Intercollegiate Football and Luxury Suites: An Investigation of Factors Related to Price

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Abstract

As financial and sustainability pressures placed upon collegiate athletic programs grow, it is important to understand all revenue generation areas, which include luxury suites. However, while suite finances are readily available on American professional sports, the opposite appears true for collegiate sports. As the first empirical investigation on the pricing of college suites, this study aimed to contribute to the limited literature on luxury suites and help better understand the luxury suite market. Multiple regression analyses were used to develop two significant models that estimated collegiate football luxury suite price using 16 explanatory variables. The results explained between 65% and 68% of the variation in suite price, highlighted the uniqueness of the college football suite market, and indicated that Conference Affiliation, Suite Capacity, County Income, Tickets Included, College Basketball Competition, and Winning Percentage were positively related to suite price, while County Population had a significant negative impact.

Keywords: pricing, athletic revenue, luxury suites, suites, college suites, collegiate sport, sport finance, football, college football, college athletics

Introduction

Intercollegiate athletics are a popular, and at times, profitable segment of the American sport landscape (Knight, 2009). While the finances and operations of these public and private not-for-profit organizations has been widely debated (Associated Press, 2010; Berkowitz, 2012; Bolton, 2012a, 2012b; Fulks, 2015; Knight, 2009; McEvoy, Morse, & Shapiro, 2013; Upton & Berkowitz, 2012; Wieberg, Upton, & Berkowitz, 2012), there is growing pressure for Division I athletic departments in the National Collegiate Athletic Association (NCAA) to generate more revenue independent of institutional support (Mulhere, 2015). One strategy for becoming more financially self-sustaining is to generate additional revenue from the product that they produce. In Division I programs, ticket sales and cash contributions are two of the three largest revenue sources, com-bined at over 50% of generated non-allocated revenue and 40% of overall athletic department revenue (Fulks, 2015). This is largely attributable to football, where a monetary contribution is often required in addition to season tickets (Brown, Rascher, Nagel, & McEvoy, 2010; Knight, 2009; Mason & Howard, 2008). Additionally, the Football Bowl Subdivision (FBS) is regarded as the college level with the greatest potential to generate revenue (Associated Press, 2010; Fulks, 2015; McEvoy et al., 2013; Mulhere, 2015). So, in terms of financial viability, ticket sales and football represent important areas to college athletic departments, and football luxury suites are an important revenue source with the potential for further growth.

Included in ticket sales are general seating as well as premium seating options, which comprise club-level seating and the luxury seating of loge boxes and suites.

In the past, sport facilities did not have many luxury seating options and were more concerned with overall attendance. Today, much attention is given to the marketing of suites to a small group of affluent individual consumers and corporate entities that can afford the seating (Brown et al., 2010). In revenue terms, the higher price points of luxury seating yield three to four times more revenue per person than general seating (Brown et al., 2010; Mason & Howard, 2008). Suites have become a critical source of revenue, and while information is obtainable on suites in professional sports (Mason & Howard, 2008), little research has been conducted on collegiate suites (Lawrence, Kahler, & Contorno, 2009). The college sports environment adds another dimension, as many colleges operate in sites that are not large cities, lack professional sport, and may require donations to access seating (Brown et al., 2010). Further, the variables related to suite prices in college athletics may differ from professional sports (Shapiro, DeSchriver, & Rascher, 2012).

Given the financial pressures placed upon athletic departments, it is paramount to understand all areas in which revenue can be generated (Berkowitz, 2012; McEvoy et al., 2013; Upton & Berkowitz, 2012). With facility expansions taking place, and given that football is the highest revenue-generating collegiate sport (Knight, 2009), football and luxury seating have become important areas to analyze. If the factors related to the price of college football suites are better understood, these suites may then be optimally priced for maximum sales and revenues.

Despite this, very little research has been conducted in the area of college luxury suites (Titlebaum, De-Mange, & Davis, 2012). To date, no research has been conducted on collegiate suite pricing, even though studies have called for work in the areas of suites at the intercollegiate marketplace and in premium product pricing (Titlebaum & Lawrence, 2011; Titlebaum, Lawrence, Moberg, & Ramos, 2013). Therefore, the purpose of this study was to analyze the relationship between selected factors and the price of luxury suites for NCAA Division I FBS-level football programs. Ultimately, the findings may aid administrators in understanding the college luxury suite market, and improving their suite pricing and marketing strategies.

Literature Review

The literature in the area of luxury suites is limited, but expanding. In collegiate sport, only one study has been conducted that incorporated college suites (Titlebaum et al., 2012). Also, only one luxury suite pricing study has been conducted, as Shapiro et al. (2012) analyzed factors related to suite price in North American professional sport facilities. Other suite studies have focused on the suite administrator (Lawrence & Titlebaum, 2010), food and beverages (Titlebaum, Titlebaum, & Dick, 2011), and an industry overview (Titlebaum & Lawrence, 2011). However, most literature has focused on professional suite ownership and sales. Thus, this study is the first to analyze the relationship between selected factors and the price of collegiate suites.

Luxury Suite Sales and Ownership

Lawrence and Moberg (2009) proposed a framework for suite sales that focused on client research/recruitment and customer relationship management. Titlebaum and Lawrence (2009) expanded on this research and qualitatively investigated customer acquisition and retention through interviews with suite sales professionals on what they believed suite owners valued.

