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THE MINOR LEAGUE EXPERIENCE: WHAT DRIVES ATTENDANCE AT SOUTH ATLANTIC LEAGUE BASEBALL GAMES?

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ABSTRACT

An examination of the determinants of minor league baseball attendance in the South Atlantic League is performed through regression analysis. Potential determinants included in the regression model include demographic variables, team performance variables, and dummies for various categories of promotions. Overall, South Atlantic League baseball appears to be an inferior good, fans do not significantly respond to winning teams, fans do respond favorably to high-scoring games, and promotional events play a major role in attendance. The events that are shown to have the biggest impact at the gate are fireworks and concerts. It appears that the overall entertainment experience, not the success of the home team, is what attracts fans to South Atlantic League baseball games.

INTRODUCTION

This paper attempts to identify determinants of minor league baseball attendance to ascertain what actually attracts fans to the games. The specific minor league that this paper investigates is the South Atlantic League. The South Atlantic League is class A (considered low class A) minor league baseball. Each team in the league is affiliated with a Major League Baseball franchise. The players on the teams are stocked by the major league club through draft picks, free-agent signings, and other acquisitions. In 2004, the year studied in this paper, the South Atlantic League consisted of two divisions of eight teams each. The North division has teams in Charleston (WV), Delmarva, Hagerstown, Hickory, Lakewood, Lake County, Lexington, and Kannapolis. The South division has teams in Asheville, Augusta, Capital City (Columbia, SC), Charleston (SC), Columbus, Greensboro, Rome, and Savannah.

This paper attempts to answer a few questions about South Atlantic League attendance. First, is minor league baseball a normal good? How is attendance affected by the size of income per capita and population within a city? As minor league baseball has expanded into larger and wealthier markets in the last decade, this is an important question to address.

Second, how important is the on-field product? In major league professional sports, team success has been shown to be a major determinant of attendance. Is this also true at the minor league level, where the teams themselves have no control over their personnel? Also, do fans at the minor league level prefer more scoring? For the same level of team success, would fans prefer to see high-scoring or low-scoring games?

Lastly, what role do promotions play in attendance? How do promotions differ across types? Is there a difference between merchandise giveaways and some type of promotional event? What type of promotion generates the largest impact on attendance?

All of these questions are addressed in the following section. A simple regression model of South Atlantic League attendance is specified. The significance of the independent variables is observed and discussed.

REGRESSION MODEL AND RESULTS FOR SOUTH ATLANTIC LEAGUE ATTENDANCE

To examine the questions posed about minor league baseball attendance in the introduction, a simple regression model of attendance is specified. The regression model includes variables that relate to the demographics of the home team city, specific attributes of the game itself, performance variables of the home team, and promotions.

Economists have studied fan (consumer) behavior in relation to baseball through a multitude of model specifications describing the demand for baseball game attendance. A non-exhaustive sampling of independent variables includes population, income per capita, star players, and recent success (Noll, 1974), televised games, quality of the team, and availability of substitutes (Demmert, 1973), expected probabilities of winning a championship (Whitney, 1988), salary structure (Richards and Guell, 1998), turnover in team rosters (Kahane and Shmanske, 1997), impacts of interleague play (Butler, 2002; Paul, Weinbach, and Melvin, 2004), and new stadium effects (Coates and Humphreys, 2005).[1]

Nearly all studies of baseball attendance have been conducted for teams at the Major League level. The few studies of minor league attendance include Siegfried and Eisenberg (1980); Branvold, Pan, and Gabert (1997); Bernthal and Graham (2003); and Lee, Ryder and Shin (2003). As compared to the above studies, this inquiry is most like that of Seigfried and Eisenberg (1980) with a focus on regression analysis of actual attendance data, rather than factor analysis of survey data collected from several hundred game attendees. Both Siegfried and Eisenberg (1980) and Branvold, Pan, and Gabert (1997) study home *season* attendance data for a sample of minor league teams collectively ranging in quality from AAA to rookie leagues. Our analysis differs from these in that we focus on attendance data for *each home game* of the 2004 season for all teams for which data is available in the South Atlantic League – a low level rookie league.

