
Television Broadcast Demand for National Football League Contests

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Abstract

Previous research estimating demand for sporting events has focused largely on professional baseball and European football (soccer), using attendance as a proxy of demand. This article estimates demand for National Football League games using television broadcast ratings, permitting the additional novelty of generating estimations in both the home and visiting clubs' markets. The study uses a linear mixed model to demonstrate that many of the factors influencing attendance hold true with respect to television demand. Furthermore, many of the factors influencing demand for the aforementioned leagues hold true for the National Football League. Team quality, tenure in the market, and games contested in primetime all increased ratings, while income and sharing a market were negatively associated with ratings. Intradivisional games showed no statistically significant effect. The findings further suggest that the factors influencing ratings in home and road markets are essentially similar.

Keywords

demand, football, National Football League, broadcast ratings

Introduction

Sport economists have devoted considerable attention to the subject of consumer demand. According to a recent article, no less than 60 studies have set out to identify determinants of demand in team sports (Borland & Macdonald, 2003). Despite the

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widespread acknowledgment for the topic's importance, fundamental questions remain unexamined. Notable is the enduring use of attendance as a proxy for demand in the econometric analysis. Although it is an entirely appropriate use of the attendance data, there is a need to elaborate on previous findings through the analysis of demand for sports programming, as media is the second greatest source of revenue in major league sports (Fort, 2006). Only of late have studies used broadcast ratings at all much less to measure consumer demand, leaving open the question of how previous findings with respect to attendance correspond to other revenue streams. Furthermore, as most of these studies focus on either Major League Baseball (MLB) or European football (soccer), a common refrain in the articles' discussion is caution in extrapolating their findings to other sports and leagues. The focus on MLB also means that little attention has been paid to the largest of the North American sports leagues, the National Football League (NFL). Only Brook's (2006) study on ticket pricing stands out as a recent significant exploration of NFL demand.

This article uses television ratings for NFL contests to estimate demand. Furthermore, the use of television broadcasts rather than attendance makes it possible to measure demand in the home and road teams' markets. Applying many of the same techniques and variables used in studies using attendance data, the findings invite a discussion of the similarities between demand for the NFL and other leagues as well as broadcast and attendance data. The results show that many of the same team quality, game uncertainty, and market variables that influence attendance in other sports also affect demand for NFL telecasts. This symmetry suggests that the framework for understanding gate demand may be extended to other revenue sources.

The article proceeds as follows. The Section on Background reviews the relevant scholarship and provides background on the NFL and television ratings. The Section on Methods and Empirical Specifications presents the model with data specifications and followed by the results. The section on Summary and Conclusions offers conclusions and discussion points for further examination.

Background

There are a limited number of articles that have addressed television and demand. In most cases, these studies have been limited to explain how the presence of a live television broadcast in a game's local market influences match attendance and have produced mixed results. Analyses of European football leagues have found there to be either zero effect or a negative effect on demand for tickets (Allan & Roy, 2008; Baimbridge, Cameron, & Dawson, 1996; Carmichael, Millington, & Simmons, 1999; Garcia & Rodriguez, 2002). Among North American sports, Price and Sen (2003) found telecasts had a positive effect in their study of National Collegiate Athletic Association (NCAA) football. Remarkably, Buggink and Eaton (1996) found local telecasts had a positive impact on ticket sales in baseball's National League but a negative one on the American League whereas national telecasts had

zero impact. Welki and Zlatoper (1999) showed that a local blackout significantly affected game day attendance.

Ratings themselves have been used in a handful of studies. Alavy, Gaskell, Leach, and Szymanski (2006) used minute-by-minute ratings for English Premier League games to evaluate the relationship between demand and game uncertainty. Forrest, Simmons, and Buraimo (2005) used television ratings to model demand for individual games according to the predicted match uncertainty. Still other studies used television ratings to quantify the superstar effect (Hausman & Leonard, 1997) and racial discrimination (Kanazawa & Funk, 2001) in the National Basketball Association (NBA). No studies, however, have used television ratings to comprehensively ascertain how the classical determinants of demand affect fan interest in individual matches nor studied demand for professional football in the United States.

