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A MODEL TO EXPLAIN SUPPORT IN SPANISH FOOTBALL

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ABSTRACT

This paper analyses the factors which affect support and influence revenues in Spanish professional football clubs. It focuses on the relationships between attendance and different sets of variables: those that relate to the socio-economic environment, the quality of product (results) and the quality of means of production (team squad). The main conclusions are, firstly, that the quality of the squad influences attendance through its performance on the pitch, secondly, that the level of attendance is explained by the population of the province in which the club is based, and by both the current and historical performances of the team, and thirdly, that the club's sporting revenues can be explained by their attendances. Given the importance of support, and in particular attendance, to the revenues of football clubs, the conceptual model developed in this article might contribute significantly to the estimation of cash-flows in football clubs.

Key Words: football (soccer) economics, attendance, sport performance, revenues.

1. Introduction

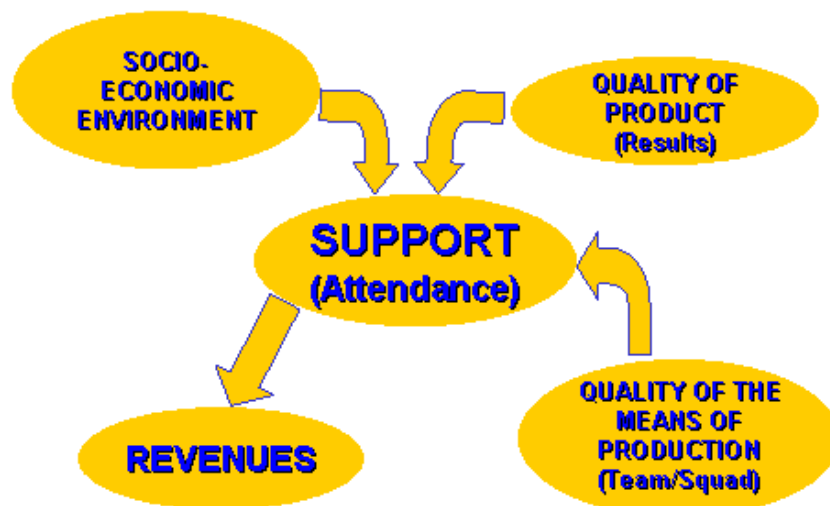
The level of support for a football club is a key variable within the revenues of the club and, of course, determines most other revenues, either directly (via ticket sales, for example) or indirectly (such as merchandising, sponsorship or even the sale of television rights in some countries). Taking Spanish professional football as reference, we are going to analyse the relationships between different kinds of variables and attendances. We acknowledge that there are many forms of support recognised by football clubs (for example, 'consuming' football in other ways, such as via television or the internet), but our focus here is on live attendances at football matches. We have chosen to examine average attendances over the course of a whole season (ATT). This allows us to seek factors which may be useful in order to estimate cash-flows for a club's valuation. The fact that the sample consists exclusively of Spanish professional clubs partly dictates, of course, the nature of the results obtained.

The conceptual model tested is shown in Figure 1. The methodology used is mainly the OLS (Ordinary Least Squares) regression. We have tested the relationship between different sets of variables and attendance, looking for those which best explain patterns of support. The three sets of variables analysed have been called 'socio-economic', 'quality of product' (related to results) and 'quality of the means of production' (quality of the team/squad). When several variables exist, we have also employed multivariate regression.

The sample consists of all football teams in the Spanish First Division, and 13 from the Second Division during the season 1999/2000. The socio-economic variables analysed vary only slightly from year to year so we might expect the results to be relevant over time.

The structure of the paper is derived from the conceptual model outlined in Figure 1. In the first section, the basic characteristics of football fans are described and the main features of their behaviour explained. Then, we focus on those aspects that affect or are influenced by attendance.

Figure 1. Support and influential factors



The following three sections focus on the three main sets of variables: the influence that the socio-economic environment has on support, the extent to which the quality of the means of production (team squad) affects attendance, and how the quality of the product (results on the pitch - both current and historical) might explain attendances. Finally, the repercussions that the level of attendance has on a club's revenues will be analysed.

2. The Concept of Support in Football

In Spanish the word for support is *afición*. This term comes from Latin *affectio* which means love, or affection. So, the Spanish word *afición* would represent loving feelings or affection towards someone or something. This Spanish expression perhaps differs from the English term 'support': its connotations are more overtly affectionate though less actively supportive. Nevertheless, the Football Supporters Association¹ defines 'support' as 'a lifelong and unchangeable commitment' (FTF, 1999; 4.3). So, we are dealing with a concept that implies a loyal affection.

We have to differentiate between two levels within this love of football. Usually one will follow as a result of the other, but it is possible that one might exist without the other. First, we can talk about support for football in general, as a sport and a spectacle. Then, the supporter identifies with one particular team. However, it is possible to find people who support a club, without being attracted to football in general. There are also people keen on this sport who do not support a specific club. From the point of view of the economic value of a club, the most influential fans will be those who support a particular team, because they will provide the main revenue streams.