The basic regression model studied, without promotional variables, is:

$$\text{Attendance}_{i,t} = \alpha_1 + \alpha_2(\text{Doubleheader}) + \alpha_3(\text{Population}) + \alpha_4(\text{Per Capita Income}) + \alpha_5(\text{Population}^2) + \alpha_6(\text{Per Capita Income}^2) + \alpha_7(\text{Sunday}) + \alpha_8(\text{Monday}) + \alpha_9(\text{Tuesday}) + \alpha_{10}(\text{Thursday}) + \alpha_{11}(\text{Friday}) + \alpha_{12}(\text{April}) + \alpha_{13}(\text{May}) + \alpha_{14}(\text{June}) + \alpha_{15}(\text{July}) + \alpha_{16}(\text{August}) + \alpha_{17}(\text{Win Percentage}) + \alpha_{18}(\text{Total Runs Scored Average}) + \varepsilon_t$$

Our data set includes game-day attendance along with explanatory variables intended to capture regional demographic conditions, controls for day of week or month, team performance, and game-specific promotional activities. Data was gathered for all games played in the 2004 South Atlantic League season. Summary statistics for the league are provided in Appendix I. Individual team statistical information is included in Appendix II. Price is set at the beginning of the season and is assumed to be endogenous in the model as teams set prices to maximize their profits.

The dependent variable is the attendance for home team i for game t. Doubleheader is a dummy variable for when more than one game is played on the same day. The reported attendance for these doubleheader games are the same. A dummy is included to determine if additional games played on the same day are more or less desirable for fans in attendance.

The demographic variables include population and per capita income for the home team cities in the South Atlantic League. The squares of these variables are also included to allow for non-linearity in their effects. If attendance is higher in larger cities, the effect of the population variables should be positive. If South Atlantic minor league baseball is a normal good, the effect of the per capita income variables should be positive.

Days of the week and month of the year dummy variables are included to account for opportunity cost of the fans' time during the week and during the season. It is likely that the opportunity cost of a fan's time is higher during the week, due to work and family commitments, and therefore, weekend games should have higher attendance figures. The months of the year variables may also incorporate the opportunity cost of the fans' time during the year, as summer months may be easier times for fans to attend games. In addition, the monthly variables should capture the influence of weather, as games early in the season and late in the season may be much more likely to have inclement weather. Also, monthly dummies may include the effects of the drive for divisional and league championships in the later months of the season.

The last two variables included in the basic attendance model are the win percentage of the home team and the average total runs scored in home team games. Both of these variables are calculated on a game-by-game basis and therefore, are a running average of these variables. The win percentage variable is the win percentage of the home team going into that game, including all wins and losses, both home and away, up to time t. The total runs scored variable is the sum of runs for average and runs against average for the home team. Both variables are calculated in the same fashion as win percentage, as they are calculated as a game-by-game average for runs scored (offensive production) and runs scored against (defensive production). Given that there is a high correlation between winning percentage and runs scored and runs against, instead of including each variable separately to try to capture the effects of offense and defense (thereby potentially biasing the regression results), the runs for and runs against averages are summed to create a single variable, totals runs scored. Since the winning percentage variable is already included in the specification, the total runs scored variable should capture the effect on fan attendance of more scoring. If teams that play higher scoring games attract more fans, win percentage held constant, this variable should be positive and significant.

We further extend the analysis by focusing on the effects of promotions on game-by-game attendance in the South Atlantic League. Siegfried and Eisenberg (1980); Hill, Madura and Zuber (1982), and Marcum and Greenstein (1985) represent early examples of attendance research that includes a binary characterization of promotions to indicate the presence of game-day specific price or non-price promotions. The substantial contribution of MacDonald and Rascher (2000) extends the analysis of promotions from what generally had been a binary characterization along the lines of major/minor promotions to include a continuous variable measuring the value of the promotional item. A more recent contribution by Boyd and Krehbiel (2003) extends the characterization of the promotion variables to include special events that contribute to the entertainment value of the game without being price or merchandise concessions. These include, for example, access to players or the field, recognition of a group, or other special events such as the retirement of a player's jersey.

