Improving College Football Attendance with Demographic Analysis: Understanding the Importance of Benchmarking in Sport Marketing

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The popularity of American football in the United States is undeniable. This study examined the relationship between specific university characteristics influencing football attendance and found that basic demographic variables accounted for a significant amount of variance when predicting attendance. Findings indicate that D1institutions have the propensity to attract a larger attendance ratio when correcting for enrollment size; winning will increase attendance ratios; there is a significant positive relationship between attendance ratio and university graduation percentage, and marketers can now identify benchmark institutions with attendance ratios that are greater than expected. Introduced is 68 BIG WINS – a sport marketing strategy.

INTRODUCTION

An academic literature search on American college football would reveal thousands of published articles, refereed presentations, and white papers addressing physical injuries, TV coverage, fan profile, and other topics. However, this particular review found no relevant research examining the expected football attendance for a game or season given the specific demographic profile of a university. For example, all universities have a standard demographic and accepted profile that includes the academic competitive ranking, affluence, winning tradition, enrollment size or graduation rate. The purpose of this research is to examine specific measures of a university's demographic typology and their relationship to graduation rate and expected football stadium attendance.

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

The popularity of American football (NFL) in the United States is undeniable. The Harris polling service consistently cites professional football as the number one sport in the United States (Mitrosilis, 2014). College football may or may not ever surpass the NFL, but data suggest that college football is the second-most popular game (Dodd, 2015). Advertising revenues continue to rise given this enormous popularity as indicated by attendance records being consistently broken since 1998 (Beck, 2012). Groza (2010) reported that college football is a multi-million dollar industry and growing. However, given the overall popularity of football at the collegiate level, not all college football teams enjoy the same relative football attendance. Therefore, the sport marketing question remains, how do we fill the stadium, and is there a reason to promote college football over and above the revenues generated?

WINNING RECORD AND UNIVERSITY SIZE

Common sense would suggest that a college football team with a winning record would generate higher attendance than a team with a losing record and the professional literature confirms this. Wells, Southall & Peng (2000) reported a significant factor in predicting college football attendance, at least Division 2, is a previous winning percentage. DeSchriver and Jensen (2002) found that a team's current winning record is the better predictor of attendance than the previous years' winning record. However, both will predict increased stadium attendance levels. Research by Price and Sen (2003) highlighted the importance of a winning record in securing a large game-day attendance. Finally, Leonard (2005) found that stadium attendance and ticket sales increase when both football teams scheduled to play – have a winning record.

As university enrollment increases so should college football attendance. Most of this effect is a function of mathematical probability. Two previous research studies confirmed this hypothesis of the relationship between university size and attendance (Marcum & Greenstein, 1985; Baade & Tiehen, 1990). These researchers found that a university's enrollment size has a positive relationship with football attendance. However, no research examined any curvilinear relationships or proportionality, that is, the ratio of average football attendance divided by the total university enrollment.

MARKETING EFFORTS, REPUTATION AND FOOTBALL ATTENDANCE

Marketing college football is not new. Riordan postulated in 1930 that football is possibly the easiest form of advertising and marketing a university can possibly have. However, many sport marketers have gone far beyond merely posting scores or promoting mascots. Greenwell, Fink & Pastore (2002) concluded that a sport marketer would usually promote the facility, grounds, and the scoreboard. All will influence and theoretically increase fan attendance and satisfaction. However, research has not confirmed this hypothesis. Other sport marketers highlight myriad ways to increase attendance by expanding general admission seating, enhancing Wi-Fi, streamlining ticket sales and opening the student section to young alumni (Steinbach, 2013). Again, little experimental research confirms the efficacy of these efforts.

On any given Saturday in the fall, you will find t-shirts, flags, banners, and TVs tuned to a college football game. Mihailovich & Keteyian (2012) assert that the popularity of college football is at an all-time high, ultimately resulting in a higher profile for any university receiving media exposure. This rise in popularity is also the main driver behind the willingness to invest large sums of money in order to broadcast college football. Tannock (2009) discovered a 4 to 1 ratio in favor of commercials highlighting next week's games rather than highlighting the academic institution. Ironically, McCormick and Tinsley (1987) concluded that strong football programs with a winning tradition will notice a rise in standardized testing scores (ACT/SAT) of their incoming freshmen. Therefore, there appears to be a win-win relationship between promoting football games and academic recruitment efforts.

