Determinants of Football Games Demand in Brazil and England

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Determinants of Football Games Demand in Brazil and England

Bruno Ítalo Lima Benevides [α], Sandra Maria Dos Santos [σ], Augusto Cézar De Aquino Cabral [ρ] & Renata Aquino Ribeiro [ω]

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Keywords: supply chain, football, demand·

I. Introduction

Football, most publicized sport in the world, is one of the sports branches which has caught attention as economical activity. In this perspective, as stated by Cragnotti (apud DUCREY et al. 2003, p. 31), "Football is the most global business of the world in a time of globalization and triumph of leisure. What other good has been bought by three billion consumers? Not even Coca-Cola!".

Football industry estimated financial transactions around the world yearly is about US$ 400 billions and US$ 1 trillion, which represent about 18% and 44%, respectively, of the Brazilian GIP according to Belo and Paolozzi (2013). However, in Brazil, despite its enormous popularity, this sport moves around about R$ 36 billion yearly, which represents 1% of its global value, while in England the representation is up to 30%, according to report by PluriConsultoria (2012). Therefore, in Brazil, as economical activity, football is far from having its effienciency maximized, even farther from being recognized as national sport.

Data presented suggests that in Brazil there is great economical potential to be explored in football. The dynamics of this industry and its reflections in the economy must be understood from an analysis of all the supply chain which involves football (BLUMENSCHMEIN; NEDAL, 2010).

The concept of supply chain can be understood, according to Beamon (1998), as the integrated process of sectors which act as a whole with the goal of acquiring materials, transforming them into products and distributing them to consumers. In the case of football industry, the game is the final product of the supply chain and the supporter is the final consumer. There is, also, in this chain, other important agents, such as investors, TV companies, marketing businesses, etc., regarded as intermediary consumers, which are between the productive market, formed by teams and federations, and the consumer market (LEOCINI; SILVA, 2003).

For Ekelund (1998), the supporter is the main link in the chain, as it is through him which the origin of intermediary consumers. Blumenschmein (2013) agrees with the importance of this link in football supply chain, showing that the supporter has the participation of about 46% in the total value generated by the chain.

Mostly, when it comes to evaluating the economical potential of a determinate sector, one analyses the number of consumers and the tendency that they have to consume the merchandise produced by the industry focused. This way, it is evident the importance of analyzing the football consumer behavior and understanding the factors which have led him to demand this good, so that this way this industry may function more efficiently, in the economical perspective.

Regarding the search for the asset football, several researchers have based their studies, as having the audience present in the arenas as a proxy for supporter demand. And, as factors explained in the search for matches, there have been economical and structural factors as well as uncertainty of results and expected quality of the match. In Brazil, this is prominent in the works of Souza (2004), Madalozzo (2008), Bortoluzo, Laropoli e Machado (2011). Na Inglaterra, Dobson e Goddard (2001), Forrest e Simmons (2006), Buraimo e Simmons (2006) e O'Connor (2009). One of the most notable observations in these studies is the finding that there is a meaningful difference between Brazilian and English costumers in regards to the uncertainty of result in a match and the quality expected. These studies have shown that, in Brazil, the supporter is more sensitive to these factors than in England.

Given that the main audience present in the arenas is taken as a proxy for the demand for football and that, according to O'Connor (2009), this audience represents one of the main sources of income from the proceeds of football teams, it is important to relate the demand with revenue. In Brazil, teams income,

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originated from the supporters' expenditure in days of the matches, is aproximately 7% of the total proceeds, while in England this income is around 23%, according to a study by Delloit (2013). Meanwhile, the demand for matches in Brazil is about 60% smaller than in England.

It is possible to know, then, that English football detains aproximately 30% of the total production of this industry, a value much higher than that of the Brazilian scenario, and that there is a meaningful difference, between Brazil and England, in the composition of teams income originating from ticket sales, and it is important to identify the determinant factors of the demand which differentiate the behaviour of supporters and teams in those two countries. Therefore, the main issue of this work is: what are the determinants for the demand of football matches in Brazil and in England?

The following hypothesis may be examined: i) visiting teams quality affects more Brazilian supporters than English; ii) the price elasticity of the demand is closer to profit margin maximization in England. As a general objective, this work aims to identify the factors which determine the demand for football matches in Brazil and England. As specfic objectives, it is possible to foresee: i) identifying in which way economical factors affect the demand for football in both countries, ii) checking the impacts referring to match quality, substitute and structural and iii) comparing the behaviour of Brazilian and English teams as profit maximization agents.

This study uses an economical model, in line with the idea of Souza (2004) that researches involving the demand for football matches follows a pattern, in which such model is built to try to explain the demand according to a series of factors. In terms of structure, other than this introduction, this article has other main four sections. Section 2 reaches out to the studies already done in the area of Sports Economics. Section 3 brings the description of methodology, while in section 4 an analysis of the results obtained is discussed. Lastly, section 5 presents the conclusions from this study.

