THE DETERMINANTS OF THE NUMBER OF TV SPECTATORS: EVIDENCE FROM THE GERMAN BUNDESLIGA

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Abstract

This study investigates the determinants of the number of television spectators of German soccer. The largest share of sales generated by soccer clubs is from media and TV rights and is determined by the number of TV viewers. The higher the number of TV viewers, the higher the media and TV revenues are for soccer clubs. It is therefore interesting to analyze which determinants influence the number of TV viewers. We use a regression model to analyze Sky TV's spectator figures for thirteen soccer clubs over the five seasons in the Bundesliga from 2013/14 to 2017/18. The results obtained with new variables show that the popularity of a soccer club and its value have a significant impact on the number of TV viewers, which suggests that soccer clubs can increase their media broadcast income through marketing campaigns.

Key words*: Media broadcast, Soccer Clubs, Soccer, Television, Bundesliga.*

Introduction

The soccer industry has grown disproportionately in recent years in comparison to other branches. Many professional soccer clubs have a turnover of more than EUR 100 million per year. Though soccer remains a game of passion, commitment, and discipline, it has also evolved in recent decades into a commerce opportunity and, increasingly, a multi-billion-euro business. Due to the public's enormous interest in soccer, associations and clubs can earn a lot of money through merchandizing, sponsorship, advertising, and, above all, the commercialization of media broadcast rights. In the 2017/2018 season, Europe's "Big Five" leagues (Premier League, Bundesliga, La Liga Santander, Serie A, and Ligue 1) earned total revenues of EUR 15.6 billion, the greatest part of which(EUR 8.2 billion) was income from media broadcast rights, which represents the most important revenue source for the soccer leagues and clubs. This importance has increased significantly in recent years and, according to prognosis from experts, will continue to rise in the coming years. Although Germany's Bundesliga clubs have earned much less from the auction of TV broadcast rights than England's Premier League clubs, German clubs receive a considerable sum from the sale of national TV rights, which has grown steadily over recent years. The auction for the 2017/2018 season saw an 85% increase in the price for media rights, which were sold for a total of EUR 1.25 billion per season (Ludwig et al., 2019).

Several previous studies have focused on the attractiveness of the uncertainty of outcome as a variable. Cox (2015) measured how the uncertainty of match outcome affects stadium attendance and television audiences in English Premier League soccer. The results show that more certain matches are preferred by stadium spectators, whereas more uncertain matches are preferred by TV spectators. Caruso et al. (2017) analyzed TV demand for Italian Serie A soccer and found that uncertain outcomes do not impact on the TV audience. Instead, the TV audience is driven by enhanced performance of the top clubs and by the quality of the matches. Theodorakis et al. (2013)examined the relationships between service quality, satisfaction, and spectator behavior in the context of professional soccer in Greece. The study provides empirical evidence that outcome quality, as measured by team performance, is an important element of service quality construct in the context of spectators' sports. Buraimo (2008) analyzed stadium attendances and TV audience demand in English soccer and concluded that, to maximize revenue from broadcasting, TV audiences must be maximized.

This paper contributes to and extends this literature by assessing the market demand for TV spectators using new determinant variables for analyzing the German Bundesliga from 2013/14 to 2017/18. The results show that TV demand is mainly driven by the popularity of a soccer club, the team market value, and stadium ticket prices. However, success, measured in league points, has no significant influence in the Bundesliga.

Methodology and data

TV demand is measured using the number of spectators of the pay-TV channel Sky. Sky had sole broadcasting rights for the Bundesliga for the four seasons from 2013/14 to 2016/17. In 2017/18, the Bundesliga broadcast rights were divided between Sky Deutschland and Discovery Communications, so Sky streamed most, but not all, televised games.

Because Discovery Communications does not publish viewing figures for Bundesliga games, only the numbers from Sky Deutschland were available, so these were used as the basis for the TV spectator variable for the 2017/2018 season. This imposes no relevant restriction because most of the games were still shown on Sky, and the average number of TV spectators per game day was used. Thus, the dependent variable *sky_spectators* was used with a data set of 65 data points. Data on the number of TV spectators for Sky were sourced from meedia.de – an online service portal for media topics and a subsidiary of the German Handelsblatt Media Group. For the statistical analysis of factors influencing the number of TV spectators of Bundesliga games, data were collected for the teams in the German Bundesliga. The Bundesliga comprises 18 teams from all over Germany that

compete for the league trophy from August to May over 34 game days. Some teams were relegated from or promoted into the Bundesliga during the five seasons considered in this study. Thus, the empirical investigation focuses on the following thirteen clubs, which were in the Bundesliga for all five seasons: 1. FSV Mainz 05, Bayer 04 Leverkusen, Borussia Dortmund, Borussia Mönchengladbach, Eintracht Frankfurt, FC Augsburg, FC Bayern München, FC Schalke 04, Hamburger SV, Hertha BSC Berlin, SV Werder Bremen, TSG Hoffenheim and VFL Wolfsburg.

