officers may want to maximize ticket revenue. Stakeholder theory (Freeman, 1984) would suggest all stakeholder perspectives are relevant and different groups will attempt to leverage the tools of power and legitimacy to achieve their organizational goals. Yet little empirical work has actually examined the assumption that free tickets for a lower cost sporting event would indeed drive attendance when controlling for other demand variables. In one of the few comparative studies in this area, Paul et al. (2009) found free tickets were not significantly related to greater attendance in minor league baseball. The results of this study provide administrators with another analysis to resolve these conflicting stakeholder perspectives.

To determine whether free tickets will increase attendance within collegiate women's volleyball, it must first be determined what other common variables impact demand. Thus, the initial goal of the current study was to determine the statistically significant drivers of attendance in NCAA Division I women's volleyball. Unlike prior research, the current study accounts for numerous control variables in order to ultimately isolate the statistically significant drivers. The random effects model developed in this study provides a significant addition to the current body of literature by isolating factors athletic administration stakeholders can control in addition to immutable variables. Home and visiting team strength had positive and statistically significant relationships with attendance, similar to college football demand (Paul et al., 2012). Promotional activities including discount games, theme games, giveaways, and senior days, as previously suggested by Kappe et al. (2014), also had a statistically significant positive relationship with attendance, and have also been identified as a fan experience factor that may influence stakeholder re-patronage (Morehead et al., 2021). The strongest relationship between attendance and a variable in the model was the proximity of schools to one another, as previously noted by Popp et al. (2018) and Shapiro & Drayer (2012). When schools competed with opponents located within 50 miles of one another, attendance increased by more than 1,700 fans. Many of these close-proximity matches were played between long-standing rivals (e.g., North Carolina vs. Duke, Michigan vs. Michigan State, Southern Cal vs. UCLA), which drew significantly more attendees, although in reality, only a limited number of major college programs have an opponent located within 50 miles of their campus. Unlike previous research focusing on revenue generating sports, conference games, stadium capacity, and date- and time-related variables were not statistically significant factors impacting fan attendance (Popp et al., 2018; Shapiro & Drayer,

2012). College athletics administrators, marketers, and coaches control game day promotional activity and non-conference scheduling. These two elements appear to potentially influence match attendance and suggest the importance of regional rivalry in collegiate volleyball. These results imply that as college conferences realign and the distances between conference schools grow, one impact could be a detrimental effect on attendance in sports such as volleyball. It also demonstrates that administrators and coaches who schedule more regional non-conference opponents (and potentially cultivate rivalries) are likely to see greater audiences, sometimes exponentially so, perhaps in part by drawing in stakeholders from the visiting institution. It was somewhat surprising to see day and time variables were not predictors of demand as those variables are often significantly related to sport attendance. One possible explanation for this could be women's college volleyball is a fall sport which competes in the same season as football. Volleyball teams tend to play fewer Saturday matches (a popular day for sport spectating) and may compete with both college and professional football for viewers on weekends, which may limit weekend attendance, meaning a smaller gap between weekend and weeknight demand.

Once a demand model was constructed, the primary goal of the current study was to determine whether the choice by administrators to ticket for home volleyball matches was related to match attendance. The final statistical model revealed a positive correlation; however, it was not a statistically significant relationship, a finding echoing the work of Paul et al. (2009). If the decision to ticket an event is not significantly related to attendance, institutions may be missing out on potential revenue, which in turn could be utilized to better market and promote the sport (Shackelford & Greenwell, 2005). As Muller and Arthur (2008) illustrated, if the decision to allow free entry results in greater sport event attendance, lost ticket revenue could be offset by greater spending in ancillary areas such as concessions or merchandise. However, the current study suggests the simple act of allowing free entry for major Division I volleyball does not have a statistically significant relationship with attendance.

Ultimately, the decision to ticket or not to ticket is a reflection of the values and revenue goals of the department, as espoused by various stakeholder groups (Morehead et al., 2021; Stensland & Bass, 2017). However, the current results suggest perhaps some stakeholders are misguided in their assumptions that a lack of ticketing will result in an increase in attendance. Of course, resources are necessary to provide the services required to create an effective ticketing experience for consumers, such as providing ticket sellers, scanners, and ushers or venue security. Based on these factors, the decision by administrators of whether to ticket must be made in the context of other resource expenditures and will be different from institution to institution.