Football supporters are not consumers in a traditional sense because football support is an expression of passion and loyalty to the club. The relationship between a fan and his or her club belongs to a different order and magnitude than that of other brand loyalties. The decision to support a particular team is quite different from choosing to shop at one store or other. Sir John Smith, in an FA report,² affirmed that the football fan probably supported a club 'almost from the cradle to the grave.' (FTF, 1999)

Football support goes beyond loyalty. Football fans of a specific club, even without being shareholders or members, feel that the club belongs to them, that it is something of their property.

A fan's loyalty has an 'irrational' component. The relationship between supporters and their club is exceptional because fans do not need success on

¹ The Football Supporters Association (FSA) was founded following the Heysel Stadium disaster in May 1985. It provided a strong and united voice for football fans to defend the game at a time when their image was tarnished by hooliganism. The FSA merged with National Association of Football Supporters Clubs (NAFSC) in 2002 to become the Football Supporters Federation.

² Quoted in 'Football, its values, finances and reputation', February 1998.

the pitch. Victory is desirable but not a condition for their support. Fans do not normally change allegiance if their team loses or performs badly – or even if their support is exploited and abused. Nevertheless, short and long term components of this ‘irrationality’ must be distinguished. Mellor (2001) explains how the success of great teams attracts fans. Historical sporting success helps to bring fans. At the same time, teams recruit new fans during their glory days. These supporters will probably continue to support the team through thick and thin. These factors are taken into consideration in our model.

However, not all fans have the same degree of elasticity in their support during bleak times on the pitch. Supporters like Atlético de Madrid have demonstrated a loyalty to their colours that could be qualified as admirable. In the 2000/2001 season when the team was playing in the Spanish Second Division, the average attendance at their matches was clearly higher than most First Division Clubs. Derbaix *et al.* (2002; 512) define the ‘good’ fan as ‘the one who is faithful and supports his team even in bad times.’ However, there are other supporters, called ‘fickle’ by Porter (1992; 64), who need good results in order for them to keep cheering their team on. From a marketing perspective, it is necessary to segment the fanbase in order to identify the types of supporters who will be the target of marketing objectives. Indeed, academics have segmented the football fanbase into categories in different ways, often according to patterns of supporting behaviour (such as degree of loyalty, identification, method of ‘consuming’ football). Tapp and Clowes (2000) segmented the fans into: fanatics, regulars and casuals. In a later article, Tapp (2004) differentiates between four types of fans: fanatics, repertoire fans, season ticket holders and casual fans. Giulianotti (2002) divides spectators into supporters, followers, fans and *flâneurs*. These types of segmentation are now becoming widespread and more sophisticated as CRM (Customer Relationship Management) strategies are increasingly applied to football. While it is important to take these typologies into consideration, for the purpose of our study we do not need to work with these classifications. Rather we need to take into consideration the diversity of football fans: support is more inelastic for some than for others. The dichotomy is more complex than a simple division, as has often been made in the UK, between ‘old’ fans (traditional, identity-driven) and ‘new’ fans (consumer spectators). Importantly, for some fans their attendance at the ground might depend on variable factors. It is useful for clubs to understand what these factors are given, as was mentioned earlier, that the valuation of a club at least partially depends on the size of its fanbase.

It is also worth taking into consideration a club’s potential market size if we are going to regard the fan as a potential customer or a shareholder. While market size is significant in order to determine a club’s revenues,³ a team with a small market size can be competitive if its supporters have a sufficiently high elasticity with respect to the club’s results (Vrooman, 1995; 975). This approach might be extended to the ability to obtain funds other than the usual revenue streams, via

³ Budget, capacity of stadium and number of season ticket holders are three elements which determine a club’s size. The last two factors are more geographically limited. However, the budget might be higher even if the club is located in a relatively small town if, by playing well, it attracts television revenues and sponsors. TV deals in Spain are not negotiated centrally.

shareholders. Ruyter and Wetzels (2000) analyse precisely this phenomenon and they conclude that 'the social rule of reciprocity', as well as the level of affect and the 'perceived efficiency degree' stimulate fans to feel a duty to support their club financially by buying its shares. The FA Report on English Football (mentioned earlier) concludes that supporters are the main asset of a successful club because their support will become tickets, merchandising, television revenues, and so on. However, this is also the case for less successful clubs for the reason that, in times of financial difficulties, they organise and lead the club's fight for survival (FTF, 1999).

Support has an important local component, especially in Spain where medium and small cities typically have one football club which acts as its symbol and represents its flag. So, it is natural that a link exists between the football club and the local/regional population. It is difficult to imagine a European club moving to another city as the North American franchises do.⁴

On the other hand, it seems compulsory to point out that in a global market, when we talk about market size, we should not be limited to the population in close proximity to the football club.⁵ Many clubs also look to extend their markets through success in international competitions, and other means such as pre-season tournaments abroad. However, for most Spanish clubs, attendances are largely drawn from within the region in which the club is located.

Normally, the support that fans give to their club represents an inelastic demand with respect to price because fans will continue attending the football or buying club products independently of the price. However, since attendances are not static, there must be variable factors which influence attendance. Some of these factors are now considered.