To provide some context for understanding demand for NFL games, a brief synopsis of NFL scheduling procedures and recent broadcasting contracts is provided. NFL games are contested over 17 weeks with each team receiving one "bye week" during the season. Although the 2006 and 2007 seasons began with several teams playing an opening weekend game on a Thursday night, the slate of games most weeks consists of all but two of the games contested on Sunday afternoon. The Sunday doubleheader begins at 1 p.m. Eastern time with the second wave of games kicking off just after 4 p.m. Eastern. One primetime game is played each Sunday and Monday evening and broadcast nationally. Beginning with Thanksgiving weekend (roughly the last quarter of the season), a small number of games are held on Thursdays and Saturdays, presumably in an effort to increase the number of telecasts available during the league's stretch run and the American holiday season. It is also the case that the more extensive television coverage coincides with the conclusion of the college football regular season whose games likely present a close substitute for NFL games.

Prior to the Congressional Sports Broadcasting Act of 1961, leagues were prohibited from the league-wide sale of national broadcasting rights. The Act opened the door for the NFL to enter into multiyear, league-wide agreements with national television networks that preempt the contracts between individual teams and stations in their local markets that constitute a large percentage of revenues in the NBA and MLB, something it has done since 1962. As a result, the NFL is the only major North American sports league to generate over half of its revenues through its national television contracts (Cave & Crandall, 2001). In 1998, the league negotiated \$17.6 billion in contracts with the American Broadcasting Company (ABC), Entertainment and Sports Programming Network (ESPN), Columbia Broadcasting System (CBS), and FOX Broadcasting Company (FOX) to air NFL games over eight seasons (Putsis & Sen, 2000). FOX and CBS renewed their contracts to televise Sunday afternoon games through 2011 at a moderately increased rate. Additionally, ESPN agreed to pay \$1.1 billion annually to carry Monday Night Football for 8 years, whereas the National Broadcasting Company (NBC) secured the rights to show Sunday night games through 2012 at an average annual rate of \$650 million.

Unlike match attendance data, which are collected by the teams, made public during the games themselves, and published in each game's box score, broadcast ratings are not calculated by the league, rather private companies. The Nielsen Company is widely recognized as a leader in audience measurement for television programming. Nielsen ratings are used in over 100 countries in establishing advertising rates and market research. As of September 2007, there were 12,000 Nielsen households with 35,000 people represented in their sample. Ratings are tabulated by the use of set meters—an instrument connected to the television in select Nielsen homes—and diaries—a written account of programs as viewed by members of Nielsen families. Set meters allow the company to monitor viewing on a minute-to-minute basis, whereas both meters and diaries are used to gather overnights—the total number of viewers, rating, and share figures. Rating refers to the percentage of households tuned in at any given moment, whereas share is the percentage of televisions tuned to that program among those in use. These are used to estimate the total number of viewers of any program. Designated Market Areas (DMA) are made up of several counties in metropolitan regions (or rural areas) that are all capable of receiving the same programming and are identified by the largest city in that region. Ratings can be collected by DMA or combined to represent the popularity of a program nationally. The limitation of Nielsen data is its focus on private residences. The ratings do not measure audiences outside the home including some that figure prominently in viewing sports, principally bars.

Methods and Empirical Specifications

Classic demand determinants adapted for sports by Borland and Macdonald (2003) feature five general categories—preferences, price, quality of viewing, characteristics of the contest, and supply capacity. For this study, variables were selected by modifying previous models using attendance as the dependent. For instance, preferences, including habit (Ahn & Lee, 2007) and age of club (Coates & Harrison, 2005) are no less relevant to broadcast than attendance. Conversely, there is no expenditure undertaken expressly to view these contests, making the time invested to watch as the only opportunity cost of viewership. Timing of the game is related to quality of viewing. In this case, the NFL creates a schedule where teams sharing a Metropolitan Statistical Area (MSA) do not play at the same time. It is therefore possible for a fan to identify geographically with multiple teams in the market and not have to choose between games. Nevertheless, it may be the case that consumers of sport choose to ally themselves with fewer than all of the teams that play their home games in the local market. This is accounted for by the inclusion of a variable representing the number of teams besides those competing in a given game that share a market. Characteristics of the contest include team quality and uncertainty. They too are accounted for in the model as there is no reason to presume that these are any less relevant to fan interest in viewing games broadcast on television than in person.

Finally, although it is arguable whether supply capacity determines demand for attendance, it clearly has no application to television broadcasts—only the market population can limit the number of viewers who choose to watch an NFL telecast. Moreover, the use of ratings allows one to quantify fan interest that is unaffected by market size.