II. THE ECONOMICS OF FOOTBALL

Academic interest in professional teams sports economy originates in the middle of the 1950s, when Rottenberg (1956) analyzed the job market in American baseball. Since then, several books and articles were published about it. In this section, having in mind the objective of the study, researches about the demand for football matches are presented.

a) Studies about football demand

Demand is the quantity of an asset which consumers aim to purchase at a determinate price; however, the quantity demanded of an asset may not depend only in its price, but also in other variables (PINDYCK; RUBINFELD, 2009). Income being an important variable, as, with a larger income, consumers

may acquire other assets. Regarding football matches, other than price and income, as pointed out by Souza (2004), aspects referring to the match as recent team performance, arena structure and time the match occurrs, are also important to explain the search for this asset.

In the studies about football demand, Dobson and Goddard (2001), Forrest and Simmons (2006), Buraimo and Simmons (2006) and O'Connor (2009) have estimated a demand equation for the English championship. For the Brazilian championship, Souza (2004), Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011) have also done this estimative.

Dobson and Goddard (2001) estimated a model searching to explain the variations in average audience, each season, to the level of the team in the English championship, including the four divisions, between the seasons from 1947 to 1997. The authors have modeled the demand in two moments. In the first, the model was estimated using data in panel.

The model's coefficients reflect the influence of four factors upon demand: loyalty in the short-term (or persistence in attendance from year to year), success (measured by league position), admission price and entertainment (proxied by goals scored) (DOBSON; GODDARD, 2001, p. 342).

Whereas in the second moment, the authors try to explain that *"... the cross-sectional variation between clubs in their base levels of attendance, and their short-term loyalty, success, price and entertainment coefficients obtained at the first stage."* (DOBSON; GODDARD, 2001, p. 343) In this phase, the authors have used as explanation variables socioeconomical and demographic characteristics of each team's city. Information used was, for instance, population size, occupation structure and unemployment other than football related characteristics, such as team age and the number of other teams in the same city.

Results obtained by authors in the first stage have shown more significant to the level of 5%, except for the variable referring to goals scored, which have shown themselves non-significant for the model. Dobson and Goddard (2001) also conclude that the due to the fact that the audience is in logarhytm and all the variables are standardized, the estimated coefficients do not have a direct interpretation. Therefore, one may assume that results obtained only show that the factors seek to explain if the demand has a positive or a negative impact without, however, providing the elasticity of these factors.

In the second phase, Dobson and Goddard (2001) have used as explanation variables the population natural logarhytm and the team number of years. There was the use also of the number of other teams present in the same city, the percentage of employees in agriculture, as well as the percentage of

employees in the sectors of energy, manufacturing and building contractors. Other than that, there was also the use of the number of men with age between 16-64 unemployed. As independent variables, authors have used the audience, price, short-term loyalty, league position and goals scored. The results were, all of them, significant to the level of 5%.

To estimate the demand of the English championship, Buraimo and Simmons (2006) have also used an econometrical model, in which the search for matches is related to the six groups of factors: loyalty to the team, the quality of the teams involved in the match, uncertainty of the result, size of the market, competition and media. The authores have estimated the econometrical model using TOBIT and have obtained results statistically non-significant only for those variables referring to the quality of the teams involved in the matches, as age of the visiting team, as well as its number of points, and referring to media, as matches transmitted in Bank Holiday, and in the period when the match occurred.

O'Connor (2009) has sought to estimate the loyalty of English supporters using an equation of demand, in order to check whether these factors such as the current moment of the team, like promotions to other divisions affect the search for matches. As a dependent variable, there was the use of percentage of arena total seats, given the relation between audience present and capacity of the arena.

O'Connor (2009) hasn't shared the factors explaining the group demand. There was the use of the following variables: team position until the date the match happens, ticket prices, the number of goals that the team may have taken in the last three matches, as well as may have done, the percentage of matches which had already happened in the championship, the square of the team position, square of the percentage of matches occurred and dummies in case the team may had been promoted, lowered, or won at least one of the last three matches, lost at least on of the last three matches, if the match happened last week and lastly, if it involved rival teams.

The author estimated the model in three ways, fixed effects, random and square minimum. The first two have shown similar results, being statistically significant the percentage of matches already occurred, the square percentage of matches done, lowering, promotion, match which happened during weekdays and involving rivals. However, in the method MQO, only promotion, matches involving rivals and the percentage of matches already done were significant.

Whereas Souza (2004) had as a goal to check the most important factors which influentiate supporters' decision of appearing in the arenas, doing an analysis of the Brazilian championship of 2002. The author also checked whether the televized matches constitute a substitute asset to matches in the football arenas and

tried to measure the elasticities of price and income of the demand.

Souza (2004) also used an econometrical model, in which the dependent variable consists in the paying audience of each match. As for the explanation variables, the author has shared them in six groups of factors which influence the demand: economical, demographical factors, competitive unbalance, expected quality for the match, substitutes and team attributes. The author estimated his model in three ways, a linear, another log-linear and one log-log. According to the author, the linear model presents several problems, such as heterocedasticity and unconformity with the residuals, other than revealing an error specification. The log-log model was tested to capture the elasticity of income. There was also the obtainment of significant results to the level of 5% for the variables, except those referring to unemployment and televized matches. About the elasticity income of the demand, Souza (2004) concludes that the matches in the Brazilian championship of 2002 are inferior assets, presenting an elasticity of -3, 67.

