

Analysis of Sport Economics Research: New Perspectives on the Demand for Sport

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Introduction

All papers considered in this section of the digest come from published issues dated July 2022 - December 2022 in the ten pre-selected journals. Of these ten journals, two are exclusively dedicated to sport economics related research, the *Journal of Sports Economics* (JSE), which is the official Journal of the *North American Association of Sports Economists* (NAASE) and the *International Journal of Sport Finance* (IJSF), which is the official journal of the *European Sport Economics Association* (ESEA). Furthermore, sport economics research is regularly published in either of four sport management journals, i.e., the *European Sport Management Quarterly* (ESMQ), the *Journal of Sport Management* (JSM), the *Sport Management Review* (SMR) and the *Journal of Global Sport Management* (JGSM). The following list provides a summary of overall 39 identified papers covering sport economics related research that have been published in either of these seven journals as of December 2022:

JSE (V23 Issues 6-8): 18 papers, with all 18 covering sport economics related research,

IJSF (V17 Issues 3 & 4): 9 papers, with all 9 covering sport economics related research,

ESMQ (V 22 Issues 4-6): 19 papers, with 6 covering sport economics related research,

JSM (V36 Issues 5 & 6): 18 papers, with 2 covering sport economics related research,

SMR (V25 Issues 3 -5): 22 papers, 1 covering sport economics related research,

JGSM (V7 Issues 3 & 4): 16 papers with 3 covering sport economics related research.

The thirty-nine papers fall into five different categories:

Labor markets (such as league restrictions on player mobility; player and coach hiring, dismissal and contracts, performance and incentives; transfer markets; salary determinants; discrimination): 5;

Performance Analysis (such as home advantage, tournament effects, and behavioral sport economics such as the effect of travel, home field, etc. on performance): 7;

Demand for Sport (the determinants of stadium attendance, TV viewing): 14;

Sport and Vice (financial analysis of sports gambling markets, effects of law and policy on sports wagering, doping and sport outcomes): 5;

Finance & Ownership (such as the financial returns to investment sport, sport and financial markets): 10.

The Demand for Sport

For this edition of the digest, I've reviewed empirical studies exploring the demand for sport. Included are demand for in-person attendance and demand for viewing on television and other media alternatives. Demand analyses have long been a staple of sport economics research and the volumes published in the second half 2022 see a substantial amount of traditional demand for sport research. Borland and MacDonald (2003) provided a thorough review of the demand for sport literature up to that time. In doing so they present a conceptual framework for demand analysis and identify several shortcomings of that research as of that date. B&M note empirical and data problems characterize the research. For example, while attendance figures are widely available, the reported attendance may be altered from actual attendance. More problematic is that ticket prices are not easily gathered and often vary across stadium's seating sections. Most studies have simply relied on average (reported) ticket price to account for other side of the price to quantity sold relationship. Many studies since 2003, including several of those referenced here, endeavor to address the challenges noted by Borland & MacDonald.

The focus of demand studies has largely focused on stadium demand and the paper by Schreyer and Ansari (2022) in the August 20th anniversary edition of the *JSE* offers a thorough review of that literature. Besides sports economics papers, this

review included a number of articles from sport management and sport marketing journals authored by researchers most often associated with those disciplines. There has been, as the authors note, a proliferation of attendance demand studies since the inception of the *JSE* in 2002. Football (soccer), baseball, and American football constitute far and away the most studied sports in regard to stadium demand. Importantly, the authors state there is a lack of studies on both the demand for women's sports and for niche, or other emerging, sports. They also note that outcome uncertainty is a frequently studied topic in assessing demand- a concept that dates to the beginnings of sport economics in the papers by Rottenberg (1956) and Neale (1964). In fact, in the same *JSE* issue Collins and Humphreys (2022) review the literature on outcome uncertainty and demand, discussed below. More recently papers on demand for sport have included the effects of "star power" and environmental issues like the effect of air pollution on attendance. Social issues like players standing (or not) for the pre-game national anthem on National Football League (NFL) (Sperling and Vandegrift, 2022). The sports economics papers published over the past six months have reflected both the inclusion of a broader base of sports and alternative factors influencing attendance demand.

