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Sport management in Emerging Economy: Squad size, Expenses and Results – Case of the Brazilian Football League

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Abstract:

Research Question: the paper investigates the influence of the size of the squad and the club's expenditures on football in the final classification in seasons 2008 to 2016 of the first division of the Brazilian Football League (Serie A). **Motivation:** Considering soccer as the most important sport in Brazil, representing a cultural symbol of the country, it is better to make it necessary. Therefore, it is necessary to investigate the influence of the size of the squad on the performance of the teams and, in addition, how much the clubs invest in the formation of these squads. **Idea:** In this perspective, the central hypothesis of this study is that clubs with the highest number of players will also present the best classifications, and the second central hypothesis is that clubs with more investments in football have the biggest squad. **Data:** (The study was conducted with data collected over the internet, using data provided by clubs. Only the clubs belonging to the first division were used, being a total of 34 clubs, divided into 2 groups, according to the investment value in Football. **Tools:** This study presents descriptive and inferential analyses, since the qualitative-quantitative approach was assumed as a way of understanding the data. Assuming the number of clubs participating in the study, we chose non-parametric inferential analyses in the intra- and inter-group evaluations, using the alpha value of 0,05 as criterion. **Findings:** The results show that the size of the squad is not a determining factor in the ranking of clubs in the National League, but the clubs' spending on football is crucial, since the clubs with the highest spent on football were the clubs with the best safety ratings in 4 of 6 Championships. In addition, the results showed that the size of the squad and spending on Football are not related, that is, it's not the size of the squad what determines the cost of football and other factors, such as wages of athletes. **Contribution:** One can conclude that to the first division of the Brazilian championship of professional football, the number of athletes in the squad is not a determining factor for the position taken by the clubs in the competition, but the value invested in wages, corroborating only one of the hypotheses of study. However, this study has some limitations, such as sample size (only 34 teams), the use of clubs from a single country, and the lack of information from other clubs (not all clubs provide their financial statements through the club or federation website). Therefore, we emphasize the need for new studies.

Keywords: football, Brazilian football league, football clubs, classification of clubs, sports administration.

JEL Classification: Z23

1. Introduction

Football has become a highly propulsive industry that counts with institutions which do not represent not only sport organizations, but also big companies with revenues generated by sponsors, transfer fees, marketing, broadcasting, shirts, TV rights, among others (See more in: Lima et al., 2018; Pavlovic et al., 2013; Ribeiro & Lima, 2012; Tertuliano, Lima, Oliveira, Pavlovic, Machado, & Fischer., 2018; Tertuliano, Oliveira, Pavlovic, & Machado, 2018).

According to Leoncini (2001), football clubs are undergoing social transformations in their respective environments that result in new ways of seeing the sport being one of them, through the operation of a generating source of financial resources. They are now seen as a business option which demands victories on and off the pitch, represented by having a good financial condition related to victories in the tournaments played, an essential connection to ensure the clubs survival (Guzmán, 2006; Haas, 2003; Haas, Kocher, & Slitter, 2004).

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In Brazil, such generation of resources, in addition to the investments made through the football, is also present. In 2015, twenty largest Brazilian clubs showed a turnover set of R $4.85 billion (Somoggi, 2017c) and, in 2016, the expenditure of the football Department of the Club reached hit R $2,9 billion, 9.1% higher than the previous year (Somoggi, 2017b).

Within the context described by these figures, the present study investigates if the number of athletes generally plays an important role in winning better positions on the leaderboard of the first division of the Brazilian Football, relating it to the investment in the football Department of the Club, since the literature points that football clubs investments influence the final positions obtained in the tournaments played, with large investments being needed to become champions (Lima et al., 2018), added to the information that higher-revenue teams showed better final positions in the Brazilian League table by collecting more resources. These facts suggests that they might have better conditions to keep increasing their revenues and compete for the title (Tertuliano et al., 2018), signing the best players they can and paying higher salaries for the squad, for example, since wage issue can be important for athletes, even more than their own transfers between clubs. In view of the above, the central hypothesis of this study is that clubs with the highest number of players will also prove to be the best in classifications, and the second central hypothesis is that clubs with more investments in football have the biggest squad.