According to Madalozzo (2008), the demand for matches is frequently target of studies in sports economics. The most common approach is an equation of demand based on social and economical factors which determine the search for each type of sport.

In their study, Madalozzo (2008) has investigated the factors which have affected the demand for football matches in the Brazilian championship between 2003 and 2006. Having analyzed 1946 matches, the author used the logarhythmo of paying audience as dependent variable. The model was estimated using data in a panel with fixed and random effects. The author also shared the factors which affect the demand in groups, being them: structural characteristics, expected quality, performance and uncertainty of the result.

The estimated models by fixed and random effects have had similar results. In both, the variables referring to the structural group have shown to be significant to 5%, except for the number of matches played by the house team in the last month. Other than that, the income wasn't estimated by fixed effect, only random, presenting an elasticity of -0, 7, showing that football is an inferior asset. However, price obtained equal value in both models, having an elasticity of -0, 24, what implies, according to the author, considering each team as a monopolyst, this is not a profit maximizer.

In the factors referring to the expected quality of the match, the variables relating to state and international titles in the year before have shown as non-significant. In this group, the variable relating to rivalry has shown to have an impact of 0, 63 in the demand for matches of the Brazilian championship. In the performance group, only the variable referring to points

gained by the visiting team in the last three matches has shown itself as non-significant. However, in the group uncertainty, the difference between the position of the opposing teams and the chance to go to Libertadores championship obtained non-significant results.

Bortoluzzo, Laropoli and Machado (2011) have examined the demand for matches in the Brazilian football championship in A series in the period of 2004 to 2009, also using the paying audience as a dependent variable and estimating the model through TOBIT. The data is from 2481 matches in the Brazilian championship in the first division. As independent variables, they have used the annual income per capita in the city where the match occurred, the population of the respective city, classification of the house and the visiting team, points gained by the house and the visiting team in the last three matches, goals score by the house and visiting team in the three matches before, average price (given by dividing the amount of money raised and paying audience), dummies for: season of the year, case in which the math occurred in the weekend, case in which it may have rained, if the match happened at 21:00h, if the match is considered to be a classic, if there is a team from São Paulo or Rio de Janeiro and if the match was located in the beginning, middle or end of the championship.

Five variables of the model have shown themselves non-significant: points gained by the visiting team in the last three matches, goals scored by the visiting team in the last three matches, dummy for the case when a match occurrs at 21:00h, dummy for the case when the match occurrs in the winter and dummy for the case when the match occurrs in the spring. With relation to the economical variables, the authors have found a price elasticity of -0, 21 and an income elasticity of the demand of -0, 47.

It is important to have in mind that economical, structural and match quality factors are common in the studies about football demand.

III. Methodology

a) Research Typology

The research is of explanatory and descriptive approach. As for its explanatory character, this type of research "has as its purpose to identify factors which determine or contribute to the occurrence of phenomena" (GIL, 2010, p.43) Therefore, data which aims to identify determinant factors for matches demand in the Brazilian football championship of the A series in 2013 and in the English Premier League, these justify the explanatory character of the study. The descriptive nature comes from the fact that it "aims to describe the characteristics of a determinate population or phenomena or the establishment of relationships among the variables." (SILVA; MENEZES, 2001, p. 21) In such context, this research is descriptive, since it does a description of the characteristics of those factors.

Other than those aspects, this is a quantitative study, since the data used had statistical treatment (RICHARDSON, 2007) which made it possible to check the determinants that affect the demand for games in the Brazilian championship in the A series and in the English Premier League.

b) Databases

This research is based on secondary data generated by the database of Brazilian Institute of Geography and Statistics - InstitutoBrasileiro de Geografia e Estatística (IBGE), by the Office for National Statistics (ONS), the Brazilian Confederation of Football – ConfederaçãoBrasileira de Futebol (CBF), Puri Consultancy - PuriConsultoria, Football Arenas National Registrer - Cadastro Nacional de Estádios de Futebol, BBC Sports Survey and the site Worldfootball, through the internet in its respective official sites. The research did an analysis based on the 380 matches occurred in the season of 2013, in Brazil as well as in England. All of the data of this research is referring to the year of 2013, except the average income of addresses in Brazil, made available through IBGE, which refers to the year 2010.

c) Econometrical model

As affirmed by Souza (2004), researches involving the demand for football matches follow a pattern, in which an econometrical model is formulated to try to explain th demand according to a group of factors. Such statement is supported by Dobson and Goddard (2001), once they claimed that many studies analyze the audience, estimating a model of regression and interpreting the result as a demand equation. In this line of action, this study, also, uses an econometrical model.

