Assessing the Determinants of Broadcasting Fees

- Theoretical Foundations and Empirical Evidence for the German Soccer League

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Abstract

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Broadcasting fees are a major source of income for many sports. But what determines the broadcasting fees? This paper gives an empirically tested answer to the question of broadcasting fees of the German soccer league using a time series model. According to the analyses, unpopular sports have to increase the customers’ consumption capital for their particular type of sport. In this case, broadcasting fees grow with consumption capital. Popular sports that are broadcasted have to accept that the broadcasting fees depend on the market for TV advertising.

Keywords: Broadcasting Fees, TV-broadcasting, Soccer
Introduction

The broadcasting fees for the German premier soccer league rose continuously between 1965 and 2001. In 2002, Kirch Media, a huge media rights dealer, got into financial problems. Thereafter, the fees fell sharply. Figure 1 visualizes the development:

Figure 1: German Soccer Broadcasting Fees 1965 to 2002 [nominal values]

Since 2002, broadcasting stations have no longer wanted to pay as much for broadcasting rights as they had done in the past. Kirch Media did not expect this change and paid more for the broadcasting rights than they could return from reselling them to the TV stations. The TV stations’ revenue from soccer broadcasts was too small to refund the earlier price level.

At the same time, the soccer clubs and the soccer league are asking for higher fees. They argue that soccer attracts several million people and that the high popularity should lead to higher broadcasting fees.
The purpose of this paper is to provide arguments for the discussion of broadcasting fees for soccer clubs, soccer leagues, and broadcasting stations. The research question of this paper is: Which factors influence broadcasting fees?

The empirical analyses are based on the example of broadcasts of German premier league soccer. The paper continues with an overview of the German TV market, where a special focus is placed on soccer broadcasts. Within this overview, revenue models of TV stations are analyzed in order to identify who brings money into the TV market. Furthermore, a theoretical model of broadcasting fees and independent variables is introduced. The model and related hypotheses are tested empirically for the period from 1965 to 2002. The article ends with a discussion of the empirical analyses.

**German TV market**

Previous research in the area of sports entertainment is mostly concerned with the demand for either stadium tickets (i.e. Baimbridge, Cameron, & Dawson, 1996; Bird, 1982; Czarnitzki & Stademann, 2002; Gantz, 1995; Gantz & Wenner, 1991; Hart, Hutton, & Sharot, 1975; Jennett, 1984; Mahony & Howard, 1998; Mahony & Moormann, 1999; Murrell & Dietz, 1992; Peel & Thomas, 1988, 1992; Scholfield, 1983; Wann & Bransombe, 1993; Whitney, 1988.) or TV broadcasts (Bryant & Raney, 2000; Gantz, 1981). Some analyses have focused on the economies of sports broadcasts (e.g. Solberg, 2002; Gaustad, 2000; Boardman & Hargreaves-Heap, 1999). However, the market for stadium tickets is quite different from the TV market. The ticket market is usually a regional monopoly and TV broadcasts compete with several other types of TV entertainment. However, an empirical analysis of the
determinants of broadcasting fees is missing. This paper will provide such an empirical analysis.

To assess the determinants of broadcasting fees for a particular league, it is necessary to identify the sources that bring money into the relevant TV market. Broadcasting stations can only spend their revenues on the purchase of broadcasting rights. Hence, identifying the sources of income of broadcasting stations is a first step towards assessing the determinants of broadcasting fees.

The following figure visualizes the structure of a TV market in the example of the German TV market and gives an overview of the different revenue models of the broadcasting stations. According to Amit & Zott (2001, p 515) “a revenue model refers to the specific modes in which a business model enables revenue generation.” A business model is defined as a model that “…depicts the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities.” (Amitt & Zott 2001, p. 511).
The circles in figure 2 represent subjects of the TV market. Solid arrows visualize the delivery of services or goods, here broadcasting rights and soccer broadcasts. Dashed arrows show the flow of money and dotted arrows mark the direction of an advertising broadcast.

In terms of income, the German TV market has changed tremendously over the last decades, as did most other national TV markets. German television started with only public broadcasting corporations. During the first decades, the existence of private broadcasting stations was restricted by law. Furthermore, in the beginning of television in Germany, the opportunities to air commercials were restricted by law too. In those days, the financial funding of public broadcasting stations was ensured by a compulsory fee. Each owner of a TV set was obliged to pay this fee. We call this revenue model a tax claiming model.