Titlebaum and Lawrence (2010) then used the framework to investigate perceived motivations of professional sport corporate suite owners. Suite sales professionals in the big four leagues (i.e., National Football League [NFL], Major League Baseball [MLB], National Basketball Association [NBA], and National Hockey League [NHL]) were surveyed, and results indicated a consistency in perceived suite ownership motivations with few league differences.

The Titlebaum and Lawrence (2010) results were then compared to a collegiate league (Titlebaum et al., 2012), which appears to be the only research on college suites. Results mostly indicated similarly perceived purchase reasons at both levels. However, college suite owners were individuals more concerned with personal gameday suite use and community support, whereas professional suites were more for business deals. Slightly less significant differences indicated more upgraded amenities were expected in college suites, while personal relationships and team performances were more important in professional suites (Titlebaum et al., 2012).

While the research noted utilized the perceptions of the sales staff, some research has utilized information from actual suite owners. Titlebaum et al. (2013) interviewed 15 decision-makers of Fortune 100 firms that were premium seating and suite owners. Additionally, two studies have been conducted on actual client lists of professional sport teams and venues (Lawrence et al., 2009; Lawrence, Contorno, & Seffek, 2013). To increase the understanding of premium seating owners and aid practitioners in targeting clients, Lawrence et al. (2013) data mined the ticket and business characteristics of premium seat purchasers. Results indicated 36.3% of suite owners were in top 10 industry segments, and the largest percentages of suite owners were from attorneys/legal services (6.3%), banks and credit unions (5.8%), and insurance (5.1%). An asset analysis of suite owners indicated over a quarter of corporate suite owners

(27.3%) had sales volumes and asset sizes of over $1 billion (Lawrence et al., 2013). Similarly, Lawrence et al. (2009) examined luxury suite ownership with this method, and it was interesting to note the area of colleges and universities had five responses. Overall, these studies help demonstrate the financial value of luxury suites. However, there has only been one study, to date, that empirically examined luxury suite pricing (Shapiro et al., 2012).

Luxury Suite Pricing

Shapiro et al. (2012) investigated various economic, demographic, facility, and team factors related to luxury suite price in major North American professional sports (i.e., Major League Soccer [MLS], the big four). The regression models explained 57% and 60% of variability in suite prices, and developed the first pricing determinants models for luxury suites. Results indicated the number of competing venues negatively influenced price, while league affiliation and team performance positively influenced price. Furthermore, NFL suites were the highest priced, followed by the NBA, NHL, and then MLB and MLS having the least value. Of note, MLS did not reach significance, perhaps due to its small sample. Also, results indicated a positive relationship between suite price and market population, as well as per capita income.

To date, it appears there is no research that has empirically investigated the pricing of college football luxury suites, and only one study on the pricing of professional suites (Shapiro et al., 2012). While the area of luxury suite pricing has been minimally investigated, there have been numerous investigations on sport revenue streams. In particular, the revenue stream of tickets, and ticket pricing, has been extensively researched in the sport management literature.

Pricing, Demand, and Revenue in Sport

In 1974, Noll's seminal work examined factors that affect professional sport attendance. Results indicated ticket price was a significant factor in affecting attendance, along with ticket price being inelastic. Several studies found similar results regarding ticket price inelasticity (Coffin, 1996; Pan, Zhu, Gabert, & Brown, 1999; Schofield, 1983; Siegfried & Eisenberg, 1980). Fort (2004) debated inelastic ticket pricing is likely a result of profit maximization. Total cost of attendance, beyond event admission, potentially includes access to purchase ancillary items such as parking and merchandise (Marburger, 1997). Furthermore, Fort (2004) noted the likelihood of teams underpricing the ticket inventory for sellouts, in turn, increasing the opportunity to maximize profits through ancillary sales. While price is an important factor to explain demand, the realization that profit maximization helps explain ticket prices

are not the only variable having an effect on demand (Coates & Humphreys, 2007; Krautmann & Berri, 2007; Marburger, 1997). Additionally, there are other factors that impact sport ticket prices. Literature has indicated many factors can influence the price of a ticket, both positively and negatively, such as team performance, income, population size, and stadium age (Coalter, 2004; Fort, 2004; Marburger, 1997; Noll, 1974; Rascher, McEvoy, Nagel, & Brown, 2007; Rishe & Mondello, 2003, 2004).

However, Rishe and Mondello (2003) also discussed that the determination of ticket price varies from organization to organization, league to league, and market to market, which is problematic when attempting to standardize ticket-pricing strategies. Further, there are college revenue streams to consider (Caro & Benton, 2012; Matheson, O'Connor, & Herberger, 2012). McEvoy et al. (2013) noted for public FBS college athletic departments, the areas of time, enrollment, football success, and conference affiliation are useful in the prediction of revenue generation.