Given that minor league teams have little control over player personnel, the role of promotions in generating attendance and gate revenue is of paramount importance to team owners.[2] While the parent organization may be primarily interested in the minor league team as a tool for player development, the minor league team owners are expected to seek to generate profits. Our work extends the evolving characterization of promotion variables in several dimensions. In addition to the commonly found delineation of merchandise and ticket giveaways, we allow for price concessions on food and beer purchased on site, and a refinement of the special event promotion variable to include fireworks displays, concerts or performances, group related ticket discounts, and family-themed events. These all contribute to the minor league "experience" which is generally marketed to the public as an inexpensive entertainment experience (including non-baseball entertainment) for the whole family.[3] In all, we include eight different variables characterizing the nature of the promotional event at the game.

The second regression specification includes promotional information as independent variables. These variables are all dummy variables, taking a value of 1 if the particular promotion took place on that game day. Fourteen of the sixteen teams in the South Atlantic League either had promotional information listed on their website or provided this information to the authors. Two teams either did not have the promotional information or refused to supply the information (Greensboro and Lexington); therefore, they were dropped from the specification using the promotions.

The promotional information was divided into categories to create dummy variables for the regression model. These variables are noted in the following equation and explained below.

$$\text{Attendance}_{i,t} = \alpha_1 + \alpha_2(\text{Doubleheader}) + \alpha_3(\text{Population}) + \alpha_4(\text{Per Capita Income}) + \alpha_5(\text{Population}^2) + \alpha_6(\text{Per Capita Income}^2) + \alpha_7(\text{Sunday}) + \alpha_8(\text{Monday}) + \alpha_9(\text{Tuesday}) + \alpha_{10}(\text{Thursday}) + \alpha_{11}(\text{Friday}) + \alpha_{12}(\text{April}) + \alpha_{13}(\text{May}) + \alpha_{14}(\text{June}) + \alpha_{15}(\text{July}) + \alpha_{16}(\text{August}) + \alpha_{17}(\text{Win Percentage}) + \alpha_{18}(\text{Total Runs Scored Average}) + \alpha_{19}(\text{Food/Drink}) + \alpha_{20}(\text{Beer}) + \alpha_{21}(\text{Merchandise}) + \alpha_{22}(\text{Free Tickets}) + \alpha_{23}(\text{Fireworks}) + \alpha_{24}(\text{Concerts/Performances}) + \alpha_{25}(\text{Group}) + \alpha_{26}(\text{Family}) + \varepsilon_t$$

The promotional data[4] was broken into eight categories and are the variables corresponding to the coefficients α_{19} through α_{26}. The first category is Food/Drink. This encompasses any free or discounted food or drink (non-alcoholic) given away at that particular game. Beer is a separate category for free or reduced-price alcoholic beverages. This distinction is made as the promotions may appeal to different types of fans, so the effects are examined separately.

The third category of promotion is Merchandise. Merchandise includes any free item given away at the game. Attempts were made to distinguish between "high-value" and "low-value" merchandise, but did not appear to make much difference in the regression results. Therefore, a single dummy variable for merchandise is included in the regression specification. If promotional items such as hats, t-shirts, bobble-heads, etc., lead to an increase in attendance, this variable should be positive.

The fourth category is free tickets to the game. These promotions, such as "Buy one get one free," could play a role in how many fans a team attracts if fans really are sensitive to price. Most minor league teams have ticket prices that can be as low as four or five dollars, therefore the price reduction of a free ticket may not be a significant decrease.

The fifth category is fireworks. Fireworks are shows put on after a game. At one time reserved only for national holidays, such as the Fourth of July, many teams now have fireworks for weekend home games or have specials such as Friday night fireworks. If fireworks shows attract fans, this variable should be positive.

Concerts/Promotions is a variable that captures other events apart from fireworks. Teams may have a concert after the game or some other event involving entertainers. This could draw a different crowd to the game and could greatly increase attendance.

The last two categories of promotions included in this regression model involve discount prices for groups of people. The Groups variables, includes any non-family group discount night specifically for some local area group such as boy scouts, a type of profession, etc. The other variable, Family, are discounted ticket prices for family members that come as a group. Both of these categories attempt to capture the effect of teams attempting to target specific groups to increase attendance at the games.

The regression results of both specifications are presented in the table below.