However, rich clubs can make the most expensive transfers (Pavlovic et al., 2014) in order to bring the most gifted players, what might bring higher revenues and a high likelihood of sporting success; they also invest more capital in databases, technology, structure, among others (Anderson & Sally, 2013), but they can also upgrade the squad wages, what is represented as a good investment option to maximize winning chances. The wages paid, good management, in addition to representing 50 to 65% of the income of the Club, can assist in the conduct of a proper administration of resources and lead to better results in the medium and long terms (Soriano, 2013), since rich clubs pay higher wages to get bonus players and to win trophies – the more is paid out in salaries, the better the standing taken in the table, no matter how much it is paid by these clubs on the transfer market.

Liverpool (English club) is a clear example: in six years that coach Rafael Benítez commanded the team, $220 million were invested more than the amount received in sales and no title was won, while Manchester United (English club) has invested $49 million and won three titles (Kuper & Szymanski, 2014). However, this may be an isolated case, not reflecting what in fact occurs in other clubs and leagues, as little is found in the literature (Lima et al., 2018; Mijatovic, et al, 2015; Pavlovic et al., 2013; Pavlovic et al., 2014; Tertuliano et al., 2018). Thus, the objective of the present study was to investigate the influence of the size of the squad and the club's expenditures on football in the final classification in seasons 2008 to 2016 of the first division of the Brazilian Football League (Serie A).

2. Methodology

To be able to respond to the purpose of this study, the search method called documentary research explanatory was used. This method seeks to identify, record, analyse and interpret the observable facts and their possible causes (Lakatos & Marconi, 2011).

To investigate the influence of the size of the squad on the performance of clubs in the National League first division, we used the data depicting the position of the teams (ranking) in the Brazilian Football League table, series A, between 2008 and 2016 and the number of players that the clubs employed during the seasons mentioned above. This information was found on the website of the Brazilian football Confederation (CBF), which is the institution responsible for football in Brazil (http://www.cbf.com.br/competicoes/).

To investigate the influence of the expenditure on the Football between 2011 and 2016, and the performance of clubs in the National League first division, data were used obtained from the following websites: Lance (Somoggi, 2017b, 2017a), Slide Share (Somoggi, 2017c), in addition to the financial statements obtained from the websites of the State football federations and their clubs (Associação Atlética Ponte Preta, 2014; Clube Nautico Capibaribe, 2014; Criciúma Esporte Clube, 2015; Diário Oficial de Minas Gerais, 2012; Federação Catarinense de Futebol, 2013; Federação Goiana de Futebol, 2013; Federação Paulista de Futebol, 2012, 2013).

After all information was collected, the total number of clubs used was 34. In the first part of the analysis, the clubs were divided into 2 groups according to the classification of the clubs in the League: group G1, clubs that finished the season among the top 10; G2 clubs that finished the season between the 11th and 20th positions (Table 1).

For the second part of the analysis, the groups were formed using other criteria for training, the years between 2011 and 2016 were taken into consideration as said above. In this step, the G1 Group was formed by 10 clubs with the largest squads in the year evaluated and Group G2 included 10 clubs with smaller squads in the year evaluated (Table 2), regardless of rank or spending on football clubs showed in the year reviewed. Such a criterion was adopted in all years.

3. Analyses Procedures

In the present study, the qualitative-quantitative approach was adopted, therefore, descriptive and inferential analyses were used to meet the objectives of the study. In this sense, analyses between groups were taken over intra-group. Inferential analyses were used because the descriptive statistics is not sufficient to give meaning to the results, since it does not have the "power" of comparison that mathematics has and therefore cannot give significance to its findings as well as the inferential statistics can. Thus, it is necessary to use inferential statistics, since it can demonstrate if there is a significant difference, that is, a causal difference ($p < 0.05$) in the results found and not just a mere difference, which is otherwise not significant.

According to Torman, Coster and Riboldi (2012), in case of small samples (below 30 participants per group) it is recommended that nonparametric tests are used directly for the analysis, without the need to test normality and homogeneity of variance. Upon such recommendations, the nonparametric tests for data analysis were used and the alpha value of 0.05 to significant differences (Field, 2009; Green, Salkind, & Akey, 2000; Thomas, Nelson, & Silverman, 2012; Torman et al., 2012). For cross-group analyses, Mann Whitney U test and intra-group analysis using Pearson Correlation were used. When significant differences were found between groups, as there were only 2 groups, there was no need for post hoc tests, for the values of rank were sufficient to reveal the difference. All analyses were performed with the assistance of IBM SPSS Statistics, version 20.