In all, there are many variables to consider in terms of sport ticket pricing and revenues. The abundance of sport pricing research provides a framework for guidance in other inquiries, such as suites (Shapiro et al., 2012). Also, while the work on professional luxury suite pricing (Shapiro et al., 2012) can help guide other suite pricing investigations, the collegiate realm may require the need to account for additional revenue areas (McEvoy et al., 2013; Titlebaum et al., 2012). As such, this work was an attempt to research factors related to the price of collegiate football suites, and aid athletic departments in their revenue-generation efforts.

Method

Sample

The programs of interest for this investigation were those that competed in the NCAA Division I FBS-level, had luxury suites in their football facility, and were members of the top six FBS-level conferences (i.e., Big Ten, Big 12, PAC-12 Conference [PAC], Atlantic Coast Conference [ACC], Southeastern Conference [SEC], and American Athletic Conference [AAC]). Essentially, schools in the previous automatic qualifier conferences were considered, though not all 76 institutions had suites at the time of data collection based upon the 2014 season.

In the data collection process, six institutions verified they did not have luxury suites, and four more played in facilities owned/operated by professional football teams and did not control their suites. For example, Temple University plays their games in Lincoln Financial Field, where the luxury suites, and accompanying revenue

Table 1
Conference Respondents

Conference	Teams in Conference	Schools Applicable of Study	Schools That Provided Date	% of Conference Represented in Study
Big	14	13	11	84.61
S	14	14	11	78.57
P	12	10	8	80.00
Big	10	10	9	90.00
ACC	15	12	9	75.00
AAC	11	7	3	42.86

stream, are primarily controlled by the NFL's Philadelphia Eagles. As such, there were only 66 schools available to obtain suite information.

Institutions were contacted individually through email and telephone communications to acquire information regarding their football luxury suite offerings. Data were obtained from various departments and athletic representatives that handled suite offerings (e.g., athletic fundraising, ticket sales, hospitality, etc.), and were guaranteed anonymity to ease concerns of sharing pricing information. As such, 51 institutions provided data, or 77.27% of the possible respondents. Table 1 displays a further breakdown of conference representation.

Variables
Variables were developed through a literature review on sources of revenue for sport teams, sport pricing models, and the identification of unique aspects of the collegiate sport. These works were related to price determinants for individual tickets (Reese & Mittelstaedt, 2001; Rishe & Mondello, 2003, 2004), demand for tickets (Coates & Humphreys, 2007; Coffin, 1996; Fort 2004; Pan et al., 1999), and luxury suites and revenue in professional and collegiate sport (Association of Luxury Suite Directors, 2014; Lawrence et al., 2009; Lawrence et al., 2013; McEvoy et al., 2013; Shapiro et al., 2012).

The variables of interest in this study were obtained from both primary and secondary sources. The primary information provided by the collegiate athletic departments pertained to their facility, and the pricing details for their football luxury suites. The secondary information pertained to team performance, institutional characteristics, and the local market. Initially, data for over 50 variables were collected (please contact authors for a full list). The authors determined 23 variables as potentially the most important and applicable to this college football suite study. The elimination of the other variables was done to reduce the repetitiveness of similar variables and to make for a more reasonable number of variables for the prediction of suite price.

Pearson correlation coefficients were generated for those 23 explanatory variables, and results displayed a high level of correlation between some variables. Multicollinearity occurs when there is a strong linear relationship among explanatory variables and can result in erroneous regression results (Kennedy, 1998). To address the multicollinearity within the data set, and to make a more parsimonious model, several variables were eliminated prior to the generation of the multiple regression results. The set of 23 variables included home team winning percentage of previous year, home team winning percentage over previous five years, if the home team had made a bowl appearance previous year, number of bowl appearances over past five years, and number of Bowl Championship Series (BCS) appearances. All of these variables were highly correlated with Pearson correlation coefficients greater than 0.50. Also, the variables of county population, number of midsized companies in the market, number of sport venues in the market, and number of professional teams in the state/market were highly correlated ($r > 0.50$). In both sets of highly correlated variables, the variable that was most highly correlated with the dependent variable of price was retained (i.e., winning percentage of the previous five seasons, and county population). Thus, the number of variables was reduced from 23 to 16.

The work of Shapiro et al. (2012) is closely related to this study, so many of their variables were incorporated (i.e., Suite Price, Number of Suites, Suite Capacity, Tickets Included, Events Included, Parking Included, Food-Beverage Included, Winning Percentage, Facility Capacity, Facility Age). The dependent variable was Collegiate Luxury Suite Price, and the midpoint was selected based on the nature of the data provided and past research (Shapiro et al., 2012). Price can be measured in many ways such as mean, median, weighted average, and midpoint price. Midpoint price was the most accurate measure provided by respondents, with some reluctant or unable to provide price data for each individual suite. Thus, weighted average, mean, and me-

dian price were not calculable. In terms of the independent variables, adding more benefits to a suite purchase was thought to increase the suite price (Shapiro et al., 2012). As such, the inclusion of more seats, tickets, food-beverage, parking, and other events at the facility in the suite package was anticipated to increase price (i.e., Suite Capacity, Tickets Included, Food-Beverage Included, Parking Included, Events Included). Similarly, a team with a winning history (i.e., Winning Percentage) will have higher suite prices (Noll, 1974; Shapiro et al., 2012). Much the same positive relationship rationale was applied to Facility Capacity and Number of Suites, where a large football stadium and amount of suites may suggest a demand to attend games, which include purchasing suite offerings (Shapiro et al., 2012).