Although an extensive literature search revealed no specific studies examining the relationship between university demographic variables like academic competitiveness, divisional breakdowns or the impact of university affluence on college football attendance, research did indicate the virtue and necessity to benchmark exemplary institutions. Kuzmicz (2015) asserts that benchmarking can be the appropriate tool to assess any institution's competitive position, that is, in order to learn from the best. The goal is to identify leaders or "winners."

RESEARCH PURPOSE AND QUESTIONS OF INTEREST

The purpose of this research is to examine demographic variables that commonly describe a university with respect to football attendance. Where appropriate, linear, curvilinear relationships and multi-variate analysis will test research questions and identify benchmark universities. Specific research questions are:

1. Is there a significant positive relationship (linear or curvilinear) between university size (ENROLLMENT) and football TOTAL ATTENDANCE for the season?
2. Is there a significant relationship between university size (ENROLLMENT) and the criterion variable ATTENDANCE RATIO (average football attendance divided by the university size)?
3. Is there a significant and positive relationship between the ATTENDANCE RATIO and four-year GRADUATION rate?
4. Can a statistically significant cut-off score identify benchmark football programs across divisional status (D1, D2, and D3) according to ATTENDANCE RATIO given the operationalized UNIVERSITY TYPE: competitive/low affluence (CL); competitive/high affluence (CH); non-competitive/low affluence (NCL) and non-competitive/high affluence (NCH)?
5. Is there a significant positive relationship between a university's four-year winning record (WINNING TRADITION) and both criteria of concern: TOTAL ATTENDANCE and ATTENDANCE RATIO?
6. Is there a significant descriptive and empirical relationship between the UNIVERSITY TYPE, in relationship to ATTENDANCE RATIO?
7. How much influence will specific demographic variables like enrollment, competitive rank, affluence, winning record, divisional status or university type, have on the season's total football attendance?

METHODOLOGY AND STATISTICAL ANALYSIS

The researchers randomly selected n = 100 universities from each of three NCAA football divisions, resulting in a total N = 300. All relevant data came from the primary reporting or governing bodies that monitor academic and athletic membership, specifically, the National Center for Educational Statistics (NCES/IPEDS) and the National Collegiate Athletic Association (NCAA). Specific data include the total college enrollment; ACT/SAT composite scores; division level (D1, D2, D3); winning record (previous year, year season and four year history); fan attendance (total and average); percent of students in receiving Federal aid; and graduation rates.

It is reasonable to assume that a university's population is proportional to expected stadium attendance. For example, a university with 50,000 students has a mathematical advantage in securing larger numbers to attend a football game, vis-à-vis a small university with 1,500 students. Although this remains an important variable to investigate, it is equally valuable to include and develop a ratio or proportional number (variable) to control for the influence of university population size when predicting stadium attendance. As a result, when dividing the average football attendance by the total university population, an operationalized and standard measure (variable) controlling for university size (ATTENDANCE RATIO) emerges.

In addition, the researchers classified universities as competitive or noncompetitive if they fell above or below the mean composite ACT/SAT score for all universities under examination. Therefore, if a university had an average ACT/SAT score at or above the population mean (ACT = 23.23), it was classified as COMPETITIVE. If this number was lower, researchers classified it as NON-COMPETITIVE.

Finally, researchers classified universities according to the number of students receiving Federal aid. If the university mean number of students receiving federal aid was at or lower than the population mean (37.91), researchers classified it as HIGH AFFLUENCE. If higher, researchers classified it as LOW AFFLUENCE. For clarification, Federal aid is available to those students deemed less financially affluent according to national family/household income levels. Thus, as affluence increases, a reduction in aid occurs proportionally until a family/student is no longer eligible.

When examining an interaction effect between the COMPETITIVE and AFFLUENCE classification, this process resulted in four classifications emerging: competitive/low affluence (CL); competitive/high affluence (CH); non-competitive/low affluence (NCL) and non-competitive/high affluence (NCH). This research question required a reverse scoring of Federal aid for consistency when developing predictive research models.