Table 1 shows all the teams included in the study with their average number of Sky TV spectators per game day for each season. For traceability, the number of games broadcast by Sky is indicated in parentheses for the 2017/2018 season.

Table 1. Soccer clubs and average number of Sky TV spectators per game day (in thousands) in the German Bundesliga from 2013/2014 to 2017/2018.

Soccer club	2013/14	2014/15	2015/16	2016/17	2017/18
1. FSV Mainz 05	260	340	330	290	330 (28)
Bayer 04 Leverkusen	330	310	320	310	330 (29)
Borussia Dortmund	630	630	700	580	880 (29)
Bor. Mönchengladbach	430	490	430	380	540 (30)
Eintracht Frankfurt	440	400	420	350	370 (30)
FC Augsburg	280	250	270	230	280 (31)
FC Bayern München	710	720	840	790	980 (31)
FC Schalke 04	590	520	510	510	650 (31)
Hamburger SV	450	450	420	410	610 (29)
Hertha BSC Berlin	370	380	390	380	540 (30)
SV Werder Bremen	410	430	430	380	520 (29)
TSG 1899 Hoffenheim	250	240	270	270	350 (31)
VFL Wolfsburg	290	350	280	240	330 (29)

Source: Own representation based onKicker (2014, 2015, 2016, 2017, 2018).

As independent variables, the following four determinants were used:

Recognition Value (*recognition_value*)
The recognition value describes how many people out of a given total number of Germans recognized soccer clubs of the German Bundesliga. The data for recognition value come from the annual Allenbacher Markt- und Werbeträgeranalyse survey carried out by the Institut für Demoskopie Allensbach, which specializes in marketing and media analysis. For the annual report, the institute questioned about 23,000 people in Germany between the ages of 14 and 60 in an oral-personal interview about their attitudes, consumption habits, and media use. The result is given as a percentage(Institut für Demoskopie Allensbach, 2019). The recognition value indicates how popular a soccer club is in Germany. Therefore, we expect the number of spectators to be greater for the better-known clubs of the Bundesliga.

Team Market Value (*team_market_value*)
The sum of the market values of individual players gives the total value of the soccer team. The player values were taken from the homepage of transfermarkt.de. The website is a database for player market values and is regularly updated according to the performance of individual players and player transfers.

Due to updates, the new market values of the teams are not published on a scheduled basis, so the date at which the market values were published must be considered. Nevertheless, for every year of the analysis, period figures were published and provide the necessary information for the independent variable of team market value. Good soccer players have a high market value, so a high team value is indicative of the potential for a successful season. We thus expect that team value to correlate positively with the number of TV spectators.

Ticket Price (*ticket_price*)
During the 17 home games of the 18 Bundesliga teams, more than 13.4 million people saw at least one match live in a stadium(DFB, n.d.). Ticket prices for Bundesliga games and visits to the stadiums differ between soccer clubs. Season ticket prices are provided on an annual basis by blog.uebersteiger.de, which is a private website of the soccer club FC St. Pauli and is operated by the fan magazine "Der Übersteiger." For the five seasons investigated, the price for a season ticket averaged EUR 383 excluding VIP tickets. This price exceeds that of a pay-TV Sky subscription, which costs about EUR 240. Given the higher cost, people might consider watching the games on TV, rather than buying a more expensive season ticket.

Therefore, we expect the cost of the season ticket to be positively correlated with the number of TV spectators.

Success in Points (*success*)

No team in the Bundesliga has been as successful as FC Bayern München. With a total of 28 championships and six titles in a row as of the 2017/18 season, no other Germansoccer team has collected as many trophies. Borussia Dortmund was the last team other than FC Bayern München to win the championship, which was in the 2011/12 season. However, not all teams of the Bundesliga play as consistently throughout the seasons as do FC Bayern München and Borussia Dortmund. Other teams who played well one season were nearly relegated the following season. Thus, the success of a team is a variable that could also influence the number of spectators. The question is how to measure success. Cox (2015) measured team

success by the average win percentage from the previous season. Also, league position can be an indicator of success, although it does not always reflect a team's performance or success. For example, FC Bayern München earned 90 points to win the league in 2013/14 but only 79 points when they retained the title in 2014/15. Therefore, the total number of points earned in a season would be a better indicator of a team's success. The league points indicate whether a team has won, drawn, or lost a game. The data were taken from kicker.de, which is the website of the sports magazine "Kicker" that focuses on soccer. For the variable *success*, we expect people to prefer to watch games involving more successful teams on TV. Thus, greater success of a Bundesliga club should correlate with increased TV viewership. A pooled regression model with robust standard error terms is used to investigate the determinants of the number of Sky TV spectators:

$$\text{sky\_spectators}_t = \alpha_{it} + \beta_1 \text{recognition\_value} + \beta_2 \text{team\_market\_value} + \beta_3 \text{ticket\_price} + \beta_4 \text{success} + \epsilon_{it} (1)$$

Results and discussion

Table 2 summarizes the results of the analysis, which is based on the data from the 13 Bundesliga teams considered over the five-season period. The results indicate that the model using the four independent variables (recognition value, team

market value, season ticket price, and success) can explain approximately 84% of the variance in the number of TV spectators watching soccer. The adjusted R-squared and the F-statistics of the four independent variables reveal a good prediction of the number of TV spectators watching a soccer game.