In accordance with the preceding discussion, the demand was specified in two equations. A similar approach was taken in quantifying the demand for home and away broadcasts. To evaluate the demand for home game j in year i :

$$\begin{aligned} \text{HOMERATING}_{i,j} = & \beta_0 + \beta_1 \text{PRIMETIME}_{i,j} + \beta_2 \text{DIVISIONAL}_{i,j} + \\ & \beta_3 \text{HOMESHAREMSA}_i + \beta_4 \text{POSTTHXGIVING}_{i,j} + \beta_5 \text{HOMETENURE}_i \\ & \beta_6 \text{AWAYTENURE}_i + \beta_7 \text{HOMETEAMQUALITY}_{i,j} + \\ & \beta_8 \text{AWAYTEAMQUALITY}_{i,j} + \beta_9 \text{HOMEGB}_{i,j} + \beta_{10} \text{HOMEINCOME}_i + \\ & \beta_{11} \text{HOMEPOPANDSUBS}_i + \varepsilon_{i,j} \end{aligned}$$

To evaluate the demand for away games:

$$\begin{aligned} \text{AWAYRATING}_{i,j} = & \beta_0 + \beta_1 \text{PRIMETIME}_{i,j} + \beta_2 \text{DIVISIONAL}_{i,j} + \\ & \beta_3 \text{AWAYSHAREMSA}_i + \beta_4 \text{POSTTHXGIVING}_{i,j} + \beta_5 \text{HOMETENURE}_i + \\ & \beta_6 \text{AWAYTENURE}_i + \beta_7 \text{HOMETEAMQUALITY}_{i,j} + \\ & \beta_8 \text{AWAYTEAMQUALITY}_{i,j} + \beta_9 \text{AWAYGB}_{i,j} + \beta_{10} \text{AWAYINCOME}_i + \\ & \beta_{11} \text{AWAYPOPANDSUBS}_i + \varepsilon_{i,j} \end{aligned}$$

HOMERATING (AWAYRATING) represents the average number of viewers watching a telecast in the market of the home (away) team at any given moment according to the Nielsen Company. PRIMETIME is an indicator variable representing whether the contest was held during the prime evening viewing hours. DIVISIONAL is a variable indicating whether the game pitted teams from the same division against one another. This variable is included for two reasons. First, teams from the same division play one another twice per season, once at each team's home stadium. As a result, if familiarity indeed breeds contempt, the expectation would be to see a premium for divisional games. Conversely, there may be added novelty for games featuring opponents that do not appear on the schedule each season, which would then lead to lower ratings for divisional games. Second, one team from each division is guaranteed a playoff berth and thus an opportunity to compete for a post-season championship. Accordingly, there is an added value in winning these games because a victory necessarily has a negative effect on a team vying for the same playoff spot. HOMESHAREMSA (AWAYSHAREMSA) is another dummy variable, denoting whether another team resides in the same market. The last of the dummy variables is POSTTHXGIVING, indicating whether the game was contested in the week coinciding with Thanksgiving or after in each season. This is included to gauge whether the reduced number of games on the Sunday NFL schedule and

conclusion of the NCAA football season affect demand. HOMETENURE and AWAYTENURE are the number of years the home and visiting teams have been in their current market. This is meant to account for fan loyalty that develops over time. Accordingly, for example, HOMETENURE (AWAYTENURE) for the Indianapolis Colts would be counted from the time of their move to Indianapolis in 1984, not from the time the then Baltimore Colts joined the NFL in 1953. HOMETEAMQUALITY (AWAYTEAMQUALITY) aims to capture fan expectations of the competing teams' quality. Traditionally winning percentage and lagged winning percentage are used separately in demand estimations. In this model, however, they are combined into one metric according to the formula:

$$\text{TEAMQUALITY} = [(\text{LagWin}\% \times 16 - \text{GamesPlayed}) + (\text{Win}\% \times \text{GamesPlayed})] / 16$$

This metric has the effect of placing more weight on the previous season's performance early in the new season, equal weight on the previous and ongoing season's performance halfway through, and placing more weight on the ongoing season's performance late in the year. The inclusion of both home and away teams' performance variables simultaneously accounts for team quality and uncertainty of the contest's outcome. HOMEGB (AWAYGB) is the number of games behind the division leader multiplied by the percentage of games remaining in the season. Including the games remaining component adds the quality of distinguishing between teams that are, for example, one game behind the division leader with one game to go versus ten games to go in the season. HOMEINCOME (AWAYINCOME) is the average income of individuals in the MSA. HOMEPOPANDSUBS (AWAYPOPANDSUBS) is the total population of the home (away) team's MSA according to the U.S. Census Bureau (n.d.) divided by the number of major league teams in the market. The logged form is used as is convention in using positive, unbounded data and for conduciveness in interpretation.