A university's winning record, a continuous variable, documented the number of wins in each year – over a four-year period (2011, 2012, 2013 & 2014). WINNING TRADITION became the operationalized variable.

In order to address the seven research questions, researchers employed various statistical models, including simple and multiple linear regression, model comparisons, and descriptive summary. Regression models were both directional and non-directional, given theory or hypothesis; researchers tested all potential curvilinear relationships. All analysis used SPSS version 23.

RESEARCH FINDINGS

The first question (Q1) tested the researchers' directional assumption that university enrollment would confer a mathematical advantage for finding statistical significance (positive) in relationship to total football game attendance. Statistical significance was found (df = 1/298; R = .764; R-Square = .583; F = 417.00; p <.0001). The curvilinear relationship was also tested and found that it accounted for a significant amount of variance (df = 1/297; R = .774; R-square = .598; F = 11.28; p = .001) over and above the tested linear relationship. There was a .015 change in variance. The min/max point (MAX) was approximately an enrollment of 10,000 students.

Question two (Q2) tested if there was a significant relationship between ENROLLMENT and the criterion variable ATTENDANCE RATIO as a systematic approach to control for university enrollment size. Findings suggest no significant statistical relationship for either a linear (df = 1/298; R =.094; R-square = .009; F = 2.65; p = .105) or a curvilinear relationship (df =1/297; R = .098; R-square = .010; F = .233; p = .630).

Question three (Q3) tested if there was a directional and significant positive relationship between the predictor variable ATTENDANCE RATIO and the criterion four-year GRADUATION rate. Found was statistical significance (df = 1/298; R = .105; R-squared = .011; F = 3.348; p = .038).

Question four (Q4) posed can a statistically significant cut-off score identify benchmark football programs across divisional status (D1, D2 & D3) according to ATTENDANCE RATIO given the operationalized UNIVERSITY TYPE: competitive/low affluence (CL); competitive/high affluence (CH); non-competitive/low affluence (NCL) and non-competitive/high affluence (NCH)? Results indicated that the mean ATTENDANCE RATIO was 1.17 with an SD = .98; therefore, any football program with a 2.15 attendance ratio or greater has a statistically significant larger attendance. Using one standard deviation is theoretically consistent when establishing a relevant cut-off point. Given this criterion and the available database, this process identified 11of 12 college football programs as having a statistically significant higher ATTENDANCE RATIO than other football programs in their respective divisional status.

Question five (Q5) examined if there was a significant positive relationship between a university's four-year winning record (WINNING TRADITION) and both criteria of concern: (a) FOOTBALL TOTAL ATTENDANCE and (b) ATTENDANCE RATIO. Both cases found statistical significance: [(a) df = 4/290; R = .278; R – square .077; F = 6.065; p <.0001; (b) df = 4/290; R = .375; R – square .0140; F = 11.848; p <.0001].

Question six (Q6) posed if there was a significant descriptive and empirical relationship between the UNIVERSITY TYPE, in relationship to ATTENDANCE RATIO. Both types of relationships were significant. When empirically tested, CL, CH, NCL and NCH results are significant in relationship to predicting ATTENDANCE RATIO: (df = 3/296; R = .220; R – square .049; F = 5.041; p = .002).

The qualitative results examined the relative rank-order of mean scores with respect to ATTENDANCE RATIO given UNIVERSITY TYPE. Findings indicated that the same rank-order effect occurs across all DI, D2, and D3 universities; therefore, establishing qualitative significance. For clarification, CH rank is 1; NCL is 2; CL is 3 and NCH is 4, and this is consistent across each football division. In addition, by description and empirical analysis it appears that D2 universities have a significantly lower ATTENDANCE RATIO across CL, CH, NCL and NCH when correlated with UNIVERSITY TYPE (see Table 1).