3. Socio-economic environment and attendance

Szymanski and Kuypers (1999; 41) outline the historical evolution of attendances at stadia in England. They describe the rise in attendances after the Second World War which coincides with a fall in ticket prices and a popularisation of leisure activities. However, between 1953 and 1977, while the population grew wealthier, the average attendance dropped. This phenomenon

⁴ A useful introduction to this is the paper written by Cocco and Jones (1997). In Spain, Toledo F.C. was sold to a firm called Ivercom on 10 June 2003. Since then Toledo F.C. began to be known under the name of the owner company. The club moved to Murcia with the intention of taking the place of Cartagonova (another football club). The problem arose when the RFEF (the Spanish Football Association) objected to the move. Then Ivercom turned all its efforts to trying to avoid the relegation of Cartagonova for the unfulfilment of administrative requirements (*Marca*, 13 August 2003, p. 27). In England, the case of London club Wimbledon moving to Milton Keynes in 2002 and becoming established as the Milton Keynes Dons (known as MK Dons) is unlikely to happen again.

⁵ For example, some estimates suggest that the number of Real Madrid CF fans around the world is 70 million (*Marca*, 21 June 2001).

contrasts with Veblen's well-known ideas (1966) about the 'leisure classes' described for the first time in 1899. According to him, sports, and games in general, were something more or less set aside for the most powerful classes. We cannot forget that we are talking about more than a century ago and that since then sport has become popularised. However, for many sport is still a commodity which is accessed when basic needs are covered. McElgunn (2002) highlights this point. He states that when fans' income rises while the price of basic products decreases relatively, then they have more money to spend on attending matches or buying sports products and they like to spend more free time attending or watching the available supply of sport live or on television. Hoehn and Szymanski (1999; 208) go further when they claim that football has become essentially the working class distraction offered at affordable prices for middle class entertainment.

Cocco and Jones (1997) maintain that the support for a particular club, measured by attendance at specific home matches, depends on the underlying demand within that city - specifically factors relating to its location such as income, population, etc. - as well as on characteristics specific to the club.

Falter and Pérignon (2000) develop a multivariate model⁶ that explains attendance at a particular match using socio-economic, football-related and what they call 'incentive' variables (including the time of year and whether or not the match is televised). García and Rodríguez (2002) employ a similar model. They break down the football variables into those which consider the expected quality of the match and those which measure the uncertainty of the result. In their model, the variables called 'incentives' by Falter and Pérignon are designated as the 'opportunity cost' variables of attending a match. Indeed, uncertainty of outcome is deemed by many academics as one of the most fundamental factors in professional sport if competitive balance is to be achieved, and the interest of fans maintained (Morrow, 2001).

Baimbridge (1997) and Koning *et al.* (2001) work with analogous models for explaining the demand for international football competitions, using economic, demographic and geographic variables.

The purchasing power of the population, its size, even other factors such as the educational level and tradition will have repercussions on the degree of support for a club. In the next two sections we are going to examine the relationships between the variable of attendance (ATT) and the socio-economic variables employed by academics. Although models concerning attendance are usually multivariate, we are going to build from a univariate analysis of each type of variable on attendance, and then end with a multivariate analysis.

3.1 Variables relating to support

There are different aspects of support. Depending on what is being examined, a range of variables have been used by researchers, and measurement methods

⁶It is a model which considers more than one variable. See expression (4) on page 15.

also differ. Palomino and Rigotti (2000 a, b) consider demand in economic terms. They measure it through sports revenues. So, there is a financial approach to support.

The most frequent approach to measuring support, however, is made through the attendance variable (Baimbridge, 1997; Guijarro *et al.*, 2000; Koning *et al.*, 2001; García and Rodríguez, 2002). Due to the exponential nature of the attendance function, some authors use the logarithm of attendance at each match (Falter and Pérignon, 2000). Guijarro *et al.* (2000) look for a hierarchical criterion of clubs in their model for determining the club's brand value. They carry out an initial estimate through the number of 'brand clients'. This would be equivalent to the fanbase. So, they explain that the fanbase - the number of customers - can be measured by calculating the number of season ticket holders or average match attendances. However, they reject the validity of the first variable (the number of season ticket holders) because of the existence of other consumers (club members, etc.). They do not consider the second (average attendances) to be valid either. The reason for this is that in any particular match there might be opposition fans, attracted by the appeal of the away team and, as a consequence, not interested in the brand of the home team. Finally, Bambridge (1997) suggests measuring support through the percentage of stadium utilisation.

We are going to utilise average attendances at league matches (ATT). Firstly, in order to make a valuation of a club, which is the context chosen for this paper, the capacity to generate revenues from its support is highly relevant. So, apart from the variables mentioned above, generic aspects such as the appeal of competition, competitive balance, and so on, should be considered. These factors are incorporated within our variable of average attendance (ATT). Secondly, since we are working with average attendances throughout the season, the effect of matches played against less attractive opposition will be balanced against those with more attractive clubs.