TABLE I
Determinants of South Atlantic League Baseball Attendance

Two regression specifications are shown. The first includes all teams for the 2004 season and the independent variables include demographic, time, and team performance variables. The second specification adds promotional dummy variables to the regression, but excludes the Greensboro and Lexington teams as their information was either not available or not given by the teams. Coefficients on the variables are presented along with T-statistics of the null hypothesis that the coefficient is equal to zero. The regressions were run using White's Heteroskedasticity-consistent estimator in EVIEWS.

Dependent Variable: Attendance	Regression Specification 1: Full Sample – No Promo Data	Regression Specification 2: All Teams with Promo Data (excludes Greensboro and Lexington)
Constant	45,208.18***	44,348.55***
	(15.6033)	(16.3807)
Doubleheader	-338.3190**	-263.5903*
	(-2.2656)	(-1.9022)
Population	-0.0315***	-0.0359***
	(-7.7321)	(-8.9406)
Per Capita Income	-2.4901***	-2.4396***
	(-14.7149)	(-15.4457)
$(Population)^2$	1.04E-07***	1.33E-07***
	(5.9106)	(7.5832)
$(Per\ Capita\ Income)^2$	3.59E-05***	3.46E-05***
	(14.6331)	(15.0688)
Sunday	169.8545	57.2152
	(1.0060)	(0.3472)
Monday	-187.6163	-151.6804
	(-1.0770)	(-0.9364)
Tuesday	-79.1534	-100.6363
	(-0.4301)	(-0.5848)
Thursday	743.6808***	467.2524***
	(4.4287)	(2.6855)
Friday	1,143.366***	655.3999***
	(6.8136)	(3.9624)
Saturday	1,151.009***	585.8147***
	(6.9479)	(3.5889)
April	-532.3286**	-293.6092
	(-2.1278)	(-1.2426)
May	-96.4655	99.0595
	(-0.3997)	(0.4363)
June	-38.5851	91.3583
	(-0.1575)	(0.3967)

July	170.2709 (0.7069)	338.3861 (1.5029)
Aug	193.9908 (0.7969)	309.1620 (1.3520)
Win Percentage	110.6704 (0.2349)	339.7583 (0.7682)
Total Runs Scored Average	146.0214*** (3.8300)	165.3674*** (4.5988)
Food/Drink		-488.5894*** (-3.2708)
Beer		495.8822*** (2.8970)
Merchandise		655.7921*** (5.4189)
Free Tickets		477.3510 (1.3405)
Fireworks		1,326.082*** (8.3441)
Concerts/Performances		1,002.908*** (4.4447)
Group		800.0436*** (6.5559)
Family		352.1735** (2.2815)
Number of observations	1110	970
Adjusted R^2	0.4737	0.5503

Significance in relation to the t-test that the coefficient is different from zero is signified by *** at the 1% level, ** at the 5% level, and * at the 10% level.

To begin the interpretation of the results with the demographic variables, it appears that minor league baseball is an inferior good (as income increases, consumers choose fewer of these goods). In addition, larger populations do not translate necessarily into higher attendance. In both regression specifications, given the ranges of populations and per capita incomes that exist in the South Atlantic League cities (see appendix I for a listing of these values), the effect of increasing per capita income and population are ultimately negative. The first-order term is negative and the square term is positive for both variables. Given the magnitude of these variables that exist across cities, the negative term dominates the squared term giving an overall negative effect on attendance. Therefore, it appears that South Atlantic League baseball is an inferior good and that as population increases, attendance declines.

This result is generally inconsistent with previous estimates measuring the effect of income on major league attendance. The few studies that find a negative and significant result from income to major league attendance include Noll (1974) and Bruggink and Eaton (1996). Coffin

(1996) obtains a negative but insignificant result as does Baade and Tiehen (1990) for cities of under 1.5 million persons, which describes the population of the cities in the South Atlantic League. Demmert (1973) and Scully (1989) obtain insignificant results for income and major league attendance, while Seigfried and Eisenberg (1980) obtain a similar result for minor league attendance.

We surmise that our finding that South Atlantic League baseball is an inferior good and that population size has a negative effect on attendance is likely due to the opportunity cost of entertainment for people as their income rises and as they live in larger areas. The possibilities for the entertainment dollar expand (movies, concerts, plays, major league sports, etc.) and this leads to a substitution away from minor league baseball into other entertainment activities.