TABLE 1
EXPECTED ATTENDANCE RATIO

	Competitive /Low Affluence (CL)	**Competitive/ High Affluence (CH)**	**Non - Competitive/ Low Affluence (NCL)**	**Non - Competitive/ High Affluence (NCH)**	**MEAN** ⇓
D1	1.33	1.56	1.47	.99	1.33
D2	.78	1.008	.92	.423	0.78
D3	1.04	1.27	1.18	.70	1.04
MEAN ⇒	1.05	1.27	1.19	.704	

Note. Correlation between type of university and ATTENDANCE RATIO found: D1, N = 300, R = .219*; D2, N = 300, R = -.223* and D3, N = 300, R = .003. D1 & D2 p <.0001*; D3 p = .955. Likewise, CL, CH, NCL and NCH correlations with ATTENDANCE RATIO found: CL, N = 300, R = -.017, p = .770; CH, N = 300, R = .177, p = .002; NCL, N = 300, R = -.058, p = .315; NCH, N = 300, R = -.178, p = .002.

Question seven (Q7) explored how much influence (variance accounted for) will demographic variables like enrollment, competitive rank, affluence, winning record, divisional status or university type, have on the season's total football attendance. Found was statistical significance. In addition to the main effects listed and tested, the model included all appropriate interactions and curvilinear relationships (df = 19/275; R = .822; R – square .675; F = 30.102; p <.0001).

DISCUSSION AND IMPLICATIONS

The first question tested the assumption that a university's size would confer a mathematical advantage for finding statistical significance (positive) in relationship to the total football game attendance. Found was statistical significance. This indicates that larger institutions have an increased propensity to attract larger attendance, but there appear to be natural limits given the size of a university. Findings suggest that universities with a total enrollment exceeding 10,000 experience a curvilinear function that slowly begins to level off and curves slightly downward in terms of total football attendance.

Question 2 examined if there was a significant relationship, linear or curvilinear, between university size and the criterion variable ATTENDANCE RATIO. Found was no statistical significance.

Therefore, using an attendance ratio has practical application, because it controls or adjusts for university size when examining the outcomes of any strategic or implemented marketing campaign. In addition, using an attendance ratio appears to be a viable benchmarking technique allowing for a realistic assessment. However, this finding does not negate the importance of using total attendance numbers in research studies, rather the opposite – it adds another dependent variable to use when warranted.

Question 3 found that there was a directional and significant positive relationship between the predictor variable ATTENDANCE RATIO and the criterion GRADUATION. Data suggest that as the attendance ratio increases, so does a university's four-year graduation percentage. The implication is that football attendance is conducive to student success as measured by graduation percentage. Therefore, this finding supports internal and external efforts to increase stadium attendance by including all stakeholders (students, faculty, alumni, administrators and staff) when promoting games. This finding is also consistent with Tinto's (1988) model of student involvement that postulates student participation in social events or activities enhances graduation rates.

Question 4 investigated if finding a statistically significant cut-off score were possible, the sport marketer could then benchmark football programs across divisions and university types. Findings indicate university football programs achieving a statistically significant high attendance ratio in 11 of the 12 possible university classifications. Therefore, this process allowed for the identification and benchmarking of universities whose attendance ratio was higher than one would expect by chance. The specific table, as offered, enables a sport-marketing researcher to identify and investigate another university to see what possible options they have to modify their own university sport marketing strategy (see Table 2).

TABLE 2
D1, D2 AND D3 HIGH-RATIO ATTENDANCE BENCHMARK UNIVERSITIES

	Competitive/ Low Affluence (CL)	**Competitive/High Affluence (CH)**	**Non - Competitive/Low Affluence (NCL)**	**Non - Competitive/High Affluence (NCH)**
D1	Missouri	Notre Dame	Alcorn	Citadel
D2	North Greenville	**N/A**	Miles	Northern State
D3	Maryville	Hampden-Sydney	Emory & Henry	Lycoming

This process of sport marketing research ultimately validates benchmarking according to university type. In addition, a university sport marketer can complete a self-assessment simply by recording their average attendance and dividing by the total number of enrolled students. This process will result in a specific attendance ratio. Compare your results with those found earlier in Table 1.

Question 5 examined the relationship between winning tradition and total football attendance, as well as the attendance ratio. In both cases, winning increased stadium attendance. Although this is a reasonable assumption to postulate and test, one possible consequence is that a university sport marketer may have difficulty promoting football attendance if the team is not winning. Therefore, a sport marketer may be able to increase attendance by offering an opportunity to participate in activities or events related to the football experience that go beyond a winning record. For example, the promotion of tailgating, pre-game events, half time shows or post game parties may ignite campus enthusiasm. (McKnight, O., Paugh, R., Mcknight, J. & Jin, R. 2014).