Table 1: Teams participating in the study (n = 34).

Classification	2016		2015		2014		2013		2012		2011		2010		2009		2008	
	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size
1	Palmeiras	38	Corinthians	36	Cruzeiro	32	Cruzeiro	44	Fluminense	40	Corinthians	51	Fluminense	50	Flamengo	35	São Paulo	41
2	Santos	35	Atlético-MG	40	São Paulo	38	Grêmio	52	Atlético-MG	52	Vasco	52	Cruzeiro	34	Internacional	31	Grêmio	34
3	Flamengo	32	Grêmio	40	Internacional	20	Atlético-PR	47	Grêmio	40	Fluminense	51	Corinthians	40	São Paulo	30	Cruzeiro	25
4	Atlético – MG	39	São Paulo	42	Corinthians	31	Botafogo	57	São Paulo	49	Flamengo	50	Grêmio	36	Cruzeiro	28	Palmeiras	28
5	Botafogo	38	Internacional	47	Atlético-MG	35	Vitória	52	Vasco	58	Internacional	54	Atlético-PR	48	Palmeiras	34	Flamengo	30
6	Atlético – PR	43	Sport	46	Fluminense	23	Goiás	38	Corinthians	44	São Paulo	51	Botafogo	55	Avaí	36	Internacional	34
7	Corinthians	33	Santos	37	Grêmio	31	Santos	55	Botafogo	52	Figueirense	46	Internacional	48	Atlético-MG	32	Botafogo	24
8	Ponte Preta	43	Cruzeiro	40	Atlético-PR	30	Atlético-MG	43	Santos	52	Coritiba	43	Santos	34	Grêmio	34	Goiás	25
9	Grêmio	37	Palmeiras	41	Santos	26	São Paulo	51	Cruzeiro	42	Botafogo	35	São Paulo	31	Goiás	36	Coritiba	35
10	São Paulo	37	Atlético-PR	41	Flamengo	32	Corinthians	39	Internacional	58	Santos	66	Palmeiras	35	Corinthians	33	Vitória	33
11	Chapecoense	51	Ponte Preta	42	Sport	45	Coritiba	67	Flamengo	57	Palmeiras	46	Vasco	36	Barueri	35	Sport	33
12	Cruzeiro	30	Flamengo	36	Goiás	23	Bahia	56	Náutico	45	Grêmio	59	Ceará	43	Santos	33	Atlético-MG	42
13	Fluminense	30	Fluminense	50	Figueirense	28	Internacional	49	Coritiba	55	Atlético-GO	43	Atlético-MG	54	Vitória	38	Atlético-PR	25
14	Sport	40	Chapecoense	36	Coritiba	39	Criciúma	44	Ponte Preta	50	Bahia	43	Flamengo	46	Atlético-PR	35	Fluminense	35
15	Coritiba	33	Coritiba	44	Chapecoense	30	Fluminense	48	Bahia	44	Atlético-MG	62	Avaí	42	Botafogo	39	Santos	29
16	Vitória	30	Figueirense	45	Palmeiras	24	Flamengo	40	Portuguesa	41	Cruzeiro	50	Atlético-GO	36	Fluminense	36	Náutico	29
17	Internacional	33	Avaí	42	Vitória	40	Portuguesa	47	Sport	45	Atlético-PR	43	Vitória	57	Coritiba	36	Figueirense	24
18	Figueirense	32	Vasco	40	Bahia	44	Vasco	49	Palmeiras	56	Ceará	50	Guarani	36	Santo André	43	Vasco	25
19	Santa Cruz	29	Goiás	56	Botafogo	31	Ponte Preta	55	Atlético-GO	44	América-MG	43	Goiás	47	Náutico	33	Portuguesa	33
20	América – MG	31	Joinville	38	Criciúma	41	Náutico	42	Figueirense	59	Avaí	77	Barueri	32	Sport	30	Ipatinga	35

Source: the authors.