Table 2 Results of multilinear regression model with the four selected variables.

Coefficients	Estimate	Std. Error	T value	Pr (>|t|)	Significance*
Intercept	-1.08833×10^6	139733	−7.789	4.94×10^{-6}	***
Recognition value	12771.0	1777.27	7.186	1.11×10^{-5}	***
Team market value	0.000546814	0.000124433	4.394	0.0009	***
Ticket price	284.452	50.4257	5.641	0.0001	***
Success	−211.137	875.133	−0.2413	0.8134	
* Significance codes: *** 0.01,** 0.05,* 0.1 Multiple R-squared: 0.852489 Adjusted R-squared: 0.842655 F-statistic (4,12): 261.6978, p-value: 1.47×10^{-11}					

Source: Own representation.

The first independent variable listed in the final multiple linear regression model is the recognition value. As Table 2 shows, recognition value significantly influences the average number of TV spectators watching a soccer game during a season ($t = 7.186$, $p < 0.001$). The regression weight of 12,771can be interpreted as the number of additional spectators expected for a soccer game if the recognition value increases by 1%. Recognition value has by far the highest influence for the number of Bundesliga soccer TV spectators. Therefore, of the four chosen variables, the degree of popularity of a soccer club in the Bundesliga has the greatest influence on the number of TV spectators. From this we can derive that the recognition value of a soccer club in the Bundesliga is the most significant factor for attracting more TV spectators. For recognition value, the result of the investigation is consistent with our expectation.

People prefer to watch games involving soccer teams they recognize and will not usually watch a game of an unknown team. In particular, the games of the most well-known and established teams in the Bundesliga, such as FC Bayern München and Borussia Dortmund, enjoy a particularly large TV audience.

Team market value also significantly influences the average number of TV spectators. At first sight, the absolute figure is small; however, related to the high market value of soccer players, the impact is large. For example, the player Neymar has a market value around EUR 200 million. If a club invested EUR 50 million, the average number of TV viewers would increase by 27,341spectators. From this result, we deduce that TV spectators care about the market value of the soccer clubs that they watch on TV.

Ticket price also significantly influences the average number of TV spectators of a soccer club. The regression weight can be interpreted as follows: if the season ticket price increases by EUR 1, the average number of TV spectators would increase by about 284.

The final variable is the success of a soccer club, which has no significant impact. A closer look at the league tables over the five seasons shows that clubs with a large number of spectators, such as Hamburger SV, did rather poorly and that clubs with fewer spectators, such as VFL Wolfsburg, did well in some cases. The results indicate that a team that does not have a successful season will not necessarily have fewer spectators.

Because this study uses new determinants, there is no possibility to compare the results with other studies. The regression model can explain approximately 84% of the variance inthe number of TV spectators watching soccer. In addition, other variables must also have an impact on the number of TV spectators. An international comparison with other soccer nations would be interesting to determine differences between countries.

Conclusion

Soccer is expected to remain the most popular sport on the planet over the coming decades. In the 19th century, modern soccer was established in England by schoolboys and has since been played in various forms by cultures all over the globe. It has become a global sport of the people, influences half of the world's population, and is now a multi-billion-euro business.

As clarified in detail herein, the extent of this multi-billion-euro business is apparent in the revenue of clubs in the European leagues. The big five leagues alone earned approximately 58% of the total revenue of EUR 25.5 billion in Europe.

Examining the revenue figures of the leagues more closely reveals that one component of the revenue has grown stronger in recent years, namely, the fees for broadcasting rights. Over the last few years, the revenue from broadcasting has accounted for over half of the total revenue of the big five leagues in Europe.

In Europe, the English Premier League has earned by far the largest amount from the sale of media rights over the last year, but the Spanish and German leagues have also substantially increased their media income. The German Bundesliga increased its media broadcast income by 85% to around EUR 1.169 billion for the 2017/2018 season.

The results of this study show that the variables recognition value, team market value, and season ticket prices significantly influence the average number of TV spectators of the German Bundesliga. From this we deduce that soccer clubs should invest in marketing measures to achieve a higher level of awareness among the public. In addition, investing in new players directly increases the market value of teams, which in turn correlates positively with the average number of TV spectators. Appropriate budgets must be available for these investments. An alternative approach is to develop cheaper, talented players into stars to increase the team's market value. An increase in ticket prices also correlates positively with the number of TV viewers. However, this must be balanced with the fact that ticket sales are another relevant source of income, which limits the extent to which ticket prices can be increased. Note, however, that the number of stadium spectators has remained relatively constant in recent years, and is also limited by stadium capacity. The demand for top games such as FC Bayern München vs. Borussia Dortmund or special derbies like FC Schalke 04 vs. Borussia Dortmund far exceeds the available number of stadium tickets.

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