In 1984, the law was changed and private broadcasting stations were allowed to enter the German TV market. In addition, advertising rights were liberalized step by step over the last
decades. Solberg (2002, p. 62) gives an overview of the amount of advertising allowed in different countries. At the moment, public broadcasting stations in Germany are allowed to show a maximum of 20 minutes every day. They are not allowed to show commercials in the evening program, on Sundays and holidays. Private TV stations are obliged to air not more than 12 minutes of commercials every hour. In this point, the German TV market differs from other national TV markets. In the USA, for example, there is no limit on the amount of commercials. In the United Kingdom, private TV stations are limited to 7.5 minutes per hour, while the BBC (British Broadcasting Corporation) is not allowed to show any commercials. In Germany, several private broadcasting stations used the new opportunity and entered the market. At the moment, there are several private free TV stations, one private pay TV station and two public broadcasting corporations on the German TV market. The compulsory fee for public broadcasting corporations still exists although it does not provide any financial funding for the private broadcasting stations. Advertising has become an important source of revenue for public and private free-to-air TV stations.

In Germany, the soccer league organization (L) sells the broadcasting rights collectively for all clubs and matches within a season. The soccer clubs do not have the permission to sell the broadcasting rights individually as far as the matches of the German soccer league are concerned. Hence, dealing with broadcasting rights means dealing with a package consisting of a mixture of broadcasting rights for highlights and for live matches. However, changes in the mixture of the package, such as more live matches, might influence the broadcasting fees. For the German TV market, however, the mixture of the package was more or less unchanged. Live broadcasts have come onto the market, but they are very limited. Thus, the impact of changes in the mixture of the package does not have to be considered any further. Usually, a specialized media rights dealer (D) purchases the package from the soccer league organization. Traditionally, when the TV market consisted of public broadcasting stations
(public TV) only, these TV stations bought the broadcasting rights from the dealer. Subsequently, the TV stations used the broadcasting rights to offer a soccer broadcast for TV viewers (V). Traditionally, these broadcasts were the highlights from all soccer league matches of one day. Live coverage was not common in the early stage of soccer league broadcasts. The financial funding of the public broadcasting corporations was ensured by a compulsory fee that the TV viewers had to pay to a public authority (GEZ). This public authority divided the fee among the public broadcasting stations based on their request for financial funding. Hence, the TV viewers’ indirect payment is a first source of revenue for public TV stations.

As already mentioned, changes in law enhanced the advertising opportunities, and advertising became a second source of revenue for public broadcasting stations. Usually, TV viewers are interested in the soccer broadcast but do not pay anything for the broadcast. Instead, the TV viewers accept commercials interrupting the movie. Broadcasting stations use the broadcasts and add advertising broadcasts from various advertising companies (A). Hence, the TV stations offer a contact opportunity for advertisers as advertising companies get the opportunity to show their commercials during a soccer broadcast. The advertising companies get into contact with TV viewers, in order to transfer a message (dotted arrow). The advertising companies are willing to pay for the contact opportunities. We call this revenue model a contact initiation model. In summary, public broadcasting stations have two sources of revenues since changes in law enabled advertising: TV viewers and advertising companies. That means public broadcasting stations use two different models to generate revenues: a tax claiming and a contact initiation model. So, they employ some sort of mixed revenue model.

Private free TV stations (free TV) have a similar revenue model to public broadcasting corporations but they do not benefit from the compulsory fee. This part of the revenue model is missing. Free TV stations buy the broadcasting rights and offer a soccer broadcast to TV
viewers (V). At the same time, free TV stations add advertising to the broadcast. Hence, they offer a contact opportunity for advertising companies (A) in the same way as public broadcasting stations do. It has to be mentioned that the core businesses of public and private free TV are different. Both work according to a value network (Stabell & Fjeldstad, 1998), because they mainly initiate contacts. Private free TV stations are focused on offering contact opportunities between TV viewers (looking for entertainment and information) and companies (offering products and services by advertising). So their business model is a contact initiation model (Woratschek & Schafmeister, 2005, p. 19). But, the original business of public free TV is to inform people. In a way, public free TV stations distribute information using a distribution or direct sales model (Woratschek & Schafmeister, 2005, p. 19). More and more public free TV stations have the contact initiation model as an additional revenue model. The different original revenue models might be the reason why legislation does not restrict the amount of advertising of free TV stations as heavily as the amount of advertising of public broadcasting stations. The contact initiation model is the only source of revenue for private free TV stations. They get paid by the advertising companies for transmitting an advertising broadcast (dotted arrow). Concerning the type of program, private free TV stations usually show highlights from the soccer league matches.