Table 2: Formation of groups for second analysis of the study (n = 34)

GROUP	2016		2015		2014		2013		2012		2011	
	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size	Club	Squad size
1	Chapecoense	51	Goiás	56	Sport	45	Coritiba	67	Figueirense	59	Avaí	77
	Atlético - PR	43	Fluminense	50	Bahia	44	Botafogo	57	Vasco	58	Santos	66
	Ponte Preta	43	Internacional	47	Criciúma	41	Bahia	56	Internacional	58	Atlético-MG	62
	Sport	40	Sport	46	Vitória	40	Santos	55	Flamengo	57	Grêmio	59
	Atlético - MG	39	Figueirense	45	Coritiba	39	Ponte Preta	55	Palmeiras	56	Internacional	54
	Palmeiras	38	Coritiba	44	São Paulo	38	Grêmio	52	Coritiba	55	Vasco	52
	Botafogo	38	São Paulo	42	Atlético-MG	35	Vitória	52	Atlético-MG	52	Corinthians	51
	Grêmio	37	Ponte Preta	42	Cruzeiro	32	São Paulo	51	Botafogo	52	Fluminense	51
	São Paulo	37	Avaí	42	Flamengo	32	Internacional	49	Santos	52	São Paulo	51
	Santos	35	Palmeiras	41	Corinthians	31	Vasco	49	Ponte Preta	50	Flamengo	50
2	Corinthians	33	Atlético-PR	41	Grêmio	31	Fluminense	48	São Paulo	49	Cruzeiro	50
	Coritiba	33	Atlético-MG	40	Botafogo	31	Atlético-PR	47	Náutico	45	Ceará	50
	Internacional	33	Grêmio	40	Atlético-PR	30	Portuguesa	47	Sport	45	Figueirense	46
	Flamengo	32	Cruzeiro	40	Chapecoense	30	Cruzeiro	44	Corinthians	44	Palmeiras	46
	Figueirense	32	Vasco	40	Figueirense	28	Criciúma	44	Bahia	44	Coritiba	43
	América - MG	31	Joinville	38	Santos	26	Atlético-MG	43	Atlético-GO	44	Atlético-GO	43
	Cruzeiro	30	Santos	37	Palmeiras	24	Náutico	42	Cruzeiro	42	Bahia	43
	Fluminense	30	Corinthians	36	Fluminense	23	Flamengo	40	Portuguesa	41	Atlético-PR	43
	Vitória	30	Flamengo	36	Goiás	23	Corinthians	39	Fluminense	40	América-MG	43
	Santa Cruz	29	Chapecoense	36	Internacional	20	Goiás	38	Grêmio	40	Botafogo	35

Source: the authors.

4. Results

First, the cross-group analyses were conducted for each year (2008 to 2016), verifying that there was a difference between groups in the size of the squad. In these analyses, it became evident that the Group G2 had a higher quality squad in almost every event of the Brazilian Soccer Championship evaluated, with the exception of the year 2016, when the G1 had a more numerous squad. These results suggest that the highest number of members on the team is not crucial for achieving the highest positions in the League (table 3).

These observations have not been supported by inferential analysis, conducted with the Mann Whitney U, as in the majority of years there was no significant difference between groups in the size of the squad. The only year that showed significant differences between the groups, was the year 2016 ($p < 0.05$), demonstrating that the G1 Group had the largest squad and, in addition, earned the best ratings in the League. These data suggest that the groups did not differ in the number of athletes in the squad, most of the issues assessed, i.e., the size of the squad is not a determining factor for the maintenance of the highest positions in the League.

Table 3: List of sample groups (n = 20)

	GROUP	N	Average	Standard error of the mean	Z Score	*Mann-Whitney U*	Asymptotic Significance	Exact Significance
Squad - 2016	1.00	10	37.50	1.157	-2.164	21.500	0.030	0.029
	2.00	10	33.90	2.142				
Squad - 2015	1.00	10	41.00	1.085	-0.571	42.500	0.568	0.579
	2.00	10	42.90	1.991				
Squad - 2014	1.00	10	29.80	1.711	-1.137	35.000	0.256	0.280
	2.00	10	34.50	2.604				
Squad - 2013	1.00	10	47.80	2.091	-0.341	45.500	0.733	0.739
	2.00	10	49.70	2.504				
Squad - 2012	1.00	10	48.70	2.171	-0.455	44.000	0.649	0.684
	2.00	10	49.60	2.088				
Squad - 2011	1.00	10	49.90	2.514	-0.497	43.500	0.619	0.631
	2.00	10	51.60	3.560				
Squad - 2010	1.00	10	41.10	2.656	-0.570	42.500	0.569	0.579
	2.00	10	42.90	2.605				
Squad - 2009	1.00	10	32.90	.836	-1.790	26.500	0.073	0.075
	2.00	10	35.80	1.143				
Squad - 2008	1.00	10	30.90	1.729	-0.038	49.500	0.970	0.971
	2,00	10	31,00	1,795				

Source: the authors.