While each of the previously listed was an independent variable that a *priori* was expected to be positively related to suite price in that each would act much in the same manner at both professional and college levels (Shapiro et al., 2012), the Facility Age variable was anticipated to differ. In college football, teams with older stadiums typically have longer pasts and traditions with football. As such, the variable of Facility Age was thought to differ from the professional level and their newer stadiums, with older facilities having a positive impact on price (McEvoy et al., 2013; Rishe & Mondello, 2003, 2004; Shapiro et al., 2012). Additionally, given the difference in the nature of the professional and collegiate sport industries, three market variables used in the Shapiro et al. (2012) model were adjusted to better measure collegiate elements. As such, the variable of County Population was utilized to better measure local population, as some colleges are not located in major cities, but smaller areas and college towns in rural and suburban communities (McEvoy et al., 2013). Similarly, the Per Capita County Income variable was selected for use, instead of the per capita metropolitan statistical area (MS) income variable. Each variable was expected to be positively related to suite price (Shapiro et al., 2012). However, the College Basketball Competition variable, which measured the number of Division I basketball programs in the state, was adjusted from facility and team market competition variables (Shapiro et al., 2012). An increase in other college sport teams was thought to be negatively related to price, from the increased competition for sport consumer purchases.

Unique to this suite study, the variables of Institutional Enrollment, Institutional Status, Conference Affiliation, and Renovation have been included to better measure college athletics. Institutional Enrollment was a variable that a *priori* was expected to be positively related to collegiate suite prices, as larger enrollments indicated larger revenues for public college athletic departments (McEvoy et al., 2013). Also, the Institutional

Status as a private or public college was considered (Fulks, 2015; McEvoy, 2005). The Conference Affiliation variable was adopted, as Caro and Benton (2012) and McEvoy et al. (2013) indicated differences in revenue generation by conferences. Lastly, as many college football teams play in older stadiums, the Renovation variable was included. A recently renovated/added suite area was thought to be negatively related to price, where facility upgrades for suites would result in higher suite prices and indicate a demand for the seating (Brown et al., 2010). Following is a list of all the variables included in the statistical analysis. While discussed in greater detail in the statistical design section, it should be noted that all continuous variables were logarithmically transformed for the regression analysis.

Dependent variable
Collegiate Luxury Suite Price (COLLUXPRICE) – The midpoint price of the luxury suites, as reported by each institution, for its football facility. Variable was logarithmically transformed.

Explanatory variables
1. Conference Affiliation (CONF) – Categorical variables that denoted the football conference in which each institution competed for that pricing year (i.e., Big Ten, Big 12, PAC, SEC, ACC, and AAC). The AAC was utilized as the null value as it was anticipated to generally have the lowest conference suite prices and thus, a *priori*, it was expected the regression coefficient would have positive signs and be most easily interpreted.
2. Tickets Included with Suite (TIXINC) – A categorical variable that indicated if the seat tickets were included with the lease price of the suite.
3. Other Events Included with Suite (OTHEVE) – A categorical variable that indicated if tickets for other events at the facility, non-gameday events, were included in the suite lease price.
4. Parking Included with Suite (PARK) – A categorical variable that indicated if parking costs were included with the suite price.
5. Food and Beverage Included with Suite (FB) – A categorical variable that indicated if food and beverage costs were included with the suite price.
6. Private/Public Institutional Status (PRIV) – A categorical variable that indicated if the university/college was a private school or public institution.
7. Facility Capacity (CAP) – The total number of spectator seats at the given facility for a football game. Variable was logarithmically transformed.

8. Facility Age (AGE) – The age of the facility as based upon the year the facility finished construction and opened for football contests. Variable was logarithmically transformed.

9. Renovation (RENO) – The age of the suite area as based upon the year of the last major suite renovation/addition. Variable was logarithmically transformed.

10. Number of Suites (SUIT) – The number of suites in the football facility for a football game. Variable was logarithmically transformed.

11. Suite Capacity (SCAP) – The average number of seats in a luxury suite for that given facility. Variable was logarithmically transformed.

12. Winning Percentage (WIN) – The winning percentage of the team for all football games played over the past five seasons. Variable was logarithmically transformed.

13. County Population (POP) – The total population of the county where the institution is located, as based upon the 2013 figures from the United States Census Bureau (2014). Variable was logarithmically transformed.

14. Per Capita County Income (INC) – The mean income of the county where the institution is located, as based upon 2012-dollar figures, from the United States Census Bureau (2014). Variable was logarithmically transformed.

15. College Basketball Competition (BBALL) – The number of Division I basketball teams in the state. Variable was logarithmically transformed.

16. Institution Enrollment (ENR) – The total enrollment number of each institution, which included graduate and undergraduate students, from the fall of 2013 as based upon the National Center for Education Statistics from the Institute of Education Sciences (United States Department of Education, 2014). Variable was logarithmically transformed.