The uncertainty of outcome hypothesis (UOH), as it effects the demand for sport, is seminal to the economic analysis of sport. The two groundbreaking papers Rottenberg (1956) and Neale (1964) both consider closely matched games or contests, such that the winner cannot be easily predicted beforehand as essential to the demand for team (Rottenberg) and individual (Neale) sports. Competitive balance policies, and the entire sports economic literature analyzing these policies, is predicated on the belief that more closely matched opponents, and a narrow distribution of talent across clubs increases the demand for a sport (see Fort and Maxcy 2003). Nonetheless, sports economics studies testing for uncertainty of outcome as a critical component of demand, routinely find little empirical evidence that is the case. A primary issue is that there is no particular measurement outcome uncertainty and thus a wide variance in the proxy variable used to represent uncertainty. Collins and Humphreys' (2022) paper, also in the anniversary edition *JSE* survey, undertakes a meta-analysis of the outcome uncertainty literature that includes over 500 model specification across 97 papers. As expected, there is little accord on whether uncertainty effects demand and the proxy variables are widely

diffused. Unsurprisingly, the authors suggest that loss aversion is a more important factor in determining home stadium attendance demand.

Articles on the effects of social issues on demand for sport and the analysis of women's and other less studied sports (niche sports) make appearances in the sport journal in the second half of 2022. Walker, Allred, and Berri (2022) consider the possibility that dunking (or lack thereof) of the basketball creates a demand problem for the Women's National Basketball Association, where dunks are rare, relative to the men's NBA. A repeated media criticism of the WNBA is that their less athletic players play a "below the rim" game that is not attractive to fans. The authors ultimately determine, by analyzing the NBA, where dunks are frequent, that attendance demand is largely a function of team winning and not individual player performance displays. Sperling and Vandegrift (2022) also consider a social issue's affect on demand. In this case national anthem protests and viewership of NFL games. The findings showed that explicit protests reduced viewership of the following weeks games by 15% and the finding was most pronounced in conservative-voting cities. Brook (2022) found that moving from policies that banned alcohol to those permitting the selling of alcohol at NCAA bowl division (major) college football games significantly increased concession revenue but was not shown to increase ticket sales. Last, Maennig and Mueller (2022) addressed the impact of racial discrimination on demand for sport. Revisiting an idea originally put forth in a study of the National Basketball Association by Kahn & Sherer (1988), and the forerunner to a large literature on the effects of racial prejudice on consumer demand in sport. The authors assess how attendance and team performance respond to changes in a local market's racial composition. They find both consumer and employer discrimination, but that fan and employer racial preferences only partially align. Indicating somewhat in contrast to Kahn & Sherer's conclusion, that employer discrimination is not necessarily driven by fans' racial preferences.

The demand for media viewership is critical, as broadcast rights sales are fast approaching ticket sales in terms of revenue generation in sports. In some leagues such as the NFL broadcast rights sales comprise the largest share of league income from any single revenue source. The ESMQ published three articles on demand for broadcasts in the covered period. Wallrafren, Deutscher, and Pawlowski (2022)

explored the often-mentioned concern that live television coverage viewership negatively impacts stadium attendance. They tested German 3rd Division football and found some evidence that there was in fact a negative effect on stadium attendance given the live telecast of a match. Wills, Tacon, and Addesa (2022) also consider European football with an examination of the television demand for the UEFA Championship League. Their goal was to test the efficiency of the tournament's structure based on relative TV viewership outcomes. Interestingly, they found that TV audiences were not drawn to higher degrees uncertainty of outcome, but rather the presence of superstar players and celebrated clubs. The authors suggest restructuring the tournament so that stars and top clubs are more likely to advance through to the later round of the UEFA championship. Last, Butler, Butler, and Maxcy (2022) consider the demand for televised boxing viewership via both for pay-per-view (PPV) and subscription services. The paper hit three themes previously discussed here—demand for televised sport events, demand for a niche sport—boxing, and a test of the UOH hypothesis. The evidence on the latter is conflicted and paying fans prefer rematches, home country participants, and heavyweight divisions to uncertain outcomes. For PPV there is evidence, perhaps confoundingly, of a positive price effect. That is, higher priced PPV events drew more consumer buys. However, this may be the result of bouts that feature popular performers such as Floyd Mayweather Jr.

Conclusions

Papers published on sport economics in the second half of 2022 have advanced analysis of the demand for sport literature. The period offers the first and much overdue, review of the stadium demand literature. Additionally, there is a review of the often-analyzed uncertainty of outcome hypothesis and its effect on demand and viewership for sport events. The period also saw an extension of this literature to address previously under researched sports such as women's basketball and boxing. The effect of social issues, e.g., anthem protests, stadium alcohol sales, and racial prejudice on the demand for sports are also addressed. Finally, as broadcasting revenue increasingly grows in importance, there was significant attention paid to the demand for sport broadcasts.

Annotated bibliography

Stacey L. Brook. (2022). General Admission Alcohol Availability at American College Football Bowl Subdivision Stadiums: A Difference-in-Difference with Timing Variation Analysis of Football Program Concession Revenues and Ticket Sales. *International Journal of Sport Finance*, 17, 154–164.