To illustrate this last point using the data collected for the study, we created two hypothetical budgets (see Table 4). Within the current dataset, the school reporting the largest attendance without selling tickets drew 17,302 fans during the 2022 season, an average of 1,331 fans per game (13 home games). Hypothetically, if 300 of those attendees were given complementary tickets (e.g., player families), and all other fans paid an average of $10 per ticket, the athletics department would generate

$134,020 in ticket revenue for the season. In this scenario, we suggest the athletics department might employ eight additional staff for each of the 13 home volleyball matches at an estimated cost of $80 per staff member per match, reducing ticket revenue by $8,320, creating a net profit of $125,700 in ticket revenue. On the other end of the spectrum, another institution in the data set drew 2,280 volleyball spectators over 10 matches during the 2022 season (228 per match). Hypothetically, if this institution also charged $10 per ticket and provided complimentary entry for 100 of the fans, per game, plus had additional staffing costs of $6,400 over the course of the season, they would generate $6,400 in net ticket revenue. While both programs in these hypothetical scenarios generate positive gains, for power (Power 4) athletics departments, the limited revenue in the second scenario may not be worth the additional effort and resource allocation to provide a ticketed event.

Table 4

Hypothetical Volleyball Ticket Budgets

	Team A	Team B
Actual avg. attendance per game	1,331	228
Estimated no. of comp tickets	300	100
Estimated avg. no. of paid tickets	1,031	128
Estimated cost per paid ticket	$10	$10
Home games	13	10
Total ticket revenue for season	$134,020	$12,800
Additional labor cost	$8,320	$6,400
Net ticket revenue	$125,700	$6,400

In summary, the current study contributes to the literature in multiple ways. From an applied perspective, the current study suggests factors such as opponent attributes (e.g., strength, distance from home team) and promotional activities can impact women's collegiate volleyball attendance, implying that internal stakeholders (i.e., administrators, marketers, coaches) should try to influence those attributes if they want to raise attendance. More notably, however, is that the decision to allow free admission does not appear to drive attendance when controlling for other factors, within NCAA Division I power (Power 4) women's collegiate volleyball. From a theoretical perspective, the results of the current study contribute to the literature by denoting that organizations balance the tenants of stakeholder theory with empirical evidence when assessing the influence of stakeholder power and legitimacy. Prior research (Huml et al., 2018; Morehead et al., 2021; Stensland & Bass, 2017) suggests organizations such as college athletics departments are often fraught with competing stakeholder objectives, which influence decision-making processes. As various stakeholder constituancy groups vie for power over decision-making processes, empricial analyses provide a scale to balance the three dimenions of stakeholder salience; (a) power, (b) legitmacy of claims, and (c) the urgency of required

actions (Huml et al., 2018). Of recent, the priorities of athletics departments are shifting dramatically to pursue revenue at every opportunity in order to meet the rising costs of a competitive Division I athletics program. This change will require various groups to re-examine their priorities and may even shift the attitudes of external stakeholders, such as fans and ticket buyers, who may accept that if they want their programs to be successful, it will come at a financial cost. The current results suggest data-driven decision making could help alleviate some stakeholder conflicts.

Limitations and Future Research

Under the current climate of big-time college athletics, revenue generation is taking on renewed and critical importance. Finding ways to generate more revenue from "Olympic" or "non-revenue" sports, even if those sports are not able to reach financial self-sustainment, is a high priority for athletics administrators. In the past, administrators and college sport researchers have not been proactive enough in this regard and have rarely utilized sophisticated modelling and algorithms to examine demand in sports other than football and men's basketball. This is likely to change in college athletics, particularly as other sports such women's basketball, women's volleyball, ice hockey, baseball, and gymnastics, among others, are growing in fan interest and displaying greater potential to make money. Greater research is needed to provide empirical analysis to help make decisions about the revenue-generating capability of all sports, not just football and men's basketball.