The dependent variable used in this study is given by the number of ticket payers for matches in the Brazilian championship. In England's case, according to study by Delloit (2012), only 30% of the composition of the audience present in the arenas is from supporters which have bought tickets only for the match at hand, not choosing to buy season tickets. This way, the dependent variable for English football consists in 30% of the audience present at the arena. Both were see in form of logarhythm, under the hypothesis of non-linearity with the independent variables. The paying audience is used, because it "provides the main source of data for the dependent variable in econometric models of the demand for football attendance" (DOBSON; GODDARD, 2001, p. 319).

As for the explanatory variables, they originate from the assumption that the demand is related to four groups of factors, being those: economical, expected quality of the match, substitute and structural. Due to the limitation of available data at the time of this research, some variables included in these groups are not compatible between Brazil and England.

Among the economical factors, it was used for Brazil the logarhythm of average price, given by sharing the money raised and paying costumers. However, for England, this variable was measured by the club day match, which consists of the value of the ticket adding the amount of pie and tea price. Also in this group of factors, it was used the average income of families in the city where the match occurred.

In the group of factors related to the expected quality match for Brazilian football, are the variables Rival (Rival), Victory (Vitória), Great (Grande), Promoted (Promovido), Round (Rodada), Position (Posição), Points (Pontos), Points2 (Pontos2), Amplitude (Amplitude), Amplitude2 (Amplitude2) and Libertadores Championship (Libertadores). For England, there was the use of the same variables, with exception of Libertadores and adding the variable Champions.

In the group of substitutes for Brazil, there was the use of the variable PFC, while for England there was the use of movies ticket price logarhythm.

At last, among the structural factors are the variables Log (Capacidade) (Capacity), Log (Torcida) (Supporters), Arenas and Log (Passagem) (Travel Ticket) for Brazil. While for England there was the use of the same variables with exception of Arenas, Log (Torcida) (Supporter) and Log (Passagem) (Travel Ticket) and adding Log (pie).

In relation to the economical variables price and income, these are used in microeconomics theory, as, as say Pindyck and Runbifeld (2009), these factors are determinant for the demand of consumers.

The rival teams have met in the same territory, as city or state. Therefore, it will be used a dummy with the value of 1 in case the teams are from the same city and 0 otherwise. This variable will be used, since according to Madalozzo (2008), the matches between rival teams usually are between teams of the same city, what results in fans of both going to the arena, increasing this way the audience present.

The variable Victory (Vitória) was added to the model under the hypothesis that in case the house team had won a larger proportion of the last three matches, it will attract more supporters to the arena. This variable is included among the factors which explain the importante of the team's current performance over the demand for tickets when it plays at home.

The variable Capacity (Capacidade) shows online in the model with the hypothesis "of which larger arenas cater to teams with larger demand, being that from having more supporters, being located in more populated towns or other factors not identified." (SOUZA, 2004, p. 61).

The variable Promoted (Promovido) was added to the model under the hypothesis that the team which got to ascend in the season beforehand attracts a larger audience for the current season.

Teams such as Flamengo, Corinthians, São Paulo, Palmeiras, Vasco, Botafogo and Fluminense present a supporter group with over 40 % outside of their originating states. Therefore, one may suppose the hypothesis that the matches in which these teams are visiting, affect significatively the demand for championship matches in Brazilian competitions, indifferent to which series is playing. This way, the variable Great (Grande) will be added to the model.

Regarding England, the variable Great (Grande) was used for the teams with a higher number of titles in the English championship, being those: Manchester United, Liverpool and Arsenal.

Position (Posição) is a variable which represents the home team placement in the match i and it was used under the hypothesis that as farther from the fist colocations, the smaller the demand will be.

To capture the effect of the advancement of the championship, it was used a variable referring to the round in which the match occurred, under the hypothesis that when approaching the end of the championship the demand for matches increases, as the matches become more and more decisive.

As an estimation of the cost for the supporters going to watch the matches in the arenas, the value of the bus tickets in the city in which the match was done as a proxy for Brazil. However, in England, this cost was measured by the price of the pie, since the supporters have the habit of buying them in match day, so much that its cost is added to the cost of going to the arena, according to BBC Survey (2012).

In Brazil, due to the accomplishment of the World Cup 2014, twelve arenas were renewed or built according to the english arena concepts, which bring greater confort and security to the supporters. In 2013, six of those arena had matches of the Brazilian championships. This way, it will be used a dummy in case the match may have occurred in one of those arenas.

The size of the supporters' group is also present in the model, to capture the capacity of the market. Therefore, it was used the size of the supporter group of the home team. This variable can not be used for the English championship due to its unavailability during the research.

The variable PFC is related to the percentage of subscribers, by state, of the pay-per-view channel Premiere FutebolClube, which does broadcasts of matches of the Brazilian football championship, acting, this way, as a good replacement for the ticket sales. To England, due to unavailability of data about subscribers of paid football channels, it was used the price of movie tickets in the day and time for the match, as proxy for a substitute asset.

A dummy referring to the chance the home team classifies for the Libertadores, was employed in the Brazilian model. The same variable was used for the

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English model, capturing the impact of the chance to classify for the Champions League in the demand for matches in English championship.