A possible shortcoming of the data that are available is that the MSA as defined by the U.S. Census Bureau does not match the precise DMA as defined by Nielsen.¹ Conceding that this may be the case in some markets, the analysis proceeds using these figures as the best available.

Linear mixed models were used to regress game rating on the variables as described above. The models are used to account for covariance and therefore are preferable to ordinary least squares. Using a mixed model, home team or away team, depending on the dependent being measured, is noted as a repeated subject variable to account for the fact that it can be argued that games played in the same market are not completely independent observations, whereas the remainder of the variables are estimated for their effect on rating. Maximum Likelihood estimations were conducted using the Compound Symmetry and Autoregressive Models. Using the information criteria provided by the results, where smaller is better, the Compound Symmetry model was ultimately selected. Restricted maximum likelihood estimates were used in the final estimations.

Table 1. Summary Statistics Characterizing NFL Games 2006-2007

| Parameter | N | Minimum | Maximum | Mean | SD |
|-----------------|-----|---------|---------|--------|--------|
| HOMERATING | 407 | 7.6 | 50.5 | 25.898 | 8.569 |
| AWAYRATING | 426 | 3.8 | 47.6 | 24.682 | 8.733 |
| PRIMETIME | 407 | 0 | 1 | 0.076 | 0.265 |
| | 426 | 0 | 1 | 0.071 | 0.257 |
| DIVISIONAL | 407 | 0 | 1 | 0.380 | 0.486 |
| | 426 | 0 | 1 | 0.374 | 0.484 |
| HOMESHAREMSA | 407 | 0 | 1 | 0.124 | 0.330 |
| AWAYSHAREMSA | 426 | 0 | 1 | 0.124 | 0.330 |
| POSTTHXGIVING | 407 | 0 | 1 | 0.348 | 0.477 |
| | 426 | 0 | 1 | 0.361 | 0.481 |
| HOMETENURE | 407 | 4 | 88 | 44.200 | 23.772 |
| | 426 | 4 | 88 | 43.144 | 23.464 |
| AWAYTENURE | 407 | 4 | 88 | 43.048 | 22.990 |
| | 426 | 4 | 88 | 42.648 | 23.223 |
| HOMETEAMQUALITY | 407 | 0.070 | 0.969 | 0.507 | 0.181 |
| | 426 | 0.070 | 0.969 | 0.500 | 0.182 |
| AWAYTEAMQUALITY | 407 | 0.094 | 0.945 | 0.495 | 0.177 |
| | 426 | 0.094 | 0.945 | 0.493 | 0.176 |
| HOMEGB | 407 | 0 | 4.250 | 0.800 | 0.877 |
| AWAYGB | 426 | 0 | 3.938 | 0.827 | 0.849 |
| HOMEINCOME | 407 | 13.845 | 16.750 | 15.079 | 0.707 |
| AWAYINCOME | 426 | 13.845 | 16.750 | 15.040 | 0.684 |
| HOMEPOPANDSUBS | 407 | 13.149 | 14.791 | 13.896 | 0.443 |
| AWAYPOPANDSUBS | 426 | 13.149 | 14.791 | 13.878 | 0.420 |

Data were collected for all NFL regular season games contested during the 2006 and 2007 seasons with the exception of Monday night games (which were not made available by the Nielsen Company). All of the games were carried on network television, thus cable penetration was not an issue.