Private pay TV stations (pay TV) buy the broadcasting rights from the dealer and offer live broadcasts to the viewers (V). The revenue model is different from that of the public broadcasting corporations and private free TV stations. While public broadcasting stations get an indirect payment from TV viewers, pay TV stations ask their TV viewers (V) for a direct payment (dashed arrow). The payment can be of various kinds, such as a monthly fee or a pay-per-view fee. Combinations of different kinds of payments are possible as well. In contrast to private free TV stations, a key characteristic of German pay TV is not to interrupt the broadcasts with commercials. Hence, pay TV stations do not earn money from selling
slots for commercials. The contact initiation model does not exist. The TV viewers pay for the uninterrupted broadcast and pay TV stations earn money according to a direct sales model (Woratschek & Schafmeister, 2005).

In summary, the overview of the German TV market identifies two sources of revenues for TV stations on the German TV market: Either direct or indirect payments from the TV viewers (public broadcasting stations and private pay TV stations) or payments for commercials (public broadcasting stations and private free TV stations). Hence, TV viewers and TV advertisers represent two sources of money for the TV market and, therefore, both should have an impact on broadcasting fees.

Furthermore, besides the changes that enhanced advertising, the change of market entry barriers for the German TV market might have had an effect on broadcasting fees, as well as on the market structure which also changed (Cowie & Williams, 1997). Until the private broadcasting stations entered the German TV market in 1984, broadcasting fees had increased to approximately 5 million Euros. Afterwards, between 1984 and 2001, broadcasting fees jumped to 357 million Euros (nominal values). Before 1984, the demand side of the TV market for soccer broadcasting rights was quite small. German television consisted of only two public broadcasting stations. The soccer league organization, as the only seller of the soccer broadcasting rights, faced only two possible customers. This market structure gave the broadcasting stations a rather strong bargaining power. The broadcasting stations should have been able to keep the prices for broadcasting rights down. This situation changed with the emergence of private broadcasting stations. The customer base for the soccer league organization increased within a few years. This growth of the customer base might have led to a loss in the TV stations’ bargaining power. At the same time, the bargaining power of the soccer league organization increased with each new private broadcasting station that came onto the market. Hence, the soccer league organization should have been able to increase the
price level for broadcasting rights, because the competition between TV stations had increased.

Other national TV markets, such as Great Britain, show that the number of pay TV stations seems to have an additional effect. The more competing pay TV stations on the market, the stronger the increase in broadcasting fees (Solberg, 2002, p. 65-68). But this phenomenon cannot be taken into consideration for the later empirical study, as Germany has only one pay TV station.