Unfortunately, one of the primary drawbacks of conducting this sort of research is the lack of transparent and reliable data among athletic departments. The current study scraped publicly available data, but it is impossible to gauge the accuracy of reported attendance on website box scores. As found by Popp et al. (2023), athletics departments which sell tickets often report the number of tickets distributed as opposed to the number of tickets scanned into the venue. In a perfect world, the current study would be conducted utilizing ticket scan rate data and accurate ticket price data, which would include complementary tickets utilized and prorated data for tickets purchased as part of season ticket package, in addition to single game ticket prices aggregated by price point. In addition, by definition, athletics programs which do not ticket for volleyball cannot produce ticket scan rate data, meaning some attendance numbers are generated from turnstiles or attendance clickers, or worse, from administrator estimates. While the current study is a step in the right direction, future studies can produce better recommendations when researchers gain access to more accurate data. To further understand the revenue capability for non-revenue sports such as volleyball, it would also be helpful to capture ancillary revenues (e.g., concessions, merchandise) to estimate per capita spending. Finally, this study admittedly did not capture survey data from attendees that could be utilized to develop analyses of their demographics or psychographics, which could be utilized to determine the reasons why they may have attended volleyball matches, as has been collected in prior work by Mayer et al. (2017b) and Zaplac et al., (2010). In addition to this study's analysis of secondary data, it is recommended that future research utilizes primary research methods in order to better understand the motivations of attendees at volleyball matches.

Additionally, the sole focus of the current study was on women's collegiate volleyball. A priori, we did not have strong justification to believe demand for women's collegiate volleyball is unique in regards to spectator demand compared to other sports. Our results, however, suggest perhaps some demand elements are specific to women's collegiate volleyball, or perhaps "non-revenue" or women's sports. For instance, rivalry games seemed to have an inflated impact on attendance, while the importance of day-of-the-week on demand was greatly diminished in the analysis. Future studies should examine this phenomenon to determine if demand is different from one collegiate sport to another, or between sport groups (e.g., revenue vs non-revenue, male vs female, etc.) to assess the generalizability of the findings. In addition, while attendance data was collected across multiple matches at a wide variety of institutions, the goal of this study was not to analyze what causes change in attendance over time, rather which variables explain the variance in attendance based on a variety of factors. However, future research is recommended to assess factors that may contribute to an institution's attendance increase or decrease from season to season. Finally, the statistical model utilized in this analysis combined "promotions" into a single category. Future research could delineate promotional activities to further understand if particular promotions, such as theme nights, drive attendance.

References

Akabas, L. (2023). *Nebraska's volleyball juggernaut is a financial outlier.* Yahoo!Sports. https://sports.yahoo.com/nebraska-volleyball-juggernaut-financial--outlier-195547994.html

Akdede, S. H., & King, J. T. (2006). Demand for and productivity analysis of Turkish public theater. *Journal of Cultural Economics*, *30*(3), 219–231. https://doi.org/10.1007/s10824-006-9014-7

Borland, J., & Macdonald, R. (2003). Demand for sport. *Oxford Review of Economic Policy, 19*(4), 478-502. https://doi.org/10.1093/oxrep/19.4.478

Bouchet, A., Ballouli, K., & Bennett, G. (2011). Implementing a ticket sales force in college athletics: A decade of challenges. *Sport Marketing Quarterly, 20*(2), 84-92.

Burns, M. J. (2023, August 15). *The state of women's sports fandom in America*. Morning Consult. https://pro.morningconsult.com/analysis/most-popular-womens-sports-athletes-us

Byon, K. K., Zhang, J. J., & Baker, T. A. (2013). Impact of core and peripheral service quality on consumption behavior of professional team sport spectators as mediated by perceived value. *European Sport Management Quarterly*, *13*(2), 232–263. https://doi.org/10.1080/16184742.2013.767278

Coates, D., & Humphreys, B. R. (2007). Ticket prices, concessions and attendance at professional sporting events. *International Journal of Sport Finance, 2*, 161-170.

Coates, D., Humphreys, B. R., & Zhou, L. (2014). Reference-dependent preferences, loss aversion, and live game attendance. *Economic Inquiry*, *52*(3), 959–973. https://doi.org/10.1111/ecin.12061

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Covell, D. (2004). Attachment, allegiance and a convergent application of stakeholder theory to Ivy League athletics. *International Sports Journal, 8*(1), 14-26.