There was also the addition of variables referring to the difference between points and position of teams involved in the match and the square of those variables, as, according to Souza (2004), the relationship among these variables is in a square way. And, as pointed out by Bortuluzzo, Laropoli and Machado (2011), this variable is important, since the importance of the match for the home team is relevant to understand the demand for tickets. Therefore, it is expected that the less the difference in position and points between teams, the more it will be the search for tickets.

At last, there was the addition of dummies in case the match had occurred in the weekend and in the afternoon, as, according to García and Rodríguez (2001), the time and date for the fulfillment of the match are important to explain the demand.

The table 1 brings a synthesis with the explanatory variables used in the econometrical model, the author(s) in which they are based on, the way in which the data was treated and the effect expected in both countries.

Dobson and Goddard (2001) report the fact that managers can establish price before the matches what makes this variable relatable to the random disturbance *Ei,* what violates one of the assumptions of the regression analysis, presenting a possible obliquity of simultaneity in estimation. This problem of simultaneity in the price variable occurrs in the football demand equation unless the offer curve is perfectly elastic.

García and Rodríguez (2001) have also searched for the endogenousity of the variable price. Therefore, according to Murray (2006), when there is a relation between the explanatory variable and the random disturbance, it is necessary to have instrumental variables which avoid the obliquity of the estimators by ordinary minimum squares. Also according to Murray (2006), the method of minimum squares of two stages is the most used among econometricists to solve the problem of endogenousity.

The models have been then estimated by the method of Minimum Squares of Two Stages - MínimosQuadrados de DoisEstágios (MQ2E) due to endogenousity of the price variable. For Brazil, there was the use as tools of all the variables of the demand equation with the insertion of three more tools, being those: the proportion between the number of discount tickets sold and the number of full tickets sold, as well as the proportion between the number of supporters associated and tickets sold and the calculation between the number of tickets sold and the capacity of the arena in which the match was done.

This way, in the first stage, the price variable is estimated in relation to the other variables in the model of the demand equation adding the following instruments: calculation between the number of discount tickets sold and the total paying audience, calculation between the number of supporters associated and the total paying audience, calculation between the number of tickets on sale and the capacity of the arena where the match was done, and the city population size where the match occurred. The estimated price at this stage was used in the second stage, in the demand equation. This is the structure:

$$Price_i = \alpha_0 + \alpha_1 Z_{1i} + \alpha_2 Z_{2i} + \alpha_3 Z_{3i} + \beta_1 X_{1i} + \beta_2 X_{2i} + \cdots + \beta_{19} X_{19i} + \eta_i \tag{1}$$

$$Attendance_i = \alpha_0 + \alpha_1 \widehat{Price}_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} \ldots + \alpha_{19} X_{19i} + \varepsilon_i \tag{2}$$

being Z the instrumental variables used to estimate price, X are the demand equation variables and $\widehat{Preço}$ is the estimated price of the first stage.

For England, it was estimated the same model but, due to incompatibility of data availability, it was used instruments, other than all the variables of the demand equation, the audience average for the last championship, the team's position last season and if the match occurred during the winter.

Table 1 : Synthesis of the variables used in the econometrical model

Explanation variables	Theoreticalreferences	Operationalization	Expectedeffects
Log (Price)	Dobson and Goddard (2001); García and Rodríguez (2001); Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	It will be used the medium price (calculation between the total receipt from ticket sales of the match analyzed and paying audience in total). To England, it will be used the club day match.	-
	García and Rodríguez (2001);	It will be used the average	-

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Log (Income)	Souza (2004); Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	income per house in the city in which the match occurred	
(Rivalry)	Souza (2004); Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	It will be used a dummy with value 1 in case the teams are from the same city and 0 otherwise	+
(Victory)	García and Rodríguez (2001); Souza (2004), Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	It will be used the number of victories of the home team in the last three games.	+
Log (Capacity)	Souza (2004); Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	It will be used the capacity of the arena in which the game occurred	+
(Great)	Souza (2004); Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	It will be used a dummy with the value 1 in case the team visiting is Flamengo, Corinthians, São Paulo, Palmeiras, Vasco, Botafogo or Fluminense	+
(Promoted)	Dobson and Goddard (2001); Souza (2004); Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011)	It will be used a dummy with value 1 in case the home team may have been promoted in the last season and 0 otherwise	+
(PFC)	-	It will be used the % of subscribers from the channel Premiere FutebolClube, by state	-
(Round)	Souza (2004)	It will be used the number of round in which the match occurred	+
(End)	Madolozzo(2008); Bortoluzzo, Laropoliand Machado (2011)	It will be used a dummy with value 1 in case the match occurrs in the weekend and 0 otherwise	+
(Position)	Dobson and Goddard (2001); Madalozzo (2008); Bortoluzzo, Laropoli and Machado (2011)	It will be used the position in the table of the home team in the match	-
(Points)	Souza (2004)	It will be used the points difference until the fulfillment of the match between the home team and the visiting one	-
(Points2)	Souza (2004)	It will be given by the square of the variable Pontos (Points)	+
(Amplitude)	García and Rodríguez (2001); Souza (2004)	It will be used the difference between team positions home/visiting during the match	-
(Amplitude2)	García and Rodríguez (2001); Souza (2004)	It will be given by the square of the variable Amplitude (Amplitude)	+