We appreciate the advantages of working with data of average attendances in all competitions. However, the data available only deal with league attendances. Nevertheless, we do not believe this represents serious limitations because it is probable that the team performance in all competitions reflects on league match attendances. For example, a team with good performances in international competitions creates expectations that will generate the desire to watch it at every home game.

3.2 Socio-economic variables

Ticket prices might be the first socio-economic variable to be included in an analysis of attendances (García and Rodríguez, 2002), although authors such as Falter and Pérignon (2000) do not include it in their model as they consider it to be an endogenous variable (meaning that price is affected by attendance). We are not going to employ it either. Firstly, because we agree to some extent with Falter and Pérignon, but also because we propose a study which focusses on average attendances. Pricing policies comprise a wide range of ticket prices according to location within the stadium, the type of match, as well as discounts

for season ticket holders, and so on. This would complicate considerably the choice of price to use as a measure.

Market size is another variable to take into consideration. For the purposes of this investigation, market size relates to the size of the surrounding population. Baimbridge (1997) studies a competition at international level. In his paper, he takes the variable to be the population of the country divided by the distance, in air miles, between the capital of the country in question and London. Baimbridge (1997) uses size of population as one of the variables in his study of an international football competition. García and Rodríguez (2002) use the population of the province⁷ in which the club is based. Finally, Cocco and Jones (1997), Falter and Pérignon (2000), and Blasco *et al.* (2002) choose the number of inhabitants of the city in which the club is located. The former two articles employ a logarithmic form of the variable and the latter divides the population in those cities with more than one club according to the number of season ticket holders at each club.

We are going to work with both measures: city and provincial populations. We will then choose the most appropriate measure for later stages of the research. We have adjusted the population of cities or provinces with more than one team following the same criterion as Blasco *et al.* (2002) to produce the adjusted population of province (APP) and adjusted population of town (APT). In order to make that adjustment, we assume that teams located in smaller towns and cities might attract spectators from their own towns but that it is more difficult to draw fans in from more developed cities. So, in the case of Madrid, where Getafe and Leganés have their respective teams, we have subtracted the population of these two towns from the overall province and we have distributed the remainder among the other three teams of the capital (Real Madrid, Atlético de Madrid and Rayo Vallecano) according to the number of respective season ticket holders. In the province of A Coruña, we have subtracted the population of Santiago de Compostela from the rest of the province in order to estimate the population relating to Deportivo de La Coruña. Finally, for Asturian clubs, we have followed the criterion of number of season ticket holders for dividing the population.

Another set of factors that seem relevant following the market size approach are those related to the purchasing power of potential 'customers'. For example, the gross income per capita reflects the purchasing power of the population and it may be an influential factor when deciding whether or not to go to a match (Baimbridge, 1997; Cocco and Jones, 1997; Koning *et al.*, 2001; and García y Rodríguez, 2002). Falter and Pérignon (2000) prefer the average wage as an indicator of purchasing power. We have opted to include as variables: the

⁷ The Spanish State consists of *Comunidades Autónomas* (Autonomous Communities) and these are divided into provinces although there are some Autonomous Communities with only one province such as Madrid, Rioja, Cantabria, Asturias. There are 52 provinces in Spain.

economic level of the province, the industrial, commercial, tourism and catering, economic activity indices,⁸ and the adjusted market share (AMS).⁹

If we assume that sport is a product that is only demanded when the basic necessities are covered, then factors such as high unemployment in a particular city or region might affect football match attendances negatively. Falter and Pérignon (2000) use the rate of unemployment as a socio-economic variable. We also will employ the unemployment rate¹⁰ of the town in order to establish its relationship with attendance.

3.3 Relationship between socio-economic variables and attendance

The hypothesis that we are going to test in this section is that **socio-economic¹¹ features of the local population influence football match attendances.**

In order to analyse the effect that different socio-economic variables have on attendance, we have opted for an Ordinary Linear Squared (OLS) regression model. Most researchers (Baimbridge, 1997; Cocco and Jones, 1997; Falter and Pérignon, 2000; and García y Rodríguez, 2002) use this kind of model.

The data for the population of towns and provinces, as well as economic data are extracted from 'Fundación La Caixa' reports (2002, 2003). The variation from year to year of this type of data, especially those referring to population, is not considerable. Therefore, we have opted to focus our analysis on data from the 1999/2000 season. The sample consists of 33 teams. We aimed to work with all professional Spanish football clubs, but this was impossible because some clubs, even some which are companies, do not allow the public to view their accounts. However, we consider the sample to be representative: all First Division clubs and 13 of the Second Division clubs allows relevant conclusions to be drawn.

From the results of the regressions between attendance and each of the independent variables explained in the previous section, it is clear that the variable which best explains attendance is the adjusted population of the province (APP) which is statistically significant and explains 78.5 per cent (this its R^2) of attendance. The adjusted population of the town (APT) is also statistically significant with a high explanation power ($R^2 = 0.722$). Finally, the

⁸ These entire indices are elaborated by 'La Caixa' considering levels of income, industrialisation, commerce, etc. in the province.