Statistical Design

Initially, traditional ordinary least squares (OLS) regression analysis was utilized with the full sample ($n = 51$) and all continuous variables were defined as their given numerical values. However, the nature of the data led to heteroscedasticity as detected through the Breusch-Pagan and Koenker tests. Additionally, inspection of the residual plots displayed a strong positive skewness. To address this issue, a logarithmic transformation of all continuous dependent and explanatory variables was undertaken. Given their nature, the categorical variables were not transformed. The list of variables, noted previously, identifies those that were transformed. Thus,

the functional form of the multiple linear regression equation was:

$$\ln(COLLUXPRICE) = A_0 + B_1 CONF + B_2 TIXINC + B_3 OTHEVE + B_4 PARK + B_5 FB + B_6 PRIV + B_7 \ln(CAP) + B_8 \ln(AGE) + B_9 \ln(RENO) + B_{10} \ln(SUIT) + B_{11} \ln(SCAP) + B_{12} \ln(WIN) + B_{13} \ln(POP) + B_{14} \ln(INC) + B_{15} \ln(BBALL) + B \ln(ENR)$$

The small sample size of 51 was also a concern. Several issues may arise due to a low sample size. For example, statistical power is often a concern when dealing with a small sample, and a low sample size may influence the ability of obtaining a statistically significant R^2 and F-statistic for a regression model. Sample size is also important in deciding if there is a statistically significant relationship between the dependent variable and the explanatory variables. Finally, the selection and minimization of the number of explanatory variables is important when the sample is low. Therefore, for this data set it was important to include only explanatory variables that were believed to be best for the model, and ergo the variable removals noted earlier. The Cook's D statistic was also generated to test for outliers (Tabachnick & Fidell, 2013). The results of this test led to the elimination of two data points that were deemed significant outliers with unusually high suite prices. Thus, the final data set consisted of luxury suite prices for 49 collegiate football programs. The full OLS regression model (Model 1) was generated, and this model included all 16 variables. Then, backward elimination was utilized to generate a second model (Model 2), which maximized the adjusted R^2 value while limiting the number of variables.

As addressed in Shapiro et al. (2012), the study of the factors related to the variation of prices is somewhat difficult due to the issue of simultaneity. Price is determined by changes in both supply and demand. Thus, it can be somewhat difficult to learn what demand actually looks like with possible simultaneous movements of both supply and demand. In most cases, equilibrium price is arrived at by movements of both supply and demand, thus examining the combination of price and quantity may show movements in supply, movements in demand, or movements in both simultaneously. This situation can make it difficult to know exactly what demand is for a given market, such as collegiate luxury suites (Greene, 2003).

However, the issue of simultaneity is lessened for the collegiate luxury suite market, similar to the professional sport luxury suite market, due to there being a fixed number of luxury suites for a facility in a given time period. The fixed number of luxury suites for a facility permits the combination of price and quantity to be measured by constructing the demand curve. The supply curve is assumed to be fixed vertically. In other words, the supply of luxury suites as well as the number

Table 2
Mean and Standard Deviation of Variables by Conference

Conf	Suite Price		Facility Capacity		Facility Age		Renovation		Number Suites	
	M	SD	M	SD	M	D	M	SD	M	SD
BigTen	68759.09	28289.28	77509.91	22086.85	74.64	27.63	9.09	4.06	55.46	27.87
SEC	63794.73	20195.06	85419.46	15832.29	84.55	15.98	8.73	5.35	82.00	38.21
PAC	44551.25	9771.07	55965.38	16499.28	71.50	27.13	7.38	5.85	33.88	11.27
Big12	60025.00	14968.71	65040.00	17341.67	70.25	26.14	7.88	5.30	72.38	28.54
ACC	46032.78	14831.67	55804.67	13846.38	61.44	27.48	12.33	10.17	54.33	25.42
AAC	24250.00	15202.80	53165.50	11090.97	29.00	29.70	5.00	4.24	31.00	12.73
All (49)	56275.45	21819.68	68751.82	20597.71	71.35	26.44	8.96	6.29	59.45	31.78

Mean and Standard Deviation of Variables by Conference

Conf	Suite Capacity		Winning %		County Population		County Income	
	M	SD	M	SD	M	D	M	SD
Big	22.09	10.19	0.57	0.17	487381.00	416589.86	28717.27	4745.13
S	24.18	7.31	0.63	0.16	238866.18	145323.17	23978.91	3420.96
P	19.29	2.33	0.52	0.19	1867151.63	3359910.34	28624.13	6791.81
Big12	20.25	5.50	0.59	0.18	267885.00	355104.68	25367.75	3643.43
ACC	19.78	3.70	0.52	0.12	539371.78	339101.68	30964.22	5365.00
AAC	21.50	4.95	0.45	0.35	1082366.00	202092.53	25284.00	255.97
All	21.35	6.64	0.57	0.17	654858.98	1432261.94	27364.06	5213.02

Mean and Standard Deviation of Variables by Conference

Conf	College Basketball Competition		Enrollment	
	M	SD	M	SD
Big	7.45	4.18	42671.55	9549.42
S	10.18	4.45	32747.82	11211.58
P	7.13	6.85	33661.13	7175.27
Big	7.75	8.21	31563.13	8840.34
ACC	13.44	6.02	21555.11	7611.16
AAC	12.5	0.71	40534.50	26947.13
All	8.96	6.29	33193.31	11731.51

of suites and their seating capacity is constant for the time period of this study, as based upon the current and previous season. Statistically, a single-stage price equation can be developed with simultaneity being of little, if any, concern (Shapiro et al., 2012).