Log (Supporters)	-	It will be used the number of supporters of the home team, in the state where the match occurred	+
Log (gas)	-	It will be used the average price of the gas fare of the state where the match occurred	-
Arenas (Arenas)	-	It will be used a dummy with value 1 in case the match may have been done in one of the new Brazilian arenas	+
Log (pie)	-	It will be used the logarhythm of the pie price in English arenas	-
(Libertadores and Champions League)	Madalozzo (2008); Bortoluzzo, Laropoliand Machado (2011)	It will be used a dummy with value 1 in case the team is between among the first placed and sixth and 0 otherwise	+

Source: The authors.

IV. Analysis of the Results

This section consists in doing an evaluation of the results obtained by the demand equation estimated by MQ2E for the matches of Brazilian and English championships of 2013. And it is shared in two subsections, the first is about an analysis of the economical factors, as well as a comparison between the behavior of the Brazilian and English teams as profit maximizers. The second subsection retains its analysis in results referring to the match quality and the uncertainty of the result.

a) Economical factors and implications in profit maximization

The variables used in the economical, price and income factors group have shown statistically significant to the level of 5% for Brazil as well as for England.

The price presented an elasticity of -0,72 for the Brazilian championship and -0,97 for the English. Therefore, football is inelastic in relation to price. This means that from the point of view of the consumer, the supporters in Brazil as well as in England are not very sensitive when it comes to variation in the price of tickets, since that an increase in this factor reduces less than proportionally the demand.

From the point of view of the firm, in the case of the football teams, the English teams are more efficient than Brazilian in what pertains revenues originating from ticket sales, as in England the elasticity-price of the demand is closer to 1, value in which the revenue stops variating positively given a positive variation in price. The mathematical explanation for this may be seen in Varian (2006), who states that there may be a close relation

between revenue and price-elasticity, defining the revenue as:

$$R = p.q \qquad (3)$$

If price and revenue variate to p + Δp e q + Δq, respectively, the new revenue will be:

$$R' = (p + \Delta p)(q + \Delta q) \qquad (4)$$

Subtracting R de R', one has:

$$\Delta R = q\Delta p + p\Delta q \qquad (5)$$

In order to obtain the relationship between revenue and price, one has only to share the equação (5) by Δp, to obtain:

$$\frac{\Delta R}{\Delta p} = q + \frac{\Delta q}{\Delta p} \qquad (6)$$

To Varian (2006) the revenue will vary positively with price increase when:

$$\frac{p}{q}\frac{\Delta q}{\Delta p} > -1 \qquad (7)$$

The left side of the equação (7) is nothing more than the price-elasticity of the demand. Therefore, one has that the revenue varies positively when:

$$|\varepsilon(p)| < 1 \qquad (8)$$

The obtained resultads referring to price agree with those found by Dobson and Goddard (2001), Madalozzo (2008) and Bortoluzzo, Laropoli and Machado (2011), when showing that the demand for football is inelastic in both countries.

With regards to income, there were differences among the results found in Brazil and in England. In those, the football has shown to be an inferior asset, with elasticity of – 0, 15, while that asset is normal,

therefore, an increase in the consumer income may cause an increase in the consume for football. This result may be different than the results found in Souza (2004), Madolozzo (2008) and Bortoluzzo, Laropoli and Machado (2011). This positive effect may be generated by the introduction of the variable Arena in the model. Therefore, this new concept of sports squares with more confort and security may have gotten more attention of the consumers with higher income to get to know the newer arenas, with a structure never before seen in Brazil.

In England, the introduction of new arenas happened in the middle of the 1990s decade, finding itself, in the middle of 2010s decade, in a more mature phase, as such, supporters no longer have the interest of going to the matches with the goal of getting to know the arenas, something which is going on in Brazil. Therefore, it can be explained the difference between the signal of the elasticities-income of the demand found. One hopes, then, that the football returns, in the next years, to be an inferior asset, as well as in England.

b) *Quality of the match, substitute and structural factors*

Other factors statistically significant in Brazil as well as in England are the capacity of the arenas, showing that this factor affects positively the search for games in both countries, being that in England the impact is larger. One of the hypothesis to be drawn from the result is that the arenas with more seats result in better confort for the supporters.

In Brazil, other factors which have shown significant statistically were the variables referring to rivalry between clubs, the fact that the visiting team may be considered big and the new arenas. It is possible to see, then, that the Brazilian supporters are more sensitive to aspects related to visiting teams.

In England, the movie theater has shown to be a substitute asset to football. Other factors such as team position in the classification table and the fact that the match may be done on the weekend affect the demand for matches in the English championship.

The results point out that, in relation to the economical and structural factors, the consumers, in Brazil as well as in England, act the same way, except for income. However, in relation to the quality expected of the match and uncertainty of the result, Brazilian are more sensitive than English.