Results

Descriptive statistics of the data used in the HOMERATING and AWAYRATING estimations are depicted in Table 1. The first week of each season was not included in the analysis because of the possible premium for week one games coupled with the absence of winning percentage data in the ongoing season. There are fewer home contests in the sample because of the NFL's blackout rule.²

Table 2 shows the demand estimation results for the dependent HOMERATING including parameter estimates, standard errors, *t* statistics, and 95% confidence intervals. A total of 73.6% of the variability is explained by the model. Most of the temporal, team quality and market-related estimates are significant and in the

Table 2. Model Results Estimating the Effect on NFL Television Home Ratings

| Parameter | Estimate | t statistic | 95% CI | |
|-----------------|----------|-------------|-------------|-------------|
| | | | Lower Bound | Upper Bound |
| Constant | 105.497 | 4.967*** | 61.938 | 149.055 |
| PRIMETIME | 1.677 | 2.401** | 0.304 | 3.051 |
| DIVISIONAL | 0.314 | 0.915 | -0.362 | 0.991 |
| HOMESHAREMSA | -7.313 | -3.030*** | -12.264 | -2.362 |
| POSTTHXGIVING | 1.056 | 2.960*** | 0.354 | 1.757 |
| HOMETENURE | 0.131 | 4.195*** | 0.067 | 0.196 |
| AWAYTENURE | 0.023 | 2.907*** | 0.007 | 0.038 |
| HOMETEAMQUALITY | 14.649 | 8.637*** | 11.314 | 17.983 |
| AWAYTEAMQUALITY | 2.524 | 2.592*** | 0.609 | 4.439 |
| HOMEGB | -0.056 | -0.210 | -0.576 | 0.464 |
| HOMEINCOME | -6.443 | -2.994*** | -10.853 | -2.033 |
| HOMEPOPANDSUBS | -0.131 | -0.044 | -6.150 | 5.888 |

$N = 407$; $R^2 = .736$.

** $p < .05$.

*** $p < .01$.

direction consistent with the previous literature estimating attendance for other professional sports leagues (8 of the 11 parameters are significant at the .05 and 7 at .01).

As expected, there is a premium for games played in primetime. The size of the effect is 1.68 ratings points per telecast. Not significant in the model is the DIVISIONAL effect. As discussed in an earlier section, this may be due to the opposing forces of familiarity and competition for playoff spots that would increase viewership versus the novelty of seeing a different team compete. Games contested from Thanksgiving week until the season's conclusion rated higher than those prior by just over one point. This result is in the anticipated direction, given the reduced number of available substitutes. Turning to market characteristics, sharing a home market with another team results in an average reduction of 7.31 in the ratings, lending credibility to the notion that NFL teams are substitutes for one another. Both HOMETENURE and AWAYTENURE were significant in increasing viewership for a home team's broadcast. For each additional season, the home team has spent in its market, ratings increased by 0.13 compared to roughly 0.02 for the opposing team. Team quality was significant for both the home team and opponent, although, consistent with the team tenure variables, the size of the effect was quite different. To demonstrate the size of the effect, a team winning 75% of its games would rank among the best in the NFL whereas one winning only 25% would be among the worst. The consequential ratings difference between these example home teams is 7.33 (calculated by multiplying the difference in winning percentage and β_7). The same difference in the opposition's team quality would yield a 1.26 change in ratings

Table 3. Model Results Estimating the Effect on NFL Television Away Ratings

| Parameter | Estimate | t statistic | 95% CI | |
|-----------------|----------|-------------|-------------|-------------|
| | | | Lower Bound | Upper Bound |
| CONSTANT | 97.282 | 4.239*** | 50.193 | 144.370 |
| PRIMETIME | 3.344 | 4.645*** | 1.928 | 4.759 |
| DIVISIONAL | 0.263 | 0.771 | -0.407 | 0.933 |
| AWAYSHAREMSA | -8.174 | -3.147*** | -13.512 | -2.836 |
| POSTTHXGIVING | 0.473 | 1.345 | -0.218 | 1.165 |
| HOMETENURE | 0.018 | 2.297** | 0.003 | 0.033 |
| AWAYTENURE | 0.149 | 4.379*** | 0.079 | 0.218 |
| HOMETEAMQUALITY | 2.033 | 2.147** | 0.171 | 3.896 |
| AWAYTEAMQUALITY | 11.118 | 6.318*** | 7.659 | 14.578 |
| AWAYGB | -0.113 | -0.420 | -0.642 | 0.416 |
| AWAYINCOME | -7.547 | -3.271*** | -12.284 | -2.809 |
| AWAYPOPANDSUBS | 1.730 | 0.548 | -4.744 | 8.203 |

$N = 426$; $R^2 = .719$.