Hence, in order to investigate the influence of a Football Club spending between 2011 and 2016, the classification of clubs in the National League, the expenses of each club, whether in group G1 or group G2 (the same groups as in previous analysis re used) for the years 2011 to 2016 were analysed. In these analyses, we used this period because data prior to 2011 were incomplete, which could compromise the interpretation of results.

The analysis between groups has demonstrated (a qualitative analysis) that the group G1 spent more on every year assessed; calculated for the period of these years, this expense exceeded the double or triple sum the Group G2 spent (Table 4). These observations were supported by inferential analysis, since in a majority of years there was a statistically significant difference between the groups as regards their spending on football ($p < 0.05$). In just two years evaluated there were no significant differences ($p = 0.058$, 2013 and 2011 with $p = 0.173$). Such results suggest that the clubs of the G1 group have invested more in football and won the best ratings in the Brazilian Soccer Championship, since the G1 group was formed by the 10 best clubs that year, during classification in the National League.

Table 4: Expenditures on football for each Sample Group (n = 34)

	GROUP	N	Averange	Standard error of the mean	Z Score	*Mann-Whitney U*	Asymptotic Significance	Exact Significance
Expenditures for football - 2016	1.00	10	189.90	27.745	-2.459	17.500	0.014	0.011
	2.00	10	89.40	20.775				
Expenditures for football - 2015	1.00	10	197.10	24.177	-3.403	5.000	0.001	0.000
	2.00	10	62.50	14.007				
Expenditures for football - 2014	1.00	10	170.20	17.140	-K3.024	10.000	0.002	0.002
	2.00	10	69.40	17.013				
Expenditures for football - 2013	1.00	10	147.20	22.500	-1.892	25.000	0.058	0.063
	2.00	10	83.70	20.670				
Expenditures for football - 2012	1.00	10	137.70	16.232	-2.722	14.000	0.006	0.005
	2.00	10	66.00	14.736				
Expenditures for football - 2011	1.00	10	103.10	16.836	-1.361	32.000	0.173	0.190
	2.00	10	67.30	9.830				

Source: the authors.

Finally, in order to investigate the relationship of the expenditure for football and the size of the clubs, led-if Pearson correlations inter-group were employed. For this, another approach was implemented i.e., 2 sample groups were formed, but for training criteria used-if the size of the squad, namely, the G1 group was formed of 10 clubs with the largest squads for the year, and the Group G2 included 10 clubs with smaller squads. As cited in Table 2, such criterion was used for each year of the analysis (2011 to 2016). In qualitative analysis, it can be observed that Group G1, which is the group with the largest squads, had higher expenditures of football, with the exception of the year of 2015, when Group G2 reported higher expenditures related to football (Table 5).

This observation suggests that the squad size influences the football clubs' spending. In qualitative analysis, it can be observed that Group G1, which is the group with the largest squads, had higher expenditure sof football, with the exception of the year of 2015. when Group G2 reported higher expenditures regarding football (Table 5). This observation suggests that the squad size influences the football clubs' spending. These results suggest that other factors can influence the expenditure of clubs associated with football, such as the wages of athletes.

Table 5: Size of the squad and the Expenditures for each group in the analysis phase of correlation (n = 34)

	GROUP	N	The average size of the squad	Standard error of the mean-Squad	The average expenditure of football	Average standard error-expenditures
League of 2016	1.00	10	40.10	1.456	150.70	29.510
	2.00	10	31.30	0.473	128.60	29.403
League of 2015	1.00	10	45.50	1.462	110.00	30.992
	2.00	10	38.40	0.636	149.60	27.195
League of 2014	1.00	10	37.70	1.592	130.20	26.043
	2.00	10	26.60	1.249	109.40	21.106
League of 2013	1.00	10	54.30	1.667	126.90	23.553
	2.00	10	43.20	1.104	104.00	23.950
League of 2012	1.00	10	54.90	1.005	108.10	16.527
	2.00	10	43.40	0.872	95.60	22.010
League of 2011	1.00	10	57.30	2.789	110.60	15.181
	2.00	10	44.20	1.356	59.80	8.801

Source: the authors.