Abstract: The percentage of universities selling alcohol to legally aged general admission spectators at football bowl subdivision stadiums increased by nearly 150% from 2012 to 2018. Previous research examines the effect of alcohol availability on revenue using a pro forma case study for one university. The literature is extended by systematically analyzing public college football program concession and ticket revenues using data from the NCAA Membership Financial Reporting System covering the 2012 to 2018 seasons. Using a differential timing difference-in-difference methodology, universities allowing general admission alcohol sales causes concession revenues to increase by approximately \$350,000 or \$1.15 per fan during this time period, but allowing general admission alcohol sales does not have a statistically insignificant impact on ticket sales revenues.

David Butler, Robert Butler, and Joel Maxcy. (2022). New insights on the Louis-Schmeling paradox: determinants of demand for subscription and pay-per-view boxing. *European Sport Management Quarterly*. 22 (4) 588-621.

Abstract: Studies considering demand for professional boxing are almost completely absent from the Sport Management/Sports Economics literature. Little is known about consumer preferences for a sport which attracts global attention but is unique insofar as it is exempt from standard sporting institutions maintaining competitive balance. We use two new datasets to ask, what are the determinants of main event viewership (Nielsen ratings) and pay-per-views buys? In addressing this question we offer new insights on the uncertainty-of-outcome hypothesis and extend research on direct demand for individual sport. The datasets comprise of 210 HBO and Showtime broadcasts from 2006 to 2018. We estimate generalised linear models, controlling for economic determinants, bout features, boxer popularity and scheduling factors. For main events, we find conflicting evidence to the uncertainty-of-outcome hypothesis. Fans show a preference for rematches, domestic boxers and heavier divisions. NFL broadcasts and earlier scheduling negatively impact viewership. For pay-per-views, we find a positive price effect. Expectedly, Floyd

Mayweather Jr increases buys. Both categories exhibit a negative trend with viewership and PPV buys declining over the sampling frame. The results offer new evidence that is contrary to the uncertainty-of-outcome hypothesis for an individual sport. The findings point to differences in consumer preferences between two sources of demand for the same sport. Practically, these can inform the strategic decision-making of broadcasters, promoters, advertisers and potential new broadcasting entrants.

Clay Collins and Brad R. Humphreys. (2022). Contest Outcome Uncertainty and Fan Decisions: A Meta-Analysis. *Journal of Sports Economics* 23 (6) 789–807

Abstract: Outcome uncertainty represents a central, defining area of sports economic research. Contest outcome uncertainty (COU), the idea that fan expectations about game outcomes affects attendance decisions, receives substantial attention in the literature, including many papers published in this journal. The standard model of fan decisions under uncertainty generates two diametrically opposed predictions about the COU-attendance relationship, depending on fan preferences, generating tension in the empirical literature. We undertake a meta-analysis of the empirical COU literature to assess empirical support for these predictions. We identify more than 500 empirical model specifications reported in 97 COU papers. The results slightly favor the loss aversion version of the model, but the literature contains no consensus. Sport analyzed and choice of COU proxy variable have no relationship to reported results. Simple OLS and panel data methods generate much of the evidence, highlighting the importance of using causal inference methods in future research.

Wolfgang Maennig and Steffen Q. Mueller. (2022). Consumer and Employer Discrimination in Professional Sports Markets: New Evidence from Major League Baseball *International Journal of Sport Finance*. 17, 230–244

Abstract: This study investigates the relationship between consumer discrimination, racial matching strategies, and employer discrimination in Major League Baseball (MLB) from 1985 to 2016. Specifically, we assess the extent to which both fan attendance and team performance respond to changes in teams' and their local market areas' racial compositions. To this end, we use game-level data (N = 69,239) that we aggregate to the team-season level (N = 866). Using facial recognition

software and pictures on more than 7,000 players, each player is assigned to one of three race groups: white, black, and other (Asian or Hispanic). We find both consumer and employer discrimination; discrimination varies across leagues, over time, by race and athlete groups, and regional racial composition. However, league-specific fan and employer racial preferences only partially align, indicating that employer discrimination is not primarily driven by fans' racial preferences.

Dominik Schreyer and Payam Ansari. (2022). Stadium Attendance Demand Research: A Scoping Review. *Journal of Sports Economics*. 23 (6) 749–788.

Abstract: Because maximizing stadium attendance demand is of utmost importance, for both sports economists and sport management researchers, understanding the potential determinants of such demand better has become a priority in the last decades. Here, conducting a systematic scoping review, we map this previous research in terms of its characteristics, its nature, and its volume, thus offering a concise perspective on what has been previously explored, and, more importantly, what remains to be analyzed in the future. Intriguingly, we observe a lack of studies exploring data generated in both niche and women's sports, as well as in most emerging markets. Further, the field has not yet established the use of disaggregated stadium attendance data, despite notable potential methodological pitfalls.