**Model**

The analysis of different revenue models on the German TV market identified two sources of income that might influence broadcasting fees: TV viewers and TV advertisers. Furthermore, it was obvious that broadcasting fees started to rocket when market entry was liberalized and private broadcasting stations entered the market. The numerous market entries might have changed bargaining power. Hence, the bargaining power of the demand side is included as a first independent variable in the model. Besides changes in bargaining power, the market entries brought different types of TV stations, such as free TV and pay TV stations onto the TV market. The example of other European countries shows that a more sophisticated approach to incorporate bargaining power into the model will be necessary if competition between pay TV stations is to exist. In this case, the competition between pay TV stations seems to result in higher broadcasting fees. But, as the German TV market has only one pay TV station, the effects of competition between pay TV stations do not have to be modeled. For the analysis of the German TV market, incorporating bargaining power is sufficient. The other independent variables will be discussed further in more detail.
First, the TV viewers: The number of TV viewers is particularly important for pay TV stations as their income depends directly on the number of TV viewers. But the income of free TV stations and public broadcasting stations also depends indirectly on the number of TV viewers. TV advertisers pay more for a commercial if their message can reach a large audience. Hence, the number of TV viewers has an indirect influence on the income of private free TV stations and public broadcasting stations. However, as negotiations concerning the broadcasting rights take place prior to the beginning of the season, the expected demand should influence the broadcasting fees instead of the observed demand. At this point it is worth mentioning that the expected number of TV viewers – here the expected demand – is meaningless if the expected TV viewers do not have any buying power. Pay TV stations need TV viewers who are able to pay for the broadcast. Private free TV stations and public broadcasting stations need TV viewers with buying power because the advertising companies are only interested in contact opportunities if later sales are likely. In other words, an audience without buying power is worthless for advertisers as they cannot expect future sales. Subsequently, the advertisers would not be interested in paying for the offered contact opportunities. The expected demand will only have an effect on broadcasting fees if a sufficient buying power is given. In relation to broadcasting fees, expected demand and buying power go hand in hand. One is worthless without the other. At this point the question arises of what might influence the expected demand for soccer broadcasts. First of all, in the context of the German soccer league, it is not necessary to analyze the expected demand of a single game. As mentioned before, broadcasting rights are sold collectively by the soccer league organization prior to the beginning of the season. Differences between matches, such as the teams’ popularity or the importance of the game for the championship series are balanced as the matches are sold as a bundle. Factors influencing the demand of individual matches can be treated as constant in this special case of matches of the German soccer league. They cannot influence the broadcasting fees as the whole season is sold at once.
Instead, factors influencing the demand for the whole bundle of soccer broadcasts are of particular interest. Consumption capital seems to be such a factor (Stigler & Becker, 1977). The idea of consumption capital is that spectators appreciate a sports broadcast more if they have increased knowledge about the particular type of sport beforehand. For example, if TV viewers are aware of the soccer rules they will find soccer broadcasts more entertaining than other TV viewers who do not know the rules. Hence, they will derive more utility from watching the sport. Earlier consumption of soccer broadcasts drives TV viewers to watch again to maximize their utility over time (Becker & Murphy, 1988). In the context of consumption capital, the effort of time and money people put into learning about a certain type of sport is seen as an investment. The higher the investment, the higher the consumption capital. The expectation is that TV viewers will be more likely to switch on a soccer broadcast if they have a high soccer specific consumption capital. Hence, the expected average demand for a certain type of sport will be higher if the specific consumption capital for this type of sport is high. Consumption capital seems to be one of the factors influencing the expected demand. Therefore, consumption capital will be included in the model. But, as previously mentioned, consumption capital has to be combined with buying power, as one is worthless without the other. Hence an interaction effect should be modeled.

Second, the TV advertisers: For TV advertisers, it seems reasonable to assume that they engage more in advertising if their expectations about the advertising revenues are promising. The higher their revenue expectations of a certain commercial, the higher their willingness to pay for the commercial. TV advertisers should be willing to increase their payments up to the point where marginal revenues from the commercial equal marginal costs of the commercial. (Solberg, 2002, p. 62; Kaldor, 1950.) Hence, factors influencing the expected advertising revenues have to be identified. On the one side, the expected advertising revenues depend on the number of TV viewers, given a certain buying power. A large audience with strong
buying power is more attractive than a small audience with weak buying power because the large audience with strong buying power is assumed to purchase more of the advertised products or services. In such a case, advertisers will expect to yield better advertising revenues. But the expected demand in respect of the buying power is already included in the model (see above).

Aside from the effect of the size of the audience on the expected advertising revenues, the general sales expectations will be important for revenue expectations. Higher general sales expectations describe a situation where it is more likely that the average consumers will buy products or services in the future. If advertisers have good expectations about future sales in general they will spend more on advertising to secure a huge market share for their products or services. Hence, the expected sales opportunities should be an independent variable of the discussed model.

At this stage, the model consists of the broadcasting fees (p) as dependent variable. Independent variables are:

- The bargaining power of the demand side (b).

- The expected demand of TV viewers (y_{exp}), which is expected to depend on the interaction of consumption capital (cc) and buying power (bp). Other factors are treated as constant (const.) as the focus is on the aggregated demand.

- The expected advertising revenues (a_{exp}), which depend on the expected demand (y_{exp}) and the expected sales opportunities (o_{exp})
The model has the following form:

\[ p = f\left(b, y_{\text{exp}} \left( cc | b | p, \text{const.} \right), a_{\text{exp}} \left( y_{\text{exp}}, o_{\text{exp}} \right)\right) \]

The model can be changed as \((y_{\text{exp}})\) is represented twice and constant independent variables do not have an effect on the dependent variable:

\[ p = f^*\left(b, cc | b | p, o_{\text{exp}} \right) \]

List of variables:

- **p**: broadcasting fees
- **b**: bargaining power of the demand side
- **y_{\text{exp}}**: expected demand

### Hypotheses and Statistical Analyses

The discussed model will now be analyzed statistically. Hypotheses are therefore derived based on the discussion above. The hypotheses describe assumptions about effects of the independent variables on the dependent variable. Later on, indicators for the variables are derived.