In summary, the above results show that the size of the squad is not a determining factor in the ranking of clubs in the National League, but the clubs' spending on football is crucial, since the clubs with the highest spendings on football were the clubs with the best safety ratings in 4 of 6 Championships (66.66%). In addition, the results showed that the size of the squad and spending on football are not related, that is, it is not the size of the squad what determines the expenditure on football and other factors, such as wages of athletes. However, athletes' salaries have not been assessed in this study and are presented as subject to influence, a subject of future investigations. Thus, according to the results, the research hypotheses is partially confirmed since the size of the squads did not influence the ranking of clubs in the National League.

5. Discussion

The fact that Group G2 had the largest squads in almost every competition, in addition to the analysis of the study, further emphasises that the size of the squad is not a determining factor for the achievement and maintenance of the highest positions in the Brazilian championship. This can be justified by the likelihood that a larger amount of money invested is not necessarily a guarantee of a superior quality. Other factors, such as payroll and financial assessment of the teams, can act as parameters of performance verification that are more convenient, since they rely on the support of literature.

According to the salary market in case of football players, the better the player, the more he earns, which is something that is consistent, since professional football contains one of the few markets in which there is a high number of buyers and sellers and, if an athlete receives less than he deserves, he can go to another Club (Kuper & Szymanski. 2014). What can press club holders to value the quality of athletes is presented in this context. In addition, the financial reward to the athletes, the figure in the payroll for the players, can explain clearly the difference in positions in the leaderboard. In the case of England, 92% of this difference is evidenced through this parameter (payroll related) and, as much as I cannot firmly state that the team with the higher pay will finish the season at the top standing throughout the year, the long-term correlation is undeniable (Anderson & Sally. 2013).

Since the end of the season 2000/2001, until the year 2010, the top division of professional football had participants from England itself. It was only once that the squad who did not have a highly expensive squad, or the second most expensive, won (Tomkins. Riley. & Fulcher. 2010). Moreover. revenues can also have an impact on team performance. According to Rohde & Breuer (2016), the top 30 Europe revenue-generating football clubs have grown by 7.9% per year, top ten clubs have grown by 9.5% per year and top five clubs have grown by 11.7% per year, while bottom 15 clubs have grown by 4.3% per year, bottom ten clubs have grown by 4% per year and bottom five clubs have grown by only 3.8% per year. Still speaking of the revenues, the literature admits that the English football is an example of success that has revenues as a relevant aspect (Dobson & Goddard. 1998; Szymanski & Smith. 1997). with national success being, in majority, driven by investments (Kuypers & Szymanski. 1999; Szymanski & Smith. 1997).

Certain investments are made by private investors with fierce tendencies of becoming more important if they maintain the teams in the elite, since in this way they may collect more resources (Kuper. 1999; Rohde & Breuer. 2016a; Scelles. Helleu. Durand. & Bonnal. 2016). In other words, financial resources have proven to be a relevant resource in amateur and professional football (Gerrard. 2005; Wicker & Breuer. 2011). Also, private investors have been argued to have superior conditions in investing in teams in comparison with clubs with dispersed ownership or owned by member associations (Franck. 2010).

Group G1 reports greater spending on football, largely surpassing Group G2, in addition to conquering the best positions on the leader table of the Brazilian championship, which is connected with what was dealt with earlier in the paper. By investing more, there is a greater tendency for Group G1 to pay higher salaries to their athletes, as in this way they have even greater possibilities of fundraising since they obtain greater visibility and remain regularly in the elite and, in many cases, compete in continental competitions, which will further enhance the prominence of the teams entered in this group (Lima et al., 2018; Tertuliano et al., 2018).