⁹ This index expresses the comparative consumer capacity of the different towns. This capacity is measured considering the importance of the population and its purchasing power taking into account the following variables: number of telephones, cars, lorries, branches of banks and retail shops. Data employed here refers to January 2001 (Fundación 'La Caixa', 2002).

¹⁰ We use the unemployment rate calculated by 'La Caixa.' It is estimated in a different way from the official government figures taken from the Survey of Working Population (EPA). In this case, it is calculated over Total Population instead of Active Population (Fundación 'La Caixa', 2002; 11-12).

¹¹ Although we speak about socio-economic features it would be more accurate speak only about potential market size because the characteristics not directly associated to it are not significant.

last variable which presents a good performance is the adjusted market share (AMS)¹² (statistically significant, $R^2 = 0.732$).

The industrial, commercial, catering, tourism and economic activity indexes have little explanation power. Their R^2 vary between 0.288 and 0.337.

So, we found that the unemployment rate and the results for the levels of economic activity were not statistically significant. Nevertheless, the AMS variable, that measures the effect of population wealth, explains attendances well, and suffices to prove the existence of a relationship between attendances and socio-economic factors.

Once the regressions between the distinct independent variables and attendances were carried out, we proved, by means of a bivariate correlation analysis, that multicollinearity exists between the explicative variables. This is the reason why the regression analysis was performed step by step, in order to determine whether or not it is possible to use a socio-economic multivariate model which explains attendances better than the univariate models.

The result is a model of only one variable in which the independent variable is the adjusted province population (APP) excluding the other variables. The expression of that model - with an explanation degree of 78.5% and being statistically significant - is thus:

$$(1) \text{ ATT} = 4784.136 + 0.017 \cdot \text{APP} + e$$

To summarise, then, in this section the relationship between attendance and several socio-economic variables has been tested. The adjusted population of the province (APP), the adjusted population of the town (APT) and adjusted market share (AMS) are statistically significant and with a high explanation power (all of them above 70%). The other variables used are not significant and are of low explanation power. In a second stage, a multivariate regression was analysed in order to identify the variable or variables that best explain attendance avoiding multicollinearity problems. The outcome is a model in which there is only one significant independent variable (APP) and its R^2 is 78.5%. Therefore, this variable subsumed all the information of the rest of the variables we have employed.

4. Quality of squad and attendance

Cocco and Jones (1997) include in their model of matchday attendances a coefficient that considers changes in demand as a response to specific features of the home team. Palomino and Rigotti (2000 a, b) consider the wealth of a club (which is linked to its quality) as one of the variables that explains the demand for football.

¹² The adjustment has been applied to cities with more than one team (Madrid, Barcelona, Sevilla and Valencia) taking into consideration the number of season ticket holders, as explained in the previous section.

Falter and Pérignon (2000) explain attendance based, at least partially, on a series of purely football-related variables. They include the budget of the club within this. García and Rodríguez (2002) work with a similar model. They utilise the budget in real terms. Furthermore, they clarify that this budget depends on salaries. We agree with Gerrard (2001) that budget is a finance proxy variable for the quality of the squad.

We understand that it is relevant to introduce into the model a variable which relates to the quality of the team squad. It seems obvious that a team with many stars is more likely to attract fans than a team without 'big name' players. In fact, it is striking the expectation that a signing of a new player can awaken (Stead, 1999). Nevertheless, in Europe usually the fans' feelings are linked more closely to their club than to a particular football player.

Financial approaches to quality of squad include considering budgets (Falter and Pérignon, 2000; García and Rodríguez, 2002; Lucifero and Simmons, 2003) and the wealth of the club (Palomino and Rigotti, 2000 a, b). Barajas (2004) demonstrates that the variable most appropriate to the Spanish case is the sum of the wages of sports-related staff and the depreciation of rights on players (W+D). For this reason, we chose to contrast the relationship between attendance and quality of the squad using this financial approach.

So, the hypothesis that we are going to test is that **the higher the quality of the squad, the higher the attendances.**

In order to test this hypothesis, the 'support' variables described in the previous section and the quality variables suggested by Barajas (2004) are employed. The same model of analysis as before is employed; that is, a univariate linear regression model.

The result is that indeed a positive and statistically significant relationship exists between the average attendance at football stadia over a season and the squad quality estimated by calculating its annual cost – the sum of wages and depreciation (W+D). The explanation degree of the dependent variable is high ($R^2 = 0.745$). The resultant model is expressed thus:

$$(2) \text{ ATT} = 7,258.374 + 0.001 \cdot (\text{W+D}) + e$$

In this section, using a financial approach to determine the quality of the squad, we have proven that attendance can be explained well by the chosen variable of the quality of the squad.

5. Incidence of sports performance on attendance

Szymanski (2001) claims that the utility of fans depends on the sporting success of their team. We may agree in general terms with this, but some nuances may be drawn. It is reasonable to distinguish short-term influences and a broader perspective. In the first case, the club may count on fans' loyalty and on keeping on their support. However, new supporters will be attracted to the most successful teams of the moment. Also we may assert that clubs with a

larger quantity of supporters at the present time have been those who have been more victorious in the past¹³.