**Hypothesis 1:**

“If bargaining power of the demand side decreases, broadcasting fees will increase.”
**Hypothesis 2:**

“The higher the consumption capital in respect of buying power, the higher the broadcasting fees.”

**Hypothesis 3:**

“The higher the TV advertisers’ sales expectations, the higher the broadcasting fees.”

As mentioned earlier, the German TV market went through tremendous changes in 1984 when private broadcasting stations were allowed to enter the market. Therefore, it is reasonable to analyze the TV market until 1983 separately from the period thereafter. The earlier period (1965-1983) is called “monopolistic period” and the later period (1984-2002) “competitive period”.

Based on this separation further hypotheses can be postulated. In the competitive period, advertising was liberalized and the advertising companies got better opportunities to engage in advertising. Hypothesis four considers these changes.

**Hypothesis 4:**

“The influence of the expected sales opportunities is stronger in the competitive period than in the monopolistic period.”

Furthermore, because private broadcasting stations are allowed, advertising is liberalized, and pay TV stations play a minor role in Germany, the contact initiation model seems to be the dominating revenue model on the German TV market. In addition, the soccer related
consumption capital is quite high in Germany, as is the average buying power. Hypothesis five reflects this situation:

**Hypothesis 5:**

“The expected sales opportunities are the main determinant in the competitive period.”

As already mentioned, the statistical analyses for the monopolistic and the competitive period are conducted separately. For both periods, a linear multiple regression model (Ordinary Least Squares OLS) was used. The assumptions (Brooks 2002, p. 55-56 and p. 144-190) for using OLS are tested. The results will be reported later on. The dependent variable is the broadcasting fees for the soccer broadcasting rights of the German soccer league. The data is adjusted for inflation (1991 = 100) by the price index. Within the model, the number of broadcasting stations is used as an indicator for the bargaining power of the demand side – the more broadcasting stations on the market, the lower the bargaining power of the demand side. TV stations are not separated into pay TV stations and free-to-air TV stations because the German TV market has only one pay TV station and many free-to-air TV stations. Competition between pay TV stations does not exist in Germany as is the case in other national TV markets such as the UK. Even so, the total number of broadcasting stations does not seem to be an appropriate indicator. In terms of soccer broadcasts, the relevant market is the market for soccer broadcasting rights and the indicator should only represent the bargaining power in this market. Hence, only the number of TV stations with a particular interest in soccer broadcasting rights will be used as an indicator for the statistical analyses. The decision about whether a broadcasting station is interested in soccer broadcasting rights or not is based on the strategy statements of each broadcasting station. These statements can be requested from the public authority that allows broadcasting stations to enter the market.
(Kek, 2005). Furthermore, related broadcasting stations (i.e. via stockholdings) are treated as a single entity because competition between daughter companies seems unrealistic. A differentiation between free TV and pay TV is not necessary for the German TV market for two reasons. First, there is only one pay TV station on the German TV market. Second, the German soccer league is very restrictive with live broadcasts. Hence, the number and quality (live versus highlights) of available soccer matches for broadcasting did not change tremendously. It does not seem to be necessary to separate between times when only highlights were aired and times when highlights and live events were shown. As negotiations about broadcasting rights take place prior to the beginning of the season, the number of broadcasting stations is assumed to influence broadcasting fees with a time lag of one year.