The days of the week dummy variables yielded the expected results, also consistent with previous findings in the literature (see Hill, Madura and Zuber (1982), Rascher (1996), and Bruggink and Eaton (1996), for example). Friday and Saturday games have the highest attendances. Also, compared to the omitted Wednesday dummy variable, Thursday nights have significantly higher attendance, albeit less than the weekend nights. This is again likely due to the opportunity cost of the time of a fan. Given that work commitments are usually less on weekends, more fans turn out for weekend games.

The months of the year variable are virtually indistinguishable from one another. In the specification that includes the promotional variables, an F-test for joint significance of all the monthly dummies could not reject the null hypothesis that all of the coefficients jointly equal zero. In the first specification, the only monthly variable that is significantly different from zero is April (compared to the omitted month September), which has lower attendance than the other months likely due to weather effects. The summer months have the highest attendances, which is likely due to students being out of school, as many of the teams target families as customers, and also due to nicer weather for outdoor entertainment.

Doubleheaders appear to have negative effects on attendance, despite seeing two games for the price of one. Although surprising, there are possible explanations. Given that the doubleheader is a larger commitment of time away from other activities for the fans, this could discourage fans from attending. Although they could leave after the first game or just attend the second game, fans may not want to do this as they feel they have paid for both games, but are not willing to expend that much time. This would be an interesting phenomenon to study at all levels of professional baseball to ascertain whether this relationship holds, *ceteris paribus*, across leagues.

The contrast between the impacts of team performance and attendance in the minor versus major leagues are reinforced by the regression results for the South Atlantic League. At the major league level, variables characterizing superior team performance increase attendance (Hill, Madura and Zuber, 1982; Rascher, 1996; Bruggink and Eaton, 1996; MacDonald and Rascher, 2000; Coates and Harrison, 2005). Previous studies of minor league attendance find no relationship between team performance and the demand for games (Seigfried and Eisenberg, 1980; Branvold, Pan and Gabert, 1997; Bernthal and Graham, 2003). Our results are consistent

with this. First, although having a positive coefficient, the win percentage of a team does not have a significant effect on attendance. Fans of these minor league teams do not appear to attend more games when they are successful or stay away when they are unsuccessful. Given that the minor league team has no control over its roster, as the players are provided by the parent Major League Baseball team, this can be viewed as good news from team management's perspective. The fans appear to attend games, not so much to share in the joy of following a winning team (as so many fans of professional sports do), but to be entertained.

This desire to be entertained, also evident in the discussion of the effects of promotions below, is further shown by the impact that total runs scored average has on attendance. Higher attendance is associated with higher scoring games. Fans in the South Atlantic League appear to enjoy scoring which creates more on-field excitement and a greater desire to attend future games. This result is consistent with that of Siegfried and Eisenberg (1980) who find the number of home runs per game increases attendance at minor league games. Domazlicky and Kerr (1990) find similar results for Major League Baseball, but Bruggink and Eaton (1996) find the opposite result, while Rascher (1996) notes the insignificance of runs scored on attendance. In our results above, both specifications of the regression results suggest that an additional run scored leads to over 140 more fans for future games. Given the price of tickets and the amount that fans spend on concessions and parking, this is likely to have a non-trivial positive effect on the revenues of a team.

The second specification presented in the table above shows the impact of promotions on attendance. Most of these results are as expected and the type of promotions that draw the most fans further illustrate that South Atlantic League baseball is more about an entertainment experience for the fans, not just about baseball.

Fireworks, whether on national holidays or on a periodic schedule, have the largest impact on South Atlantic League attendance. Approximately 1,300 more fans turn out for a game that has fireworks following the conclusion of play. This represents an increase of 33.96 percent as compared to typical game-day crowds. This increase is significant at a 1% level. People appear to enjoy fireworks, as illustrated by large crowds for Fourth of July celebrations everywhere, and teams use this promotion to fill the seats. Fireworks are a costly promotion, to either the team itself or an outside sponsor, but the increase in paid attendance at these games may make this promotion worthwhile.