Results

Multiple regression models were generated that included the logarithmic transformation of the dependent variable and the continuous explanatory variables, along with the elimination of the two outliers. Table 2 provides mean conference data figures of select continuous variables. Model 1 was the full model that consisted of all 16 explanatory variables, and Model 2 was generated through a backward elimination process and had the highest adjusted R^2. It should be noted that the logarithmic transformation eliminated the presence of

heteroscedasticity as tested by the Breusch-Pagan and Koenker tests. Variance inflation factors (VIFs) and tolerances were produced to test for multicollinearity, which was not detected in the models.

Despite dealing with a small data set ($n = 49$), both models were statistically significant as measured by the model F-statistic. Model 1 ($p < 0.01$) contained each of the 16 variables, and had an R^2 of 0.68 and an adjusted R^2 of 0.45, and thus explained over 68% of the variation in luxury suite price. Seven of the 16 explanatory variables in Model 1 were statistically significant. The significant variables in the model were Conference Affiliation (i.e., Big Ten, Big 12, SEC, and PAC), Suite Capacity, Winning Percentage, County Population, and County Income at the 0.05 level of significance, while College Basketball Competition and Tickets Included were at the .010 level of significance (see Table 3).

Table 3
Results of the Multiple Linear Regressions
(Dependent Variable: Natural Log of Luxury Suite Price)

	Model β	Model p	β	p
F- Statistic	2.97	.01****	5.59	.01****
R²	0.68	0.65		
Adj. *R²*	0.45	0.53		
Independent Variables:				
Conference Affiliation				
ACC	.37	.25	.40	.12
BigTen	.95	.01****	.89	.01****
Big12	.92	.01****	.82	.01****
SEC	.76	.02**	.70	.01****
PAC	.82	.01**	.70	.01****
TicketsIncluded	.22	.08*	.17	.10
OtherEventsIncluded	.04	.79	-	-
ParkingIncluded	-.23	.26	-.25	.12
Food-Beverage Included	-..03	.81	-	-
Private/Public Institution	-.22	.47	-	-
FacilityAge(In)	.27	.45	-	-
Renovation(In)	-.04	.52	-	-
FacilityAge(In)	-.12	.29	-	-
Numberof Suites(In)	-.06	.60	-	-
SuiteCapacity(In)	.43	.04**	.45	.01**
WinningPercentage(In)	.44	.04**	.40	.01**
CountyPopulation(In)	-.17	.02**	-.13	.03**
PerCapitaCountyIncome(In)	.94	.03**	.78	.02**
CollegeBasketballCompetition(In)	.21	.09*	.17	.04**
InstitutionEnrollment(In)	-.12	.61	-	-
Constant	0.66		2.55	
NumberofSignificantPredictors	7		7	

Significance: *– .10 level, **–0.05 level, ***–0.01 level, ****–<0.01 level Note: The logarithmic transformation of the continuous variables results in their beta coefficients being interpreted as percent changes. For example, a beta coefficient of .50 is interpreted as a 10% change in the explanatory variable would result in a 5% change in the dependent variable, *ceterus paribus*.

Model 2 was the regression model in which adjusted R^2 was maximized while limiting the number of variables. This model had an R^2 of 0.65 and an adjusted R^2 of 0.53, and as such Model 2 explained over 65% of the variation in luxury suite price. Despite the elimination of eight explanatory variables, the decrease in R^2 from Model 1 to Model 2 was only 0.03. The seven significant predictors in the model ($p < 0.01$) were the same as the previous model, and also at varying levels of significance (see Table 3).

Discussion

The purpose of this study was to investigate the relationship between 16 select factors and the price of collegiate football luxury suites at NCAA FBS-level facilities. Further, as there appears to be limited research on luxury suites, and even less on suite price, this work aimed to expand the literature in these areas and aid practitioners. Results of the final models, both statistically significant, explained 68% (R^2 = 0.68, Adj. R^2 = 0.45) and 65% (R^2 = 0.65, Adj. R^2 = 0.53) of the variance in college football luxury suite prices, each from the same seven variables. These results were comparable to Shapiro et al. (2012), which explained 57% and 60% of the variance in two significant models of North American professional suite prices, also from seven significant predictors when considering league affiliation as

a single variable in the manner that was done in this study. Of note, Shapiro et al. included 20 explanatory variables, and had observations ($n = 81$) slightly greater than this study ($n = 49$), and this investigation still resulted in greater explained variance and equivalent predictors.

In terms of specific variables, both models resulted in Conference Affiliation (excluding the ACC), Tickets Included, Suite Capacity, Winning Percentage, Per Capita County Income, and College Basketball Competition being significant positive predictors of price, and County Population being a significant negative predictor of price. The remaining nine variables were not significant. However, the practicality and implications of these results vary.