Falter and Pérignon (2000) only use result variables relating to current team performances. In this way, they draw on league positions, average goal differences and results of the last match. They, along with García and Rodríguez (2002), focus on determining an attendance function from weekly results. This is a more volatile perspective than we are pursuing. We are concerned with influences on the economic value of a club. So, we are looking for a smoother, longer-term relationship. Therefore, we will work with annual results and also with other variables that we call 'historical' or to do with **prestige**. Below, we explain the current and historical result variables that shall be used in this paper.

Variables of current results examined here are the **compound index** (CIND)¹⁴ which includes results of all the competitions in which a club participates over the course of the 1999/2000 season, and the **league position** (LPOS)¹⁵ at the end of the season

The more matches played in the First Division the more tradition and ability the club has to consolidate its fanbase. The historical results we have worked with for each club date from the start of the national Spanish league championship. Logically, the higher the **number of matches won** (MW) the more positive the effect will be. We have created another variable which represents the **number of matches not won** (MNW), that is, the number of matches in First Division minus matches won. We understand also that the number of **goals for** (GF) in the First Division is a positive factor for generating fans. Whilst **goals against** (GA) may constitute a dissuasive factor for attending matches. Nevertheless, goals against may have less importance when the **goal difference** (GD) was positive. In fact, if that goal difference is positive, conceding goals may become an incentive to attending matches because it implies an attacking style of play, inspired by scoring more goals than the opposition. It is worth remembering FC Barcelona when it was coached by Johan Cruyff (1988-96): the team had a great ability to score goals without paying too much attention to defending.

¹³ Mellor (2000) explains how Manchester United became a 'super club' with high levels of popularity and attendance thanks to its sporting success in the 1960s.

¹⁴ If P_i represents the points achieved in the i competition and α_i represents the weight of each competition considered (*Copa del Rey*, UEFA Cup, *Liga*, UEFA Champions' League) then the index may be expressed as:

$$IND = \sum_{i=1}^4 \alpha_i P_i$$

This index needs a system to convert the cup competition into points. We use the weighting and the system of conversion proposed by Barajas (2004).

¹⁵ This variable has been estimated from Szymanski and Kuypers (1999, 187) but they work with 92 teams and we work with 42. So, the expression we employ is thus:

$$LPOS = -\log\left(\frac{p}{43-p}\right)$$

where p represents the ranking of a particular team at the end of the season.

We have calculated the univariate regressions between attendance and each of the enumerated variables of current and historical results. From that analysis, it is remarkable that all variables of results present a positive and statistically significant relationship with the stadia attendances. That link is greater or lesser depending on the independent variables.

The variable of current results which best explains attendance is the compound index (CIND) with an R^2 of 0.698. Considering that this index includes results of all competitions in which the club participates and that the attendance only refers to league matches, it may be concluded that the good performance of the club in different competitions contributes to a higher attendance at league matches due to the expectation created by the good results.

Regarding prestige variables, which consider historical results, those with a greater explanation degree are goals for (GF) and matches won in the First Division (MW) with R^2 of 0.736 and 0.755, respectively.

Contrary to expectations, both goals against (GA) and matches not won (MNW) also have positive coefficients. Two factors may explain this phenomenon. On the one hand, both variables refer to seasons when the clubs have remained in First Division which contributes to increase the number of fans. Furthermore, promotion and relegation both have a positive effect on attendances (Noll, 2002). Teams with worse results will be more easily implicated in the fight to avoid relegation, so more spectators turn up. On the other hand, especially in the case of goals against, we might expect a better spectacle or even that part of the public come to watch the rival team, if it is talented.

We have sought also to explain attendance through a multivariate regression model. The result of this is that the independent variables which explain the attendance are matches won (MW), matches not won (MNW), and the league position variable (LPOS). In this model, the variable matches not won (MNW) has a negative coefficient. In this analysis we had to exclude Real Betis from the sample due to its anomalous behaviour regarding attendances. We may affirm that the popular saying, '*Viva er Betis man que pierda*'¹⁶ is statistically corroborated. Every coefficient and the intercept are statistically significant. The model has an explanation degree of 93.2% and can be represented by the following expression:

$$(3) \text{ ATT} = 11,736.952 + 55.108 \cdot \text{MW} - 25.816 \cdot \text{MNW} + 2,866.577 \cdot \text{LPOS} + e$$

Therefore, in a first stage of analysis, the relationships between attendance and the different variables of current and historical results have been tested. All the independent variables tested are statistically significant. The compound index (CIND) which reflects the performance of the team in all competitions is the variable of current results which best explains attendance. In a second stage of analysis, a multivariate model explains attendance. This model includes historical variables (MW and MNW) and the league position variable (LPOS) of

¹⁶ Written in colloquial Spanish, it means 'Hail Betis even if they lose!'.

the previous season. This model, statistically significant, has a high explanation power (93.2%).