** $p < .05$.

*** $p < .01$.

using the same formula. HOMEGB was not significant in the model. This may be due to the fact that some of a team's likelihood of qualifying for the playoffs is already accounted for by the team quality metric. Income was a negative indicator of viewership, but population, controlling for the number of major league teams in the MSA, had no effect on ratings. Although income has previously been shown to be a positive predictor of demand (Baimbridge et al., 1996; Berri, Schmidt, & Brook, 2004), it is unsurprising that the opposite is found here given that the costs associated with television viewership are limited when compared to attending a game.

Table 3 shows the estimations for the dependent AWAYRATING. In all, 71.9% of the variability is explained by the model. Seven of the parameter estimates were significant at 0.05 and five at 0.01.

Games in primetime rated 3.34 points higher than afternoon games. Again, DIVISIONAL was not significant in estimating broadcast ratings. Unlike the estimation of home ratings, there was not increased demand for games held after Thanksgiving. Mirroring the previous estimation, sharing a market produced around an 8-point reduction in broadcast ratings, and HOMETENURE and AWAYTENURE were both significant. For each additional season away team resided in the market, an increase of 0.15 is likely to be seen in the ratings, compared to 0.02 for every added year the home team (the opponent) has been in its market. Team quality was significant for both the away and home team. Once again, fans were interested in both teams' quality but not to the same extent. Using the previous example of teams differing by 0.500 winning percentage, whereas this difference in

AWAYTEAMQUALITY would result in a 5.56 change in ratings, a similar difference in opponent quality yields only 1.02 ratings change. Just like in the home estimation, games back in the division was not significant after taking into account the number of games remaining on the schedule. The market variables also produced a similar result to the previous estimation with respect to income, a negative indicator, whereas AWAYPOPAND SUBS was not found to be significant.

Summary and Conclusions

Sport economists have researched the demand for sporting events for more than 40 years. Over that time, income from television broadcasts has represented an increasing percentage of league revenues. This study combines new and traditional metrics evaluating the established determinants of demand to show that many of the same factors influence both attendance and television ratings. This is especially important to the NFL, whose primary source of revenue is its television broadcast rights (Cave & Crandall, 2001). Specifically, this research shows that there is a premium for games held in primetime, demand increases with tenure in a market, and team quality is a positive indicator of broadcast ratings. As expected, sharing a market has an adverse effect on ratings. Producing mixed results was games held after Thanksgiving, which was significant for fans only when the game was held in their market. Not shown to be significant are intradivisional contests, games behind division leader, and market population controlling for number of major league teams. The divergence from attendance-based studies in other professional sports leagues with respect to fan income may be attributable to the insignificance of price in watching the game on television apart from the opportunity cost and is consistent with previous findings in leisure research where studies have shown that individuals of lower socioeconomic status engage in homebound and sedentary activities (Kaplan, 1975; Robinson & Godbey, 1997; Stodolska & Alexandris, 2004). On the whole, however, and particularly as they relate to team quality and temporal characteristics, the consistency of these findings with patterns previously demonstrated in the sports literature is an important step in lifting the deep-rooted caveat that those conclusions should not be applied to other revenue streams and leagues.

This research is also among the first to monitor the demand for games in markets outside the home market. Because of the limitations of using attendance, this was not possible previously. The findings suggest that there are no marked differences in home and away fans' motivations to watch sports on television. Future studies may look more closely for differences in the parameter estimates in home and visiting markets as well as those in markets without teams representing them in a given game.

A final issue that surfaced during this research but is not the subject of this article is that of blackouts. Of the six teams that experienced local blackouts during the 2006 and 2007 seasons, five (Atlanta, Buffalo, Jacksonville, St. Louis, and

Tennessee) are located in what can fairly be considered small markets. The lone exception was Oakland, who shares a market with another franchise. As noted earlier, ratings for telecasts in these markets were on par with the remaining 26 NFL franchises. It is possible that, like attendance, there would have been decreased interest in the broadcast for these particular games. However, it is also feasible that the relative level of interest in these markets is basically comparable to larger ones and that the failure to sell out a handful of games is more a function of market size. Future research may explore this issue further and explore the fairness of a uniform blackout rule across all markets.