Covell, D. (2005). Attachment, allegiance, and a convergent application of stakeholder theory: Assessing the impact of winning on athletic donations in the Ivy League. *Sport Marketing Quarterly, 14*(3), 168-176.

Drayer, J., Shapiro, S. L., & Morehead, C. A. (2014, August). Is the price right? A look at pricing in college sport. *Athletics Administration*, 26-30.

Duke Athletics (n.d.). *General sales*. https://goduke.evenue.net/cgi-bin/ncommerce3/SEGetGroupList?groupCode=GS&linkID=duke-athletics&shopperContext=&caller=&appCode=#grp_10

Falls, G.A., & Natke, P.A. (2014). College football attendance: A panel study of the Football Bowl Subdivision. *Applied Economics, 46*(10), 1093-1107.

Fink, J.S., Trail, G.T., & Anderson, D.F. (2002). Environmental factors associated with spectator attendance and sport consumption behavior: Gender and team differences. *Sport Marketing Quarterly, 11*(1), 8-19.

Forrest, D., Simmons, R., & Feehan, P. (2002). A spatial cross–sectional analysis of elasticity of demand for soccer. *Scottish Journal of Political Economy*, *49*(3), 336–356. https://doi.org/10.1111/1467-9485.00235

Fort, R. (2004). Inelastic sports pricing. *Managerial and Decision Economics, 25*, 87-94. https://doi.org/10.1002/mde.1108

Hamel, L. (2023). *Volleyball tv options gigantic positive for the collegiate women's game*. VolleyballMag.com. https://volleyballmag.com/volleyball-tv-options-espn-fox-big-ten-network-082123/

Hruby, E. (2023, October 25). *Nebraska volleyball match gets more viewers than Nebraska football*. Just Women's Sports. https://tinyurl.com/e6wx9x6p

Huml, M. R., Hambrick, M. E., Hums, M. A., & Nite, C. (2018). It's powerful, legitimate, and urgent, but is it equitable? Stakeholder claims within the attributes of stakeholder salience in sport. *Journal of Sport Management*, *32*(3), 243-256. https://doi.org/10.1123/jsm.2017-0192

Humphreys, B. R., & Miceli, T. J. (2020). Outcome uncertainty, fan travel, and aggregate attendance. *Economic Inquiry*, *58*(1), 462–473. https://doi.org/10.1111/ecin.12844

Jensen, J. A., Cobbs, J. B., Albano, B., & Tyler, B. D. (2020). Analyzing price premiums in international sponsorship exchange: What drives marketing costs in Formula One racing? *Journal of Advertising Research, 61*(1), 44-57. https://doi.org/10.2501/jar-2020-018

Kallam, C. (2010, June 15). Female sports can be revenue generators. *Coach & A.D.* https://coachad.com/articles/female-sports-can-be-revenue-generators/

Kappe, E., Stadler Blank, A., & DeSarbo, W. S. (2014). A general multiple distributed lag framework for estimating the dynamic effects of promotions. *Management Science*, *60*(6), 1489–1510. https://doi.org/10.1287/mnsc.2013.1856

Martinson, D., Schneider, R., & McCullough, B. (2015). An analysis of factors and marketing techniques affecting attendance at NCAA Division I women's basketball games. *The Journal of SPORT, 4*(2), 42-59. https://doi.org/10.21038/sprt.2015.0424

Mayer, K. C. (2023). Division I college football premium seating: An analysis of the Power Five and Group of Five, clientele, and luxury suite price. *Sport Marketing Quarterly, 32*(4), 302-319. https://doi.org/10.32731/smq.324.122023.03

Mayer, K. C., Morse, A. L., & DeSchriver, T. (2017a). Intercollegiate football and luxury suites: An investigation of factors related to price. *Sport Marketing Quarterly, 26*(2), 75-86.

Mayer, K. C., Morse, A. L., Eddy, T. W., & Love, A. (2017b). Constraint factors affecting non-attendance in collegiate volleyball. *International Journal of Sport Management and Marketing, 17*(3), 182-199. https://doi.org/10.1504/ijsmm.2017.085519

McEvoy, C. D., Morse, A. L., & Shapiro, S. L. (2013). Factors influencing collegiate athletic department revenues. *Journal of Issues in Intercollegiate Athletics*, *6*, 249–267.