Most importantly, an athletic department would be wise to re-evaluate the approach of their current suite pricing in two areas as based upon the results. First, it appears the packaging of the suites should be altered to maximize revenue. The results indicated that none of the "extras" were significant when included in the suite price (i.e., Other Events, Parking, and Food- Beverage). As such, athletic administrators should just present the suite price, and sell these "extras" separately, to maximize revenues. Further, when the suite had the Tickets Included, this resulted in about a 20% higher suite price ($\beta = 0.22$). So, to maximize suite revenues, athletic administrators should alter their luxury seating offerings by including the tickets in the packaging of the suite price offer, and the "extras" should be added later in the sales process.

The second area an athletic administrator of college football luxury suites should consider when pricing their suites is their local market. While, hopefully, most administrators are already considering this when pricing the sport product, college luxury suites appear to have some unique areas to consider, which are also not identical to the professional sport suite area. For instance, the results indicated that three significant variables (i.e. County Income, County Population, and College Basketball Competition) of the local market had an impact on suite price. The County Income result is not surprising, where a 100% increase in County Income would result in a suite price being increased by almost 60% ($\beta = 0.59$), all else held constant. One would anticipate that as yearly income increases in their markets, so too would prices in that locality (Pan et al., 1999), which is also supported in professional suites (Shapiro et al., 2012).

However, it is interesting that other results from the market did not have expected results. For example, as more potential consumers of the product are in the population an anticipated increase in demand and price would seem likely. However, as County Population increased, college football suite price dropped. Also, as the competition in the market increases most would expect price to decrease, which is supported in professional suites (Shapiro et al., 2012). The College Basketball Competition result counters this, in that as Division I basketball spectating options in the state increased so too did college football suite prices. These results appear to indicate that college football luxury suites operate in a unique market environment, and counter portions of the professional suite results where corporate presence/income and the market size/population positively impacted suite price (Lawrence et al., 2009; Lawrence et al., 2013; Shapiro et al., 2012). As such, there may be certain considerations a college sport administrator should take into account for the uniqueness of the college football luxury suite market.

As previously suggested, these results lend credence to the Titlebaum et al. (2012) assertion that while there are similarities between professional suites and collegiate football suites, there are also distinct differences. It has been noted that professional sport suites tend to be leased by corporate clients for business deals (Titlebaum et al., 2012). Logically, this makes sense as many teams and their suite holders operate in larger metropolitan areas such as Chicago and New York City. College suites have been viewed more for personal use than business deals (Titlebaum et al., 2012), and many collegiate programs operate in small population areas such as "college towns" with limited entertainment options in the area. Thus, many of these suite clients may not be from the local area, but from the broader region/state. Further, as the Institutional Enrollment variable was not significant, combined with the County Population result, this may also indicate the suite consumers are not necessarily just locals and alumni with an institutional connection that impact price. These distinctions in clients, as well as market size and environment, lead to differences when comparing the two sport landscapes and methods for pricing suites for consumers. Practitioners need to note these clients, and their competition for these clients.

Athletic departments located in a small college town market should realize their clientele is likely from an expanded area and not just their city. Further, there may be less entertainment competition and fewer options to purchase a suite, which results in being able to charge a higher suite price. For example, Penn State University operates in the borough of State College, Pennsylvania, and would be wise to look at an increase in their suite prices based upon their population setting, and that there are 14 Division I basketball teams in the state. The state basketball team result is interesting, as it appears to indicate as competition increases in the form of college basketball, so too do college football suite prices.

This appears to contradict conventional thought (Shaprio et al., 2012). Additional research is likely needed to understand this area, but this may indicate that in these markets, football is more popular than basketball, and once again denotes the uniqueness of these markets. It is also important to note further investigation is needed to determine the nature and extent of these relationships in the college and professional sport suite environments, to understand these suite markets and consumers.

Also of note was the lack of significant results for facility variables, as Facility Age, Facility Capacity, Renovation, and Number of Suites were all non-significant. Generally, stadium age increases ticket prices (Rishe & Mondello, 2003, 2004). The only significant facility variable was Suite Capacity, which Model 1 indicated that a 100% increase in Suite Capacity (e.g., going from 12 to 24 seats) would result in an increased suite price of 43% ($\beta = 0.43$), all else being held constant. One would anticipate the larger the number of suite seats, the higher the price. However, the luxury suites research does not completely support these expectations, as the Suite Capacity results were only significant for collegiate price (Shapiro et al., 2012). As noted, it is possible the professional level may have a different buyer with different suite purchase motivations where the suite capacity is of little importance (Shapiro et al., 2012; Titlebaum & Lawrence, 2010; Titlebaum et al., 2012), or may be part of a larger sponsorship deal (Titlebaum et al., 2013), and does not impact price. Perhaps the college football suite clientele differs in their intentions and personal use of the suite (Titlebaum et al., 2012), where the number of seats matters to the college client, and, thusly, holds some relationship to price.

This is an important finding for collegiate marketers as they attempt to sell suites. The consumer in this college market appears to be influenced by suite size, and thus great care should be taken in the design to arrive at the suite size that is most appealing to, and priced accordingly for, consumers in that market. However, most other facility factors appear to not be driving suite price, and perhaps the supply is not the major influence with price but demand with the consumer and the seats they want for the use with the suite.