Question 6 examined if there was a significant descriptive and empirical relationship between university type and attendance ratio. Found was statistical significance for both questions. Table 1 highlights that D1 football had the largest attendance ratio. This is not surprising, given the earlier

finding that enrollment size has a statistically significant and positive relationship with attendance ratio. However, this specific finding would suggest that D1 universities are also more academically competitive and affluent than universities in the other two divisions. This could be an inherent difficulty for the sport marketer because they can do little about changing their university academic admission history or student affluence profile. Yet, given this finding, D1 universities should theoretically have the least difficulty improving their attendance ratio when compared with D2 and D3 universities. However, a sport marketer must remain cognizant of their university type.

By contrast, the data suggest that football programs in D2 will have significant difficulty improving their attendance ratio given their overall competitive ranking and affluence rating. Again, there is little that a university sport marketer can do about the university profile, which makes marketing and increasing attendance ratios at the D2 level inherently more difficult than at the D1 level. The importance of strategic research and marketing efforts becomes paramount. Moreover, D3 universities will have less difficulty improving their attendance ratio than D2 but the importance of market research is vital to any successful attempt to increase both the total attendance and attendance ratio at football games.

Be aware that for all divisions it is very difficult for the non-competitive, affluent type university to secure a high attendance ratio. Therefore, the marketing implication is that there may not be a general marketing or promotion campaign for everyone. However, Table 2 did identify university programs (three universities) that had a statistically significant attendance ratio above any chance factor. Therefore, it would be prudent for a university sport marketer to use benchmarking to identify known marketing and promotional strategies in order to improve their attendance ratio.

Question 7 explored how much total influence (variance accounted for) demographic variables like enrollment size, competitive rank, affluence, winning record, divisional status or university type, had on the total football attendance. Findings suggest that all main effects, interactions and curvilinear relationships of variables as entered account for approximately 68% of the variance in predicting total season attendance. Therefore, a university sport marketer must be cognizant of the basic demographic characteristics of their university before blindly marketing or promoting a football game. For clarification, not all variables were in this model; for example, weather, geographic location and stadium design. Although 32% percent of the variance is unaccounted for, it still may be difficult to develop a sport marketing strategy to increase stadium attendance. It is not a simple endeavor and requires a sport-marketing director to benchmark and research the appropriate marketing strategy, given their university type. Found in Table 3 is a summary of research findings – 68 BIG WINS.

TABLE 3
68 BIG WINS

68	68% of the variance accounted for when predicting total football attendance derives from uncontrollable university demographics – be strategic in sport marketing!
B	Benchmark by university type –investigate those universities achieving a greater attendance ratio than would be expected by chance. Use the CASE method: copy and steal everything.
I	Impact of affluence – affluence has a positive relationship with attendance ratio and total attendance for students attending a competitive university. This is not the case for the less competitive university.
G	Graduation rates improve with higher football attendance ratios – this warrants total university involvement from students, faculty, alumni, administrators and staff when promoting games.
W	Winning record is extremely important to increasing both football attendance/ratio. Therefore, it is not important how you play the game – Just win! Marketers must adjust strategy for non-winning seasons.
I	Institutional typology predicts attendance ratio – sport marketers should use and understand it. However, keep assigned typology internal because non-market researchers may misconstrue.
N	Number of students enrolled can influence total football attendance for a season. However, to control for university size, a market researcher could use the attendance ratio as a validity measure.
S	Start now and assess your university's typology. Segment any sport marketing campaign according to known demographics, winning record, and all relevant information secured through benchmarking.

LIMITATIONS AND FUTURE RESEARCH

This was an exploratory study using randomized proportional selection procedures. Since future databases can contain all the demographics of all universities, a test of the general population in order to establish stronger predictive validity is necessary. In addition, this study focused on demographic variables assigned. Therefore, it would benefit those professionals in sport marketing to examine high attendance ratio universities and assess their marketing efforts and campaigns.

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