McMillen, T., & Kirwan, B. (2021, April 11). *Op-Ed: The 'arms race' in college sports is out of control. Here's how to stop it*. Los Angeles Times. https://www.latimes.com/opinion/story/2021-04-11/ncaa-alston-professionalization-coaches-salaries

Mitchell, R. K., Agle, B. R., & Wood., D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. *Academy of Management Review, 22*(4), 853-886.

Morehead, C. A., Shapiro, S. L., Madden, T. M., Reams, L., McEvoy, C.D. (2017). Athletic ticket pricing in the collegiate environment: An agenda for research. *Journal of Intercollegiate Sport, 10*, 83-102. https://doi.org/10.1123/jis.2016-0034

Morehead, C.A., Shapiro, S.L., Reams, L., McEvoy, C.D., Madden, T.M. (2021). A qualitative exploration of ticket-pricing decisions in intercollegiate athletics. *Journal of Issues in Intercollegiate Athletics, 14*, 547-573. https://scholarcommons.sc.edu/jiia/vol14/iss1/3

Muller, P., & Arthur, D. (2008). Something for nothing: the free ticket myth. In S. Chadwick & D. Arthur (Eds.), *International Cases in the Business of Sport*, (pp. 135-150). Butterworth-Heinemann. https://doi.org/10.4324/9780080554563

Mumcu, C., Lough, N., & Barnes, J. C. (2016). Examination of women's sports fans' attitudes and consumption intentions. *Journal of Applied Sport Management, 8*(4), 25-43. https://doi.org/10.18666/jasm-2016-v8-i4-7221

Myran-Schutte, L. (2019). Free student admission to events could change school culture. *National Federation of State High School Associations (NFHS)*. https://nfhs.org/articles/free-student-admission-to-events-could-change-school-culture/

NCAA. (2023, September 14). *Women's college volleyball all-time attendance records*. https://www.ncaa.com/news/volleyball-women/article/2023-09-14-womens-college-volleyball-all-time-attendance-records

NCAA. (2022a, October). *Trends in Division I athletics finances*. https://ncaaorg.s3.amazonaws.com/research/Finances/2022RES_DI-RevExpReport_FINAL.pdf

NCAA. (2022b). *Women's volleyball attendance records*. https://www.ncaa.com/_flysystem/public-s3/files/2022-09/college-volleyball-attendance-records-2021.pdf

NCAA. (2022c). *2022-2023 NCAA Championship Manual*. https://ncaaorg.s3.amazonaws.com/championships/sports/volleyball/d1/women/2022-23D1WVB_ParticipantManual.pdf

NFHS (2017). *2016-17 NFHS athletics participation survey*. https://www.nfhs.org/media/1020204/2016-17_hs_participation_survey.pdf

NFHS (2023). *2022-23 NFHS athletics participation survey*. https://www.nfhs.org/media/7212321/nfhs-2023-athletics-participation-survey-for-press-release.pdf

Paul, R., Humphreys, B. R., & Weinbach, A. (2012). Uncertainty of outcome and attendance in college football: Evidence from four conferences. *The Economic and Labour Relations Review*, *23*(2), 69–82. https://doi.org/10.1177/103530461202300206

Paul, R. J., Toma, M., & Weinbach, A. P. (2009). The minor league experience: What drives attendance at South Atlantic league baseball games? *The Coastal Business Journal*, *8*(1), 70-84. https://digitalcommons.coastal.edu/cbj/vol8/iss1/6/

Petit, A. (2023, December 16). *Volleyball eyes a bigger economic play beyond NCAA success.* Sportico. https://www.sportico.com/leagues/other-sports/2023/volleyball-popularity-ncaa-championship-texas-nebraska-1234758137/

Popp, N., Jensen, J., McEvoy, C., & Weiner, J. (2019). Quantifying the impact of adding a proactive outbound ticket sales force on revenues of NCAA athletics departments. *Journal of Issues in Intercollegiate Athletics, 12*, 205-225. https://scholarcommons.sc.edu/jiia/vol12/iss1/20