The Winning Percentage result was expected, in that a higher winning percentage would result in a higher suite price, as past research indicated that winning increased ticket prices (Leadley & Zygmont, 2005; Noll, 1974; Rishe & Mondello, 2004) and professional suite prices (Shapiro et al., 2012). In the model, Winning Percentage was significant ($p = 0.04$), and indicated that a 10% increase in the team's five-year winning percentage (e.g., from .500 to .600) would result in an expected increase in luxury suite prices of 4.3%, holding all else constant.

This result is fairly minimal. Past professional level suite research has indicated that team performance was important to suite ownership (Titlebaum et al., 2012), renewal (Titlebaum & Lawrence, 2009), and price (Shapiro et al., 2012). It appears winning has a similar impact on the college football suite price, but to a lesser degree, which may support the Titlebaum et al. (2012) result that team performance is more important to professional suites. Again, perhaps these results suggest differences in the college and professional luxury suites. It appears that the college suite consumer may be more loyal to the team than the professional suite consumer. Further, combined with the suite capacity result, this may also allude to the college suite consumer being more interested in personal use of the suite (Titlebaum et al., 2012). As such, the college suite consumer may expect more personal suite amenities, and be more influenced by the overall experience with the suite and game (e.g., halftime entertainment, event atmosphere, etc.) and less by the on-field product, than the consumer of professional sport luxury suites. Practitioners would be wise to increase prices after on-field success, but to also focus effort on their local market to determine appropriate prices.

Conference Affiliation was the only other significant result, and positive predictor of price, which has varying impacts for field. The AAC was the benchmark variable, and with all other conference beta coefficients being positive, were the lowest priced suites, *ceterus paribus*. There was variation in the conferences based on the model, but predominantly the Big Ten and Big 12 facilities had the highest priced suites, followed by the SEC and the PAC, then ACC. Shapiro et al. (2012) also had variations in price based upon professional league affiliation. However, it should also be noted that another potential influence to the conference prices could have been due to the small number of respondents, particularly the AAC.

In the given college context, the AAC result was anticipated, as playing in what some would consider a less-prestigious football conference does not carry the notoriety as the other conferences. As such, higher suite prices were expected in the power five conferences, particularly as McEvoy et al. (2013) alluded that all that matters in terms of college sport revenue generation is being a member of a power five conference. These results appear to support that notion. Therefore, it would behoove athletic departments to gauge their suite prices to those of their conference peers. While conference membership changes do not occur often, when it does occur, suite prices should not be overlooked. For example, to maximize the suite revenue stream, Rutgers and Maryland should likely increase their suite prices with moving to the Big 10 conference from the AAC

and ACC, respectively. For those practitioners outside the power five (e.g., AAC, Mid-American Conference, Conference USA, etc.) to maximize suite inventory revenues, suites should likely be offered at a lower price point.

Lastly, the Public/Private Institution variable was not significant. This result was perhaps due to the small sample size, and low private school representation.

Overall, this research is the initial empirical investigation of the factors that are related to collegiate football suite prices. The results indicate that there are significant similarities and differences in the pricing of professional and collegiate luxury suites, and that the college football suites appear to have some unique elements, which have implications for collegiate sport marketers. It is also essential to note that this is the initial investigation in this area, and as such, there is an exploratory nature in this research. This effort should aid future investigations, help in the understanding of this market of college luxury suites and their pricing, and lead to more accurate and applicable results.

Limitations and Recommendations for Future Research

Based upon this study, there are several areas to consider in terms of limitations and recommendations for future research. One limitation in the current investigation is that it only included the sport of college football. While this was warranted for this study given the lack of college suite studies, and aforementioned differences in collegiate football to other collegiate sports, it may be difficult to generalize the results. Future research should expound upon the collegiate luxury suite market for sports such as basketball, ice hockey, and baseball.

Another limiting factor is that this study included one year of pricing data. Future research should aim to include longitudinal pricing information. Also, future work could include other types of club-level seating options. The current work is also limited in that not all the factors that impact the price of college football suites may have been considered, evident from the unexplained variation of suite price in the models. Future projects that could aid this area are investigations, both qualitative and quantitative, of actual buyers of college suites (Titlebaum et al., 2013). These efforts to understand college suite consumers, as well as their rationales and motivations for purchases, may lead to better measurements of pricing variables and purchase environments of these markets. The current work also lacked a large representation of private institutions, as most declined to participate, and future work should aim for a larger representation. All of these considerations could lead to an increase in explained variance in the models that predict suite price. Lastly, the small sample

may have adversely affected the regression analyses. This may also be a sign that the market for collegiate luxury suites is still developing. If this is the case, then it is possible that the market price for luxury suites has not yet arrived at market equilibrium. As the market develops, pricing strategies/techniques may become more accurate and thus easier to empirically estimate using regression models.

Even though this work does contain some limitations, it is a study that provides a foundation for future college luxury suite endeavors, while also contributing to the literature in the under-researched area of luxury suites. There is a need to understand the market for collegiate suites, and this study may also aid administrators to better understand the luxury suite market. While the findings of this study do not provide an exact pricing roadmap, they do provide guidance on where to begin the pricing process and which variables to take into consideration. The results also shed light on those variables that may not be significantly related to the price of collegiate luxury suites. Lastly, this study has highlighted the need for additional research topics on luxury suite pricing, as the first such pricing work in the area of college football luxury suites.

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