The fall to the second division can reduce the sources of funding for these clubs, from one season to the next, by 25% (Pinilla. 2017). In case of England, a club that leaves the first division results in a difference in terms of money and television rights, of approximately 45 million (Anderson & Sally. 2013). Anderson and Sally stress that the nominal probability of relegation in a season of the Premier League (English first Division) is 15% for each team. However, if the payroll is above the League average, this probability falls to 7.2%. For clubs who spend less, the chance of relegation drops to 21% and can reach 44%, in case investments are too low. As regards the advantages that the teams in group G1 may enjoy by contesting major compe-

titions, the Sports Director's considerations of Sevilla (Spanish club), Monchi, are relevant since the Spanish reinforces that a bigger competition is attractive to attract quality players, in addition to attracting sponsors and higher social repercussion best practices (Pinilla. 2017).

In this way it is obvious that clubs compete by investments into an overinvestment scenario, which results in a dissipation of overall league revenues (Dietl. Franck. & Lang. 2008). From 2004 to 2013, 90% of national league titles in Europe were won by top 30 elite football clubs; furthermore, 88% were half finalists in the UEFA Champions League (Rohde & Breuer. 2016b). Also, a smaller amount of resources may result in reducing performance levels, considering that in the same period (2004 to 2013) by the same authors, the last UEFA Champions League winner non-top 30 club was FC Porto in 2004 and the last semifinalist was the Spanish Villarreal in 2006, which shows how hard it can be to compete with the richest clubs.

The fact that Group G1 have larger squads can be related to the ability to collect more resources than Group G2 (Lima et al., 2018) allowing for hiring and keeping more athletes in the squad. It is assumed that this hypothesis was not supported by intra-group correlations because a large squad is not necessarily a skilled squad, while the wages paid to the athletes and financial condition seem to arise as more precise indicators in measuring the performance of the teams.

The investment team salary is the main element for talk about a clear bet for a winning team, since in any season the correlation between wages and position on the leaderboard is increasingly evident (Pinilla. 2017). In the English first division, the authors point out that wages explained 81% of the variation in final average position on the scoreboard (Anderson & Sally. 2013), while others claim that this percentage may reach 90%. It appears that high salaries help a club more than performing spectacular transfers, since the club with better paid players ends at the top and one with athletes with lower pay may end up at the bottom of the table (Kuper & Szymanski. 2014).

Besides the salaries, literature also gives some alternatives to collect financial resources, such as the use of strategies to accumulate resources based on owning a global brand powerful to generate revenues from broadcasting, ticketing and merchandising (Gladden & Milne. 1999; Pawlowski & Anders. 2012). Furthermore, there are the “sugar dadies”, private investors attracted to invest money in the team (Franck, 2010; Kuper, 1999; Rohde & Breuer, 2016a). Authors also say that richer clubs are peculiar due to their higher growth rates and revenues, once they tend to dominate performance in national and continental scenarios (Rohde & Breuer. 2016a), considering that team investments exceed profit-maximizing levels through evolutionary strategies to maintain themselves in the highest positions on the league scoreboard (Grossmann. 2015).

Conslusion

The results above show that, as regards the first division of the Brazilian championship of professional football, the number of athletes in the squad is not a determining factor for the position taken by the clubs in the competition, thus refuting the first hypothesis of study.

However, since the clubs with larger investments in their football departments were the best placed at 66.66% of all evaluated, it corroborates with the second hypothesis of the study. It is understood, therefore, that investing in the football department is one important factor to maximize the chances of achieving top positions in the League.

Whereas there is no relationship between the number of athletes on the roster and the position occupied in the table, there is a relationship between the investments into football and the classification in the League. It is understandable, with subsidies also present in the literature (Lima et al., 2018; Mijatović et al., 2015; Pavlovic et al., 2013; Pavlović et al., 2014; Tertuliano et al., 2018), that the investment in the wages of the athletes in the squad is an important aspect in the context of investment into the football department since it allows you to keep the best players for extended periods of time and thus be able to compete with a squad more qualified than those in the rival squad, corroborating partially with the hypotheses of the present paper.

However, this study has some limitations, such as sample size (only 34 teams), the coverage of clubs from a single country, and the lack of information from other clubs (not all clubs provide their financial statements through the club or federation websites). The lack of information on the financial balance of the clubs can be interpreted as a lack of transparency of the clubs, thereby limiting the understanding of the management that the leaders adopt in the clubs. This occurrence is unclear, since there are rules which obligate clubs to present the annual balance sheet, however, they are not followed by all clubs. Finally, it is suggested that new studies should be conducted in different professional leagues, arranged in other countries, in order to allow for comparative analysis to verify that the pattern found in Brazil also occurs in other contexts.

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