6. Explanation of the whole model of support.

Falter and Pérignon (2000) draw their model of attendance from socio-economic, football-related and 'incentive' variables. They assume a linear relationship that could be expressed as:

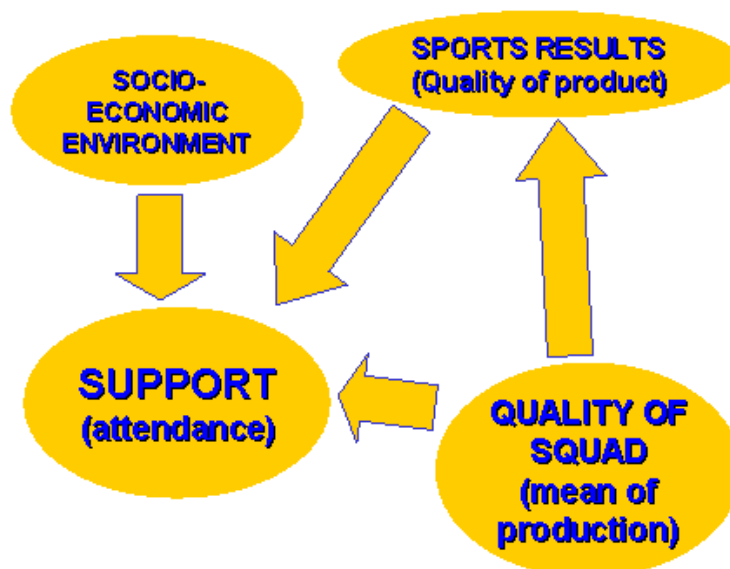
$$(4) ATT_i = \alpha + \beta_1 \cdot E_i + \beta_2 \cdot F_i + \beta_3 \cdot I_i + \varepsilon_i$$

Where ATT_i is the logarithm of attendance at match i ; E_i represents the whole of the group of socio-economic variables where unemployment rate, population, average wage and transport costs are included; F_i symbolises those football-related variables (league position, goal difference, budget and last result); and, finally, I_i signifies the 'incentive' variables such as the time of the year when the match is played and whether or not it is televised.

The model we propose takes into account the contributions of Falter and Pérignon (2000), Barajas (2004) and García and Rodríguez (2002). We assume that attendance is conditioned by socio-economic factors, quality of product (results), and quality of the means of production (squad). As we do not analyse attendance of individual matches, the 'incentive' variables which the former authors use are not relevant to us. Neither are the 'opportunity cost' variables employed by the García and Rodríguez.

We have already seen how the quality of squad affects sports results. Now, we are concerned with whether it also has a direct effect on attendance, or whether it only influences it through sports results. We have checked this by mean of a trajectory analysis which tells us whether the effects are direct or indirect as shown in Figure 2.

Figure 2. Factors which determine attendance



Our model expresses the average attendances at stadia during a season and it is explained by socio-economic variables (E_i), variables related to quality of squad (P_j) and our football variables (F_l), which indicate the quality of product (results).

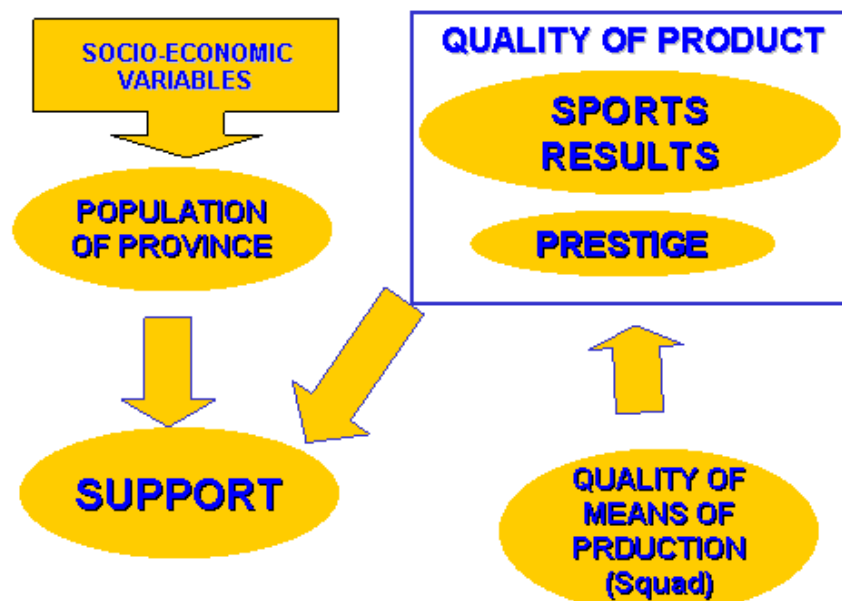
$$(5) \quad ATT = \alpha_0 + \sum_{i=1}^{K_1} \beta_i E_i + \sum_{j=1}^{K_2} \gamma_j P_j + \sum_{l=1}^{K_3} \delta_l F_l + \varepsilon$$

We use a stepwise regression, after checking the existence of multicollinearity among variables that we tried to introduce into the model. Again, we have had to exclude Real Betis from the sample due to their abnormal behaviour. The results are presented in the following model:

$$(6) \quad ATT = -2,591.179 + 0.007 \cdot APP + 120.882 \cdot ACP + 7.715 \cdot GD + 7.516 \cdot MW + e$$

The dependent variable attendance (ATT) is explained to a high degree ($R^2 = 0.956$) and is statistically significant. The quality of the squad variable has been excluded from the model. So, Figure 3 shows us the conceptual model of support.