A common problem with time series data is that the data is not stationary. A data file is stationary if the average and the variance do not change over time. (Intriligator, Bodkin, & Hsiao, 1996, p. 191-192) Stationary data is necessary for reliable time series analyses. Otherwise the results of statistical analyses are likely to be based on time trends instead of causalities. With non-stationary data, the results of a regression analysis might be overwhelming (significant coefficient estimates, high $R^2$), but misleading. (Brooks, 2002, p. 368.) Both the augmented Dickey Fuller test and the Philips Perron test showed that the time series “number of TV stations” is non-stationary. According to the same tests, the first differences of the time series “number of TV stations” are stationary. Hence, statistical analyses are based on the first differences. As mentioned before, the statistical analysis of the monopolistic period is conducted without the indicator “number of TV stations” as the bargaining power of the demand side is assumed to be constant during this period. This assumption is confirmed by the indicator “number of TV stations” as the number of TV stations did not change during the monopolistic period.
For statistical analyses, the number of soccer club members is used as an indicator for consumption capital. Club members are usually interested in the particular type of sport. It is assumed that they know the rules of their particular type of sports and, often, play soccer themselves. Hence, they have built up consumption capital. This is why we used the number of club members in Germany as an indicator. The more members the soccer clubs have, the higher the consumption capital. However, the number of club members seems to be a reliable indicator of consumption capital only for soccer. For other types of sports, such as formula one racing, other indicators have to be found, i.e. formula one racing does not have a structure of local clubs like soccer has. In this case, the number of fan club members might be an appropriate substitute. Reliable data on the number of soccer club members is available for Germany because all local soccer clubs are members of the German soccer federation, and the members of all local soccer clubs count for the nationwide soccer federation. Again, the data series of the indicator is non-stationary as the augmented Dickey Fuller test and the Philips Perron indicate. The first differences are stationary according to the same test. Thus, the first differences of the data series are used for the statistical analyses. Still, it has to be kept in mind that the interaction of consumption capital and buying power is expected to have an effect on broadcasting fees. The indicator for buying power is the aggregated average employee salary. Time series data for the aggregated employee salary is available for the whole period from the German federal statistic office (Federal Statistic Office Germany, 2004.). Again, the requirement of stationary data makes it necessary to use the first differences for the statistical analyses. Before the German reunification, the data covers West Germany. Afterwards, data for the reunified Germany is considered for the analyses. Thus we accounted for the enlarged market after reunification and the increased buying power. The data is adjusted for inflation by the price index.
Furthermore, the number of soccer club members and employee income are used with a time lag of one year as negotiations take place prior to the beginning of the season.

As mentioned before, the indicators enter the regression model as an interaction term. This interaction term is modeled by multiplying the two indicators. The multiplication of both indicators is chosen as transformation procedure because it ensures that the interaction term is zero if there is neither buying power nor consumption capital. In this case, the interaction term would not have an effect on broadcasting fees.

We assume that companies reveal their expected sales opportunities by their expenses for advertising. Expenses for TV advertising broadcasts are equal to TV stations’ revenues from selling advertising slots. This is why these TV stations’ revenues are used as an indicator for the expected sales opportunities of the companies. This indicator is also chosen because it represents the expected sales opportunities and is particularly related to television. Since the expected sales opportunities before contract conclusion are relevant, again, the regression analyses use the indicator with a time lag of one year and the data is adjusted for inflation by the price index. The time series data of this indicator is available from the German Advertising Federation (2005). According to the augmented Dickey Fuller test and the Philips Perron test, the time series data is stationary. Furthermore, the data series is adjusted for inflation (1991 = 100).

The following functions summarize the presentation of the various indicators. Please note that the first function represents the regression model of the competitive period given that the number of TV stations is included.
The regression model for the monopolistic period has a slightly different function:

\[ p = \beta_0 + \beta_1 v + \beta_2 (m \times i) + \beta_3 d + \varepsilon \]  

(Function for the competitive period)

\[ p = \beta_0 + \beta_2 (m \times i) + \beta_3 d + \varepsilon \]  

(Function for the monopolistic period)

List of indicators:

- \( p \): broadcasting fees (inflation-adjusted 1991=100)
- \( v \): number of TV stations (1\textsuperscript{st} difference)

Results

Both models, for the monopolistic and the competitive period, had a good overall fit. The R\textsuperscript{2} squared is .710 for the monopolistic period and .862 for the competitive period. The F statistic is significant in both cases (probability 99%). The following residual tests were calculated and all tests showed satisfying results: autocorrelation test (Breusch Godfrey serial correlation test), normality test (Jarque Bera), heteroskedasticity (ARCH LM). The result of the Breusch Godfrey serial correlation test is particularly important because time series data was analyzed. One could expect that the residuals are auto correlated. Here, this is not the case and hence it was appropriate to use a linear regression model instead of an autoregressive model. The following table summarizes the results.
Tabel 1: Empirical Results