Noah Sperling and Donald Vandegrift. (2022). Anthem Protests, Viewer Politics, and the Demand for NFL Games: Assessing the Impact of National Anthem Protests on Viewership.

Journal of Sports Economics 23 (8) 1017-1045

Abstract: This paper analyzes the effect of anthem protests on viewership for National Football League (NFL) games controlling for measures of NFL market-specific political beliefs and other demand determinants. To capture the effect of the protests on viewership, we create two classes of protests (unambiguous and ambiguous protests) and support the classification based on the meaning of the protest, actions by NFL owners, and statements by Donald Trump. Using data from all early and late-afternoon Sunday games from the 2014 through 2017 regular NFL seasons, we show that: (1) unambiguous protests reduce viewership in the week following the protests by about 15% while ambiguous protests do not generally

produce statistically significant reductions in viewership; (2) the negative effect of unambiguous protests on viewership is particularly strong in metro locations that voted more heavily for Donald Trump in 2016; and (3) following Donald Trump's statements in week 3 of the 2017 season, both ambiguous and unambiguous protests increased and the increase in ambiguous protests was particularly large.

Nefertiti Walker, Thomas Allred , and David Berri. (2022). Could More Dunking Really Help the WNBA? *International Journal of Sport Finance*, 17, 187–200.

Abstract: Motivated by a comment Shaquille O'Neal made about the Women's National Basketball Association (WNBA), we ask the following question: Is consumer demand and revenue in sports driven by the entertainment spectacle of the contest or the emotional attachment derived from wins and losses? We answer this question by empirically examining gate revenue in the National Basketball Association (NBA) from 2000–01 to 2018–19. Utilizing a linear regression with panel corrected errors, we examined the impact on factors like dunking, three-point shooting, star power, and team wins on team gate revenue. Our findings indicate that basketball fans very much care about winning, but they are less interested in how those wins are achieved.

Tim Wallrafren, Christian Deutscher, and Tim Pawlowski. (2022). The impact of live broadcasting on stadium attendance reconsidered: some evidence from 3rd division football in Germany. *European Sport Management Quarterly*. 22 (6) 788 -924.

Abstract: If a sports competition is broadcasted live, consumers may opt for substituting gate attendance with watching that game live on TV (or online). This might be worrisome for teams, particularly those in lower divisions, whose game day revenues typically exceed broadcasting revenues. So far, however, the literature testing this claim empirically is inconclusive. We examine whether (at least parts of) this confusion might be traced back to shortcomings in the econometric modelling process. We use attendance data for 1,138 games in German third division football from the 2015/16 to 2017/18 seasons and compare results for our demand equations between ordinary least squares (OLS) and endogenous treatment regressions (ETR). ETRs explicitly account for any selection bias, that is, the broadcasters' preference to select the most attractive games for live broadcasting (which are

expected to also attract comparably larger gate attendances). While OLS models reveal a significant positive impact of live broadcasts on gate attendance, this effect reverses when estimating ETRs. Even though there is suggestive evidence for postponing ticket demand to some extent to later games, the overall negative effect remains robust and large. Our findings highlight the relevance of controlling for the selection bias when analyzing the impact of live broadcasting on stadium attendance. From a managerial point of view, our findings suggest that increasing the number of games broadcasted live in German third division football might not be advisable, since additional broadcasting revenues may not exceed predicted losses in ticket revenues.

George Wills, Richard Tacon, and Francesco Addesa. (2022). Uncertainty of outcome, team quality or star players? What drives TV audience demand for UEFA Champions League football? *European Sport Management Quarterly*. 22 (6) 876-919.

Abstract: This is the first article to empirically examine what drives TV audience demand for the UEFA Champions League (UCL) in major European markets. It then asks: How well does the tournament structure meet the preferences of TV viewers? The article analyses the UCL from 2013/14–2018/19, considering TV viewing figures for all televised games from the group stages through to the finals in six nations – France, Germany, Italy, the Netherlands, Spain and the UK. It then analyses match data in the UCL since its most recent tournament restructure in 2003/04, along with Ballon d'Or results and UEFA Club Coefficient rankings, to assess the efficiency of the current tournament structure. Uncertainty of outcome is not significantly associated with the size of TV audiences for the UCL, but both the presence of star players and team quality are. However, analysis of match data reveals that the current structure of the UCL does not maximize the number of star players or top clubs that progress to the latter stages of the tournament. These findings enable UEFA and other sport competition organizers to make evidence-informed decisions about how to structure competitions, while balancing the needs of multiple stakeholders. They also contribute to the small but growing body of empirical work that seeks to identify the key drivers of TV demand for sport – increasingly the dominant form of revenue for many sport organizations.

Further References

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