Figure 3. Schema of model of support



Variables on information about the economic characteristics of the population do not appear either in this model. The reason for this is the presence of population of the province as an independent variable in the model. This variable has a strong correlation with market share (0.89 at two-tailed 0.01 level of significance).

With this model, it is demonstrated that the quality of squad in a financial approach only affects attendance through sports results, and that socio-economic factors may be summarised in the potential market size measured by adjusted province population (APP).

7. Incidence of attendance in sporting revenues.

Until now, we have analysed the factors which affect support as measured via attendances. Now we are going to focus the study on the influence that attendances have on sporting revenues. According to the Football Task Force, support is the main asset of a particular club because it is the origin of matchday, media and commercial revenues (FTF, 1999). Directly or indirectly, the fan is the key to most of the club's revenue streams (Deloitte & Touche, 2000; 50).

So, we are going to test the hypothesis that **attendances influence sporting revenues**. In order to do this, we are going to employ the average attendance (ATT) as an independent variable and several revenue variables as dependent. These dependent variables relate directly to sporting activity following the criteria established in the specific accounting rules for the sports industry in Spain.¹⁷ The variables that we are going to use are sporting revenues (SR; the sum of all the other revenues, though calculated differently for each club), matchday and pools monies (MDP), television rights (TVR), advertising (ADV) and number of season ticket holders (STH).

We have excluded Real Betis again because they do not register any amount of money in the accounts that we use as variables in our study. This club hands over the revenues of its core business to companies that ensure a minimum amount to the club, plus a percentage of the additional incomes achieved.

Table 1. Summary of regression between attendance and revenues

<i>Dependent variables</i>	<i>R²</i>	<i>t</i>	<i>sig.</i>
Sporting Revenues (SR)	0,862	13,704	0,000
Matchday and Pools (MDP)	0,424	4,455	0,000
Television Rights (TVR)	0,890	14,752	0,000
Advertising (ADV)	0,748	8,944	0,000
Season Ticket Holders (STH)	0,874	13,954	0,000
Independent variable: ATT			

A summary of the most remarkable output is shown in Table 1. First, it highlights the existence of a direct, positive, high – except on tickets and pools (MDP) - and statistically significant relationship between attendance and the different variables of revenues. The income from tickets (MDP) has the worst explanation power. The reason is the lack of information about this kind of revenues in some clubs.

¹⁷ In Spain Sporting Companies and Clubs have to present their accounts following the General Plan of Accountancy adapted for Sporting Companies.

8. Conclusions.

Throughout the paper the main conclusions of the analysis have been highlighted. First, the relationships between attendances – as an approach to support – and socio-economic variables were tested. Attendance is highly explained by the adjusted population of the province (APP), or the adjusted population of the town (APT), or even by adjusted market share (AMS). However, the unemployment rate is not statistically significant, and other indices have a low explanation power. A great correlation exists between all the socio-economic variables. This has been checked by the multivariate model. The outcome of this model is that only one independent variable remains (the adjusted population of province, APP) with an R^2 of 0.785.

As result of the regression analysis of quality of the means of production (squad), analysed via the sum of wages and depreciation (W+D), and support, approached by average attendance (ATT), we have found that the former explains the latter by 74.5%, being statistically significant. So we can affirm that a good squad will attract people to the stadium.

The third step leads us to obtain conclusions about the degree of relationship between success on the pitch and support. Again, the latter has been approached by attendance. After testing several variables of current and historical results, we found that all the variables tested are statistically significant. So, according to this, we can state that support is well explained by team performance on the pitch. Furthermore, we checked to find out if the model works better by including several variables of current and historical results. The outcome is a multivariate model which has an explanation power of 93.2%, being statistically significant. The matches won (MW) and the matches not won (MNW) in First Division throughout the history of the club and the ranking in the season are the factors which explain attendance.

Once we checked that the quality of the squad and results influence support, and considering that the better the squad of a team the better its performance is, we wondered whether the effect of squad quality on attendance is direct or if it only affects attendance through results on the pitch. We tested it and presented a multivariate model based on the conceptual schema shown in Figure 2. The outcome is that attendance is explained for a socio-economic variable, adjusted population of province (APP), the current results of the team - measured by the points that the team has obtained - and the historical results (GF and MW). So we can assert that all the influence of the quality of the squad on attendance comes through team performance. We have also found a model for explaining average attendance with a high power of explanation (95.6%).

Finally, in order to test the initial schema (Figure 1), we have ended checking the influences of attendance on several sporting revenues. The main finding is that attendance has an important explanation degree on the whole of sporting income (86.2%).

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