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<th>Monopolistic Period</th>
<th>Competitive Period</th>
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<tbody>
<tr>
<td>$R^2$</td>
<td>.710</td>
<td>.862</td>
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<tr>
<td>$R^2_{adj.}$</td>
<td>.668</td>
<td>.834</td>
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<tr>
<td>$\beta_1$</td>
<td>not tested</td>
<td>not significant</td>
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<tr>
<td>$\beta_2$</td>
<td>.197</td>
<td>not significant</td>
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<tr>
<td>$\beta_3$</td>
<td>6,728.364</td>
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For the monopolistic period, hypotheses two and three are confirmed. Both the interaction term of “number of soccer club members” and “employee income” as well as the TV stations’ income from selling advertising slots are significant. The standardized regression coefficients show the importance of both influences. The standardized regression coefficient for the interaction of “number of soccer club members” and “employee income” is 0.37 in comparison to 0.97 for the TV stations’ advertising income. Hence, the advertising income already had a relatively strong influence during the monopolistic period. It is shown that the standardized regression coefficients show that the original revenue model of public free TV stations (distribution model) is less important regarding the broadcasting of sport events.

For the competitive period, hypothesis three is confirmed. Surprisingly, the changes in bargaining power – represented by the number of TV stations – had no significant influence on broadcasting fees. It seems that the changes were not as great as expected. Furthermore, the interaction term, representing consumption capital in respect of buying power, was not significant. Only the TV stations’ income from selling advertising slots had a significant
influence on the broadcasting fees. Thus hypotheses four and five are also confirmed for the competitive period. The beta coefficient of the TV stations’ income from selling advertising slots is approximately seven times larger in the competitive period than in the monopolistic period (hypothesis four). As the TV stations’ income from selling advertising slots is the only significant influence in the competitive period, hypothesis five is also confirmed.

Discussion and Implications

The statistical analyses showed that broadcasting fees will depend on the interplay of consumption capital and buying power as well as on the expected advertising revenues if TV advertising and market entrance are restricted. The influence of the expected advertising revenues is strengthened with liberalized advertising opportunities and lower market entry barriers. The distribution of bargaining power between the demand and supply side of the TV market has no significant influence on broadcasting fees. A reason for this might be that the assumption regarding the market structure was wrong. Originally, a supply monopoly was assumed, but it could be that the TV stations perceive other types of sports as alternatives. Hence, the assumed supply monopoly might not exist. Further research is necessary to define the evoked set of the TV stations precisely.

These results have some underlying limitations. The analyzed situation is specific for the chosen price and sales strategy. Here, the price strategy was a price bundle for all matches within one season. An alternative strategy would have been to sell the matches separately for each match. The sales strategy was to sell the matches for all teams collectively by the league instead of an individual sale by the teams. Hence, the results are derived for a situation of bundle pricing and collective sale. The other three alternative combinations of different sales and price strategies were not analyzed and provide an area for future research. Nevertheless, there are three lessons to be learnt from the analyses.
First, with restricted advertising opportunities, the consumption capital in respect of buying power is of some importance for broadcasting fees. This result is particularly important for sports that are not broadcast at the moment. If these sports want to increase their opportunities to get broadcasted, they need to stimulate spectators to build up specific consumption capital for the particular sports. A higher consumption capital will increase TV stations’ interest in broadcasting a sports event. Of course, building up consumption capital will be interesting for TV stations as well if they want to promote a particular type of sport. Second, it is not enough to stimulate the process of building up consumption capital. As the analyses showed, the combination of consumption capital and buying power is necessary. Hence, a segment of the market with a certain buying power should be targeted. The more attractive this market segment is for advertisers, the more revenues can be generated from selling the broadcasting rights. If a segment with low buying power is chosen, the consumption capital will be worthless in terms of TV broadcasting. In addition we can conclude for the export of TV sport events that the export will only be successful if there is sufficient buying power and sufficient consumption capital built up in the target market.

Third, if a type of sport has an attractive audience in terms of consumption capital and buying power, the broadcasting fees will depend on the sales expectations of the advertising companies. Hence, the first step in generating revenues from TV broadcasts is to attract consumers with decent buying power. Once this is achieved, the revenues from TV broadcasts depend on the advertising market. The specification of broadcasting rights should offer sufficient advertising opportunities. If the specifications do not allow the TV stations to sell enough advertising slots, the broadcasting rights will have a lower value for TV stations which generate revenues from selling advertising slots. This situation might be different with competing pay TV stations. Thus, further research should compare the German TV market to other TV markets with a different market structure in terms of pay TV. Furthermore, if the
analyzed national TV market consists of more than one pay TV station, it might be worth considering the impact of competition between pay TV stations on broadcasting fees.

**References:**


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* Weitere Diskussionspapiere finden Sie unter http://www.fiwi.uni-bayreuth.de/workingpapers.h