Table 2 brings results of the estimative of the model MQ2E for Brazil and England.

Table 2 : Result for the model estimation by MQ2E- Brazil (2013)

Dependent variable: Log Público (Log Audience)

Variables	Brazil	England
(Constant)	-2,389520 (0,27)	6,104953* (0,04)
(Log (Price))	-0,720222* (0,050)	-0,972535* (0,04)
(Log (Income))	0,730711* (0,012)	-0,155367* (0,04)
(Promoted)	0,239909 (0,130)	0,191950* (0,03)
(PFC/Cinema)	-0,045340 (0,456)	0,217686* (0,020)
(Round)	-0,000691 (0,921)	0,000836 (0,557)
(End)	0,169207 (0,067)	0,049311* (0,027)
(Rivalry)	0,608143* (0,000)	0,006537 (0,827)
(Position)	-0,013309 (0,406)	-0,034501 (0,009) *
(Libertadores/Champions League)	-0,021405 (0,897)	-0,087670 (0,033) *
(Points)	-0,009489 (0,653)	-6,22e^-05 (0,987)
(Points2)	0,000321 (0,593)	-2,97e^-05 (0,669)

(Great)	0,290017 (0,018) *	0,020576 (0,371)
(Amplitude)	0,003176 (0,933)	-0,012291 (0,262)
(Amplitude2)	-0,000646 (0,769)	0,000949 (0,144)
(Log(Suportters))	0,284752* (0,000)	-
(Arenas)	0,612901 (0,017) *	-
(Log(TravelTicket)	0,208234 (0,396)	-
Log(Capacidade) (Log(Capacity)	0,306092* (0,010)	0,832275* (0,000)
R-Squared (R-Squared)	0,297244	0,792084

*Source: The authors. * Significant to the level of 5%.*

V. CONCLUSIONS

Football constitutes an economical activity very meaningful in many countries. As such, it must be seen from a systematic perspective, able to understand in its whole its supply chain. Due to the amount involved in the industry of football and the small participation of Brazil in this industry, as well as the great importance of England in this sector, this study aimed to identify the factors which influence the demand for matches in football championships in those respective countries, só that from the results obtained the agents involved in the industry focused may take measures aiming greater financial efficiency.

From an econometrical model estimated by Minimum Squares of Two Stages - MínimosQuadrados de DoisEstágios (MQ2E), it was possible to find some factors which led the supporters to the Brazilian and English arenas, fulfilling the general objectives of this work.

The results obtained in this study agree with hypothesis previously stated that English supporters are less sensitive to those aspects than Brazilian. This shows that, in England, fans of football go to the arenas moved by only aspects referring to their teams and not those of the adversary, as it does in Brazil.

In relation to the behavior of clubs as profit maximizing agents, the results agree with the hypothesis that English clubs are closer to the profit maximization margin of the Brazilian, presenting a price-elasticity demand of -0,97. This result also fulfills one of the specific objectives presented in this work.

Still in the specific objectives, the results found were enough to identify in which way the economical factors impact the demand for football in Brazil and in England, as well as structural factors, of match quality and substitutes.

The findings of this study contribute to the increase fo the literature of Sports Economics, showing the importance of football as an industry. They contribute, also, for the agents involved in this industry to take decisions more efficiently, aiming to the increase of their results. It is possible to verify that in Brazil, for example, if clubs increase ticket prices, revenues will increase.

Limitations found in this study consist in the unavailability of data for previous championships, which made impossible the extension of the research for a larger time span. It might be noted, as well the lack of information about violence in the Brazilian and English arenas, what could be one of the most important factors to explain the presence or lack of audience.

It is suggested that the study is a base for comparison for future works about the demand for matches in the Brazilian and English championships. There is also the possibility of checking the impact of the World Cup FIFA 2014 in the search fo matches of the Brazilian championship. This research may, as well, serve as parameter for studies in national championships of other countries such as Spain and Germany which present a good audience average in arenas, analyzing in which way every factor in this work impacts the demand in these countries.

REFERENCES RÉFÉRENCES REFERENCIAS

1. BBC SPORTS SURVEY. The price of football. Disponível em: <http://www.bbc.com/sport/0/-football/24052562 >. Acessadoem:23/02/2014.
2. BEAMON, B. M. Measuring supply chain performance International Journal of Operations & Production Management, vol. 19, n. 3, p. 275-292, 1999.
3. BELO, Eduardo; PAOLOZZI, Vitor. Futebol faz 150 anos e movimenta até US$ 1 tri. Ano 14, n.3371.

10/2013.Disponível em: <http://www.cliptvnews.-com.br/mma/adm/imagens/pdf/1382693074_img.pdf>. Acessado em: 28/10/2013.

4. BLUMENSCHEIN, Fernando; NEDAL, Rafael Kaufmann. A importância do futebol na economia brasileira. Rio de Janeiro:FGV, 2010.