Popp, N., Jensen, J., McEvoy, C., & Weiner, J. (2020). An examination of the effects of outsourcing ticket sales force management. *International Journal of Sports Marketing and Management, 21*(2), 205-223. https://doi.org/10.1108/ijsms-04-2019-0046

Popp, N., Shapiro, S., Walsh, P., McEvoy, C., Simmons, J., & Howell, S. (2018). Factors impacting ticket price paid by consumers on the secondary market for a major sporting event. *Journal of Applied Sport Management*, *10*(1), 23–33. https://doi.org/10.18666/JASM-2018-V10-I1-8438

Popp, N., Simmons, J., Shapiro, S., & Watanabe, N. (2023). Predicting ticket holder no-shows: Examining differences between reported and actual attendance at college football games. *Sports Marketing Quarterly*, *32*(1), 3–17. https://doi.org/10.32731/smq.321.032023.01

Putler, D. S., & Wolfe, R. A. (1999). Perceptions of intercollegiate athletic programs: Priorities and tradeoffs. *Sociology of Sport Journal, 16*(4), 301.325. https://doi.org/10.1123/ssj.16.4.301

Qian, T. Y., Matz, R., Luo, L., & Zvosec, C. C. (2023). Toward a better understanding of core and peripheral market demand for women's spectator sports: An importance-performance map analysis approach based on gender. *Sport Management Review, 26*(1), 114-134. https://doi.org/10.1080/14413523.2022.2038922

Ridpath, D. B., Porto, B., Gurney, G., Lopiano, D., Sack, A., Willingham, M., & Zimbalist, A. (2015, March 2). *Position statement: Student fee and institutional subsidy allocations to fund intercollegiate athletics*. The Drake Group. https://drakegroupblog.files.wordpress.com/2015/04/position-statement-student-fees-final-3-2-15.pdf

Rottenberg, S. (1956). The baseball players' labor market. *Journal of Political Economy*, *64*(3), 242–258. https://doi.org/10.1086/257790

Schmidt, S. H., Kluch, Y., & Brody, E. (2024). "Activism is welcome as long as it's peaceful": Athletic administrators' perspectives on college athlete activism via stakeholder theory. *Sport Management Review*, 27(5), 704-723. https://doi.org/10.1080/14413523.2024.2349353

Schreyer, D., & Ansari, P. (2021). Stadium attendance demand research: A scoping review. *Journal of Sports Economics*, 23(6), 749-788. https://doi.org/10.1177/15270025211000404

Shackelford, D. E., & Greenwell, T. C. (2005). Predicting women's Division I sports attendance: An analysis of institutional characteristics. *Sport Marketing Quarterly, 14*, 139-147.

Shapiro, S. L., & Drayer, J. (2012). A new age of demand-based pricing: An examination of dynamic ticket pricing and secondary market prices in Major League Baseball. *Journal of Sport Management*, *26*(6), 532–546. https://doi.org/10.1123/jsm.26.6.532

Shapiro, S. L., Schulte, A., Popp, N., & Bates, B. (2021). An examination of secondary ticket market pricing trends and determinants at the NCAA Football Bowl Subdivision level. *Journal of Issues in Intercollegiate Athletics*, *14*, 194–213. https://scholarcommons.sc.edu/jiia/vol14/iss1/8

Smith, R. (2024, April 10). *A soccer team stopped charging for tickets. Should others do the same?* New York Times. https://www.nytimes.com/2024/04/10/world/europe/paris-fc-free-tickets-soccer.html

Stensland, P., & Bass, J. (2017). To charge or not to charge: Examining stakeholder perceptions of nonrevenue sports ticketing policies. *Journal of Applied Sport Management*, *9*(3), 38-50. https://doi.org/10.18666/JASM-2017-V9-I3-8173

Wolverton, B. (2007, July 20). *The athletics department of the future*. The Chronicle of Higher Education. https://www.chronicle.com/article/the-athletics-department-of-the-future/

Zapalac, R. K, Zhang, J. J., & Pease, D. G. (2010). Understanding women's collegiate volleyball spectators from the perspectives of sociodemographics, market demand and consumption level. *International Journal of Sports Marketing & Sponsorship, 11*(4), 50-73. https://doi.org/10.1108/IJSMS-11-04-2010-B005