A similar effect occurs for concerts/performances. Performances by a music group or some other entertainer led to a statistically significant increase in attendance by approximately 1000 fans. It is likely that team management's selection of music group or entertainer is of great importance to fans. In fact, the significance and the magnitude of the coefficient suggests that team management is finely attuned to the music or entertainment preferences of the local fan base. As compared to typical attendance at a game, adding a concert or other performance increases attendance by 25.68 percent, *ceteris paribus.* Again, this has nothing to do with the baseball game itself, but has to do with minor league baseball being an entertainment option for the local population.

Fans not only appear to enjoy being entertained by promotions such as fireworks and concerts, but also appear to like to attend games when they know the people around them. Group and family discount nights have a positive and significant effect on attendance. Fans enjoy attending games with people that they share a common interest or with their family members. These games, although not as popular as fireworks or concerts, still lead to significant increase in attendance by hundreds of fans.

Merchandise giveaways also appear to have a positive and significant impact on attendance. On the average, merchandise giveaways translate into over 650 more fans for a game, an increase of 16.80 percent over normal attendance. Although the type of merchandise obviously plays a role in attracting fans, the standard error of the variable (approximately 121) implies that the type of promotion may not have as much of an effect as widely assumed. In any case, fans appear to enjoy receiving a giveaway item that is related to the team in some way.

The only promotional offering that was found to not have a significant effect on attendance is free tickets. These promotions were found to have a positive sign on the coefficient, but the null hypothesis that the coefficient was not statistically different from zero could not be rejected. It should be remembered that even at zero price, given the opportunity cost of a fan's time on a given day and time, some fans will still not attend the game. It appears that on some occasions, free tickets appear to attract fans, while on others they have a negligible effect. This may be more indicative of the selective nature of the ticket promotion. The limited opportunities for free tickets, for example for persons with a given first name, may marginalize the effect of the promotion on overall attendance. More in-depth study for individual teams across dates would need to be performed to attempt to isolate these effects.

The effect of free food and drink is perhaps the most surprising result of the promotional items and events. Not only is the effect of free or reduced price food and drink negative, but it is significant at a 1% level. Fewer fans appear to attend games when there are promotions involving free or cheap food and (non-alcoholic) drinks. This is surprising as many fans consume food and drink while at a game. One possibility of why the impact of this variable is negative is that fans may not like the other types of fans that free food and drink bring to the ballpark. If fans that come to the game only for food and drink take away from others' enjoyment of the game, they may simply stay home or choose some other entertainment alternative.

Promotions involving free beer, on the other hand, have a positive and significant effect on attendance. Fans, as many would expect, turn out for an event that involves free alcohol. From the possible explanation above for the food/drink, however, it may be surprising that free beer does not keep some fans away. It is likely, however, that free beer does keep some fans from attending (families for instance), but the impact of the group it attracts (college students) may dominate, ultimately leading to an increase in attendance.

CONCLUSIONS

This paper examined a basic regression model to determine South Atlantic League baseball attendance. Basic determinants of attendance were examined, such as the day of the week, the month of the year, and demographic variables. In addition team performance variables were added as independent variables. These team performance variables are win percentage (the win percentage going into that game) and total runs scored average (runs for average plus runs against average). The total runs scored variable was included to attempt to pick up the effect of the added excitement of scoring without biasing the regression as runs scored and runs against are correlated with win percentage.

In an additional regression specification that included 14 of the 16 teams in the league, dummy variables for various types of promotions were included in the model. These dummy variables included categories for promotions such as fireworks, concerts, merchandise, free food and drink, free beer, group nights, family nights, and free tickets.

The results showed some expected and some surprising results. Minor league baseball in the South Atlantic League was shown to be an inferior good. In higher per capita income cities, attendance is lower. In addition, cities with higher populations also attract fewer fans. These effects likely stem from the other entertainment possibilities that arise in more populated and wealthier areas. As population and income increase, fans substitute away from minor league baseball games into other entertainment activities.

Team win percentage was shown to not have a significant effect on attendance for an individual team. Fans do not seem to care as much about success of the team as they do the entertainment value of the game. This is substantially different from studies of major league teams, where team success is paramount to higher attendance and franchise viability. The results for the total runs scored average also illustrate this effect. Teams that have higher total runs scored averages tend to have higher attendances. Fans seem to prefer scoring and may even prefer a highly entertaining high-scoring loss to a low scoring win.