Notes

1. A related point is the use of Milwaukee's data for the Green Bay Packers. Green Bay holds neither the distinction of a DMA by Nielsen nor the same status as the central city of a Combined Metropolitan Statistical Area by the U.S. Census Bureau.
2. Six franchises experienced local blackouts during the 2006 and 2007 seasons. Because of the past focus on the relationship between blackouts and attendance, it is worth noting that the average home game ratings for these teams (23.8) was not appreciably lower than the league average.

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References

- Ahn, S., & Lee, Y. (2007). Life-cycle Demand for Major League Baseball. *International Journal of Sport Finance*, 2, 79-93.
- Alavy, K., Gaskell, A., Leach, S., & Szymanski, S. (2006). *On the edge of your seat: Demand for Football on television and the uncertainty of outcome hypothesis*. IASE Working Paper Series Working Paper No. 06-31. Retrieved November 3, 2008, from http://www.holycross.edu/departments/economics/RePEc/spe/Szymanski-et-al_Initiative.pdf
- Allan, G., & Roy, G. (2008). Does television crowd out spectators? New evidence from the Scottish Premier League. *Journal of Sports Economics*, 9, 592-605.
- Baimbridge, M., Cameron, S., & Dawson, P. (1996). Satellite television and the demand for Football: A whole new Ballgame? *Scottish Journal of Political Economy*, 43, 317-333.

- Berri, D., Schmidt, M., & Brook, S. (2004). Stars at the gate: The impact of stars on NBA gate revenues. *Journal of Sports Economics*, 5, 33-50.
- Borland, J., & Macdonald, R. (2003). Demand for Sport. *Oxford Review of Economic Policy*, 19, 478-502.
- Brook, S. (2006). Evaluating inelastic ticket pricing models. *International Journal of Sport Finance*, 1, 140-150.
- Buggink, T., & Eaton, J. (1996). Rebuilding attendance in major League Baseball: The Demand for Individual Games. In E. Fizel, E. Gustafsen, & L. Hadley (Eds.), *Baseball Economics, Current Research*. Westport, CT: Praeger.
- Carmichael, F., Millington, J., & Simmons, R. (1999). Elasticity of demand for Rugby attendance and the impact of BSkyB. *Applied Economic Letters*, 6, 797-800.
- Cave, M., & Crandall, R. (2001). Sports rights and the broadcast industry. *The Economic Journal*, 111, F4-F26.
- Coates, D., & Harrison, T. (2005). Baseball strikes and the demand for attendance. *Journal of Sports Economics*, 6, 282-302.
- Forrest, D., Simmons, R., & Buraimo, T. (2005). Outcome uncertainty and the couch potato audience. *Scottish Journal of Political Economy*, 52, 641-661.
- Fort, R. (2006). *Sport Economics* (2nd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.
- Garcia, J., & Rodriguez, P. (2002). The determinants of Football match attendance revisited: Empirical evidence from the Spanish Football League. *Journal of Sports Economics*, 3, 18-38.
- Hausman, J., & Leonard, G. (1997). Superstars in the National Basketball Association: Economic value and policy. *Journal of Labor Economics*, 15, 586-624.
- Kanazawa, M., & Funk, J. (2001). Racial discrimination in professional Basketball: Evidence from Nielsen Ratings. *Economic Inquiry*, 39, 599-608.
- Kaplan, M. (1975). *Leisure in America: A social inquiry*. NY: John Wiley & Sons.
- Price, D., & Sen, K. (2003). The demand for game day attendance in college Football: An analysis of the 1997 division 1-A Season. *Managerial and Decision Economics*, 24, 35-46.
- Putsis, W., & Sen, S. (2000). Should NFL Blackouts be Banned? *Applied Economics*, 32, 1495-1507.
- Robinson, J., & Godbey, G. (1997). *Time for life: The surprising way Americans use their time*. University Park, PA: The Pennsylvania University Press.
- Stodolska, M., & Alexandris, K. (2004). The role of recreational sport in the adaptation of first generation immigrants in the United States. *Journal of Leisure Research*, 36, 379-413.
- U.S. Census Bureau. (n.d.). Retrieved on September 25, 2008, from http://factfinder.census.gov/home/saff/main.html?_lang=en
- Welki, A., & Zlatoper, T. (1999). US professional Football and game-day attendance. *Atlantic Economic Journal*, 27, 285-298.

Bio

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