5. BORTOLUZZO, Adriana Bruscato; LAROPOLI, Pedro Trindade; MACHADO, Sérgio Jurandyr. Demand for Brazilian soccer: A censored model approach. Insper Working Paper, v. 237, p. 1-18, 2011.

6. BURAIMO, Babatunde; SIMMONS, Rob. Market size and attendance in English Premier League. Lancaster University Management School. 2006.

7. CADASTRO NACIONAL DE ESTÁDIOS DE FUTEBOL. Disponível em: <http://www.cbf.com.br/-cnef/cnef.pdf>. Acessado em 22/02/2014.

8. CONFEDERAÇÃO BRASILEIRA DE FUTEBOL. Competições. Disponível em: <http://www.cbf.-com.br/Competi%C3%A7%C3%B5es/S%C3%A9rie-%20A/Tabela/2012>. Acessado em: 20/02/2014.

9. DELLOITE. Relatório. Disponível em: <http://www.-deloitte.com/view/pt_PT/pt/servicos/consulting/18a0 454c5286c310VgnVCM2000003356f70aRCRD.-htm>.- Acessadoem 01/12/2013.

10. DOBSON, Stephen; GODDARD, John. Economics of football. Cambridge, 2001.

11. DUCREY, Pierre; FERREIRA, Carlos Eduardo; HUERTA, Gabriel; MARSTON.

12. Kevin Tallec. Revisiting UEFA's Governance Model: adaptations for the challenges of modern football. International Master (MA) in Management, Law and Humanities.

13. Sports. Centre International D'Etude Du Sport. 2003. Disponível em: <http://www.goldengoal.-com.br/ggsv/html/publicacoes/papers_artigos/revisi ting_uefa_governance_model.pdf>. Acessado em: 12/01/2014.

14. EKELUND, P. A rentabilidade das associações de times de futebol: os exemplos das ligas de futebol da Itália e da Inglaterra. São Paulo: FGV, 1998.

15. GARCÍA, Jaime; RODRÍGUEZ, Plácido. The determinants of football match attendance revisited: empirical evidence from the Spanish football league.

16. Economics Working Papers from department of Economics and Business, University Pompeu Fabra. 2001. Disponível em: <http://www.econ.upf.-edu/docs/papers/downloads/555.pdf>. Acessado em: 30/03/2014.

17. GIL, Antônio Carlos.Como elaborar projetos de pesquisa. 5. ed. São Paulo: Atlas, 2010.

18. GUJARATI, Damodar. Econometria básica. São Paulo: Makron Books, 2002.

19. INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. IBGE Cidades@. Disponível em: <http://www.ibge.gov.br/cidadesat/index.php>. Acessado em:23/02/2014.

20. LEONCINI, Marvio Pereira; SILVA, Márcia Terra, da. Entendendo o futebol como negócio: um estudo exploratório. Revista Gestão e Produção, v.12, n.1, p.11-23. 2005.Disponível em:<http://www.scielo.-br/pdf/gp/v12n1/a03v12n1.pdf>. Acessado em: 26/12/2014.

21. MADALOZZO, Regina. A model of attendance demand at the brazilian football league. Insper Working Paper. WPE: 113/2008. 2008.

22. MURRAY, Michael P. Econometrics: a modern introduction. Boston: Pearson, 2006.

23. O'CONNOR, Joseph Gerald. Do league ranking, promotion and relegation affect football stadium attendance? An empirical investigation into the English football league. University of Nottingham. 2009.

24. OFFICE FOR NATIONAL STATISTICS. Economy. Disponível em: <http://www.statistics.gov.-uk/hub/index.html >. Acessado em: 24/02/2014.

25. PINDYCK, Robert S.; RUBINFELD, Daniel L. Microeconomia.7. ed.Pearson, Boston, 2009.

26. PLURICONSULTORIA, Relatório. Disponível em: <http://www.pluriconsultoria.com.br/relatorios.php>. Acessado em: 20/12/2013.

27. RICHARDSON, Roberto Jarry. Pesquisa social: métodos e técnicas. 3. ed, São Paulo: Atlas, 2007.

28. ROTTENBERG, S.The baseball players' labor market. Journal of Political Economy, v. 62, p. 242-258. 1959.

29. SILVA, Edna L.; MENEZES, Estera M. Metodologia da pesquisa e elaboração de dissertação. Universidade Federal de Santa Catarina, Florianópolis, 2001.

30. SOUZA, F. A. P. Um estudo sobre a demanda por jogos de futebol nos estádios brasileiros. Dissertação de mestrado. Departamento de Administração, FEA-USP, 2004. Disponível em: <http://www.teses.usp.br/teses/disponiveis/12/121 39/tde-21072004-151604/pt-br.php>. Acessado em: 31/01/2014.

31. VARIAN, Hal. R. Microeconomia: uma abordagem moderna. 7. ed. Rio de Janeiro: Elsevier, 2006.

32. WORLD FOOTBALL. Results & Tables. Dispo-nívelem:<http://www.worldfootball.net/competition/-eng-premier-league/>. Acessadoem: 24/02/2014.