In relation to promotions, it appears that nearly all types of promotions in the South Atlantic League lead to a significant increase in attendance. The biggest impacts on attendance were determined to be from entertainment events following a game, such as fireworks and concerts. Having promotions involving group or family discounts were also popular. Merchandise giveaways also had a positive and significant effect on attendance. Beer-related promotions were found to have a positive effect, but general food or drink promotions were found to reduce attendance. This negative effect could be due to the crowd that free food and drink attracts, keeping other customers away. In the case of beer promotions, even though it is likely that free beer would discourage some fans, the positive effect on attendance it likely has on groups such as college students most likely dominates, leading to an increase in attendance.

Overall, it appears that attendance at South Atlantic League baseball games should be viewed as an entertainment experience and not just as a sporting event. Traditional important factors for major league sports attendance, such as winning percentage of the team, were found not be play

a significant role. Fireworks, Concerts, and merchandise giveaways, on the other hand, influenced attendance in a positive and significant fashion. Therefore, it appears that team management should focus on creating an entertaining experience for fans as a top priority, and concerning themselves less with the overall on-field success of the team.

REFERENCES

Bernthal, Matthew J. and Peter J. Graham. 2003. "The Effect of Sport Setting on Fan Attendance Motivation: The Case of Minor League vs. Collegiate Baseball." *Journal of Sport Behavior* 26, 3, 223-239.

Boyd, Thomas C. and Timothy C. Krehbiel. 2003. "Promotion Timing in Major League Baseball and the Stacking Effects of Factors that Increase Game Attractiveness." *Sport Marketing Quarterly* 12, 3, 173-183.

Branvold, Scott E., David W. Pan, and Trent E. Gabert. 1997. "Effects of Winning Percentage and Market Size on Attendance in Minor League Baseball." *Sport Marketing Quarterly* 6, 4, 35-42.

Bruggink, Thomas H. and James W. Eaton. 1996. "Rebuilding Attendance in Major League Baseball: The Demand for Individual Games." *Baseball Economics*: Current Research, 9-31.

Butler, M. (2002) "Interleague Play and Baseball Attendance," *Journal of Sports Economics*, 3, 4, 320-334.

Coates, Dennis and Thane Harrison. 2005. "Baseball Strikes and the Demand for Attendance." *Journal of Sports Economics* 6, 3, 282-302.

Coates, Dennis and Brad R. Humphreys. 2005. "Novelty Effects of Few Facilities on Attendance at Professional Sporting Events." *Contemporary Economic Policy* 23, 3, 436-455.

Coffin, Donald A. 1996. "If You Build It, Will They Come? Attendance and New Stadium Construction." *Baseball Economics*: Current Research, pp. 33-46.

Demmert, H.G. (1973) The Economics of Professional Team Sports, Lexington Books, Lexington, MA.

Domazlicky, B. and P. Kerr. (1990). Baseball Attendance and the Designated Hitter." *The American Economist*, Spring, pp. 62-68.

Hill, James Richard, Jeff Madura and Richard A. Zuber. 1982. "The Short Run Demand for Major League Baseball." *Atlantic Economic Journal* 10, 2, 31-35.

Kahane, L. and Shmanske, S. (1997) "Team Roster Turnover and Attendance in Major League Baseball," *Applied Economics*, 29.

Lee, Soonhwan, Cynthia Ryder, and Hee-Joon Shin. 2003 "An Investigation of Environmental Motivation Factors Among Minor League Baseball (MiLB) Fans." *The Sport Journal* 6: (3).

Marcum, J., and Greenstein, T. (1985). "Factors Affecting Attendance of major League Baseball: A within Season Analysis." *Sociology of Sport Journal* 4, 314-322.

McDonald, Mark and Daniel Rascher. 2000. "Does Bat Day Make Cents? The Effect of Promotions on the Demand for Major League Baseball." *Journal of Sport Management* 14, 8-27.

Noll, R.G.. 1974. "Attendance and Price Setting" in R.G. Noll *Govenernment and the Sports Business*. pp. 115-157. Washington, D.C.: The Brookings Institute.

Paul, R.J., Weinbach, A.P., and Melvin, P. (2004) "The Yankee Effect: The Impact of Interleague Play and the Unbalanced Schedule on Major League Baseball Attendance." *New York Economic Review,* 35, 3-15.

Rascher, Daniel. "A Test of the Optimal Positive Production Network Externality in Major League Baseball." *Sports Economics*: Current Research: pp. 33-45.

Richards, D.G. and Guell, R.C. (1998) "Baseball Success and the Structure of Salaries," *Applied Economics Letters*, 5, 5.

Siegfried, John J. and Jeff D. Eisenberg. 1980. "The Demand for Minor League Baseball." *Atlantic Economic Journal* 8, 2, 59-69.

Whitney, J.D. (1988) "Winning Games Versus Winning Championships: The Economics of Fan Interest and Team Performance," *Economic Inquiry*, 26, 4, 703-724.

ENDNOTES

1. We elect not to review the extensive literature here, but refer interested readers to the overviews provided by Schofield (1983), MacDonald and Rascher (2000), Coates and Harrison (2005), and the references therein.
2. The parent organization sets rosters and determines which levels (A, AA, AAA, etc.) players will be placed. This may change at any point in time in the season as players are promoted or demoted. In addition, the parent club often sets pitch or innings limits on pitchers and may mandate a certain player to learn a new position to help with the future of the major league club.
3. Reference to Savannah Morning News article.
4. Specific types of promotions included in each dummy variable category are included in Appendix III.

ABOUT THE AUTHORS

Rodney Paul is an Associate Professor of Finance in the School of Business at Saint Bonaventure University. Rodney received his Ph.D. in Applied Economics from Clemson University in 2000 and has published more than thirty peer-reviewed journal articles since then. The bulk of his research is related to sports, including a substantial amount of research on the determinants of attendance for live sporting events and the study of the functioning and relative efficiency of various sports betting markets.

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APPENDIX I
South Atlantic League Summary Statistics 2004

Summary Statistics are included for all non-binary variables in equation (1). The means and standard deviations are listed for each variable.

Variable	Mean	Standard Deviation
Attendance	3,904.8262	2,060.5025
Population	82,176.2045	66,042.1051
Income Per Capita	33,414.6371	4,161.0851
Average Runs (Home)	4.6721	0.7367
Average Runs Against	4.6859	0.8368

APPENDIX II
Demographic Data and Team Attendance: South Atlantic League 2004

Team	Population	Income Per Capita	Average Attendance
Asheville	68,884	32,772	2,174.74
Augusta	195,182	32,972	2,376.44
Capital City	116,278	31,141	1,522.28
Charleston (WV)	53,421	34,009	1,843.03
Charleston (SC)	96,650	35,295	3,661.62
Columbus	185,781	34,853	916.07
Delmarva	23,743	29,191	3,544.56
Greensboro	223,891	39,651	3,138.97
Hagerstown	36,687	30,796	1,988.45
Hickory	37,222	37,236	2,522.53
Kannapolis	36,910	35,532	1,618.51
Lake County	20,255	43,297	6,154.30
Lakewood	36,065	30,769	6,538.93
Lexington	19,953	26,226	5,904.56
Rome	34,980	30,930	3,738.39
Savannah	131,590	29,038	1,868.86

APPENDIX III
Descriptions of Promotion Variables

Promotion	Description
Food/Drink	Discount and combination specials; generally weekly events.
Beer	Reduced prices, e.g. two-for-one specials.
Merchandise	T-shirt, jersey, bat, baseball cap, helmet, baseball glove, blanket, backpack, bike, gym bag, mug, bobblehead, calendar, water bottle, umbrella, koozies, lottery tickets, seat cushion, pencil holder, apron, magnet, cooler, mouse pad, poster, notebook, golf ball, baseball, team photo, slush puppies.
Free Tickets	Free tickets for special cases, e.g.fathers and sons, mother's night out, grandparents, first names
Fireworks	Self-explanatory.
Concerts/Performances	Guest appearances by musical or other entertainers.
Group	Discounts for employer groups, college fraternities/sororities, Latino, Military, health care professionals, Scouts, neighborhoods.
Family	Events targeting family members, especially children; Zooperstars, Mascots, BirdZerk, Easter Egg Hunt, Little League, camp, baseball education days.