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## ALTERNATIVE MEASURE OF COMPETITIVENESS IN FOOTBALL LEAGUES: ACCUMULATED POINTS DIFFERENCE

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AIM OF PAPER

The analysis of the competitive balance is one of the most studied issues of sports economics and the object of study of the present work. Up to now, it is still not possible to tell which model is the best for the evaluation of competitiveness in professional football leagues. This derives from the fact that each formula presents a different result. In general terms, the differences found show the limitations of each model as one tries to adjust them to tournaments with different numbers of participants. Therefore, the present study analyses the limitations of some of the most frequently used models for the analysis of the competitive balance and proposes a new model for the evaluation of the competitiveness in football leagues: accumulated points difference (APD).

THEORETICAL BACKGROUND

In 1965, Rottenberg indicated the need of a competitive balance in order to keep fans interested. Michie and Oughton (2004) highlighted the financial danger that sporting unbalance can generate to teams and leagues. Thus, due to its importance, the analysis of competitiveness in sports leagues is in constant evolution. The Competitive Balance is currently measured in three dimensions: long, medium and short term. However, it is important to highlight that the long term analysis are the most traditional ones, among which we could name: Herfindal-Hirschman Index, C5 Index of Competitive Balance, the Gini coefficient, Competitive Balance Ratio, National Measure of Seasonal Imbalance, amid others. In their work, Criado et al. have developed a new method for the analysis of competitiveness through complex networks and have compared their results with those of the classic methods. Besides the interesting model applied, it is important to highlight that the same tournaments evaluated present different results according to the formulas adopted.

## METHODOLOGY, RESEARCH DESIGN AND DATA ANALYSIS

To begin with, the present study investigated the use of the winning percentage as a measure of the competitive balance in football, with the evaluation of the likelihood of obtaining the same winning percentage in leagues with a different number of participants. At the same time, we have developed a new model of analysis of the competitive balance for football leagues. We have used absolute points of the teams at the end of each season, as a measure of the sporting result, for it is exactly what defines the league table in a football tournament. The model proposed, called Accumulated Points Difference (APD), consists of adding the difference of points among all competitors, under the premise that the differences of points among positions shows the competitiveness of the league. We have added the difference of points between participants, according to the ranking. Next, we relativized the values found by the “maximum unbalance”, in an adaptation of the concepts of Koning (2000) and Owen (2010). Hence, there is a percentage unbalance for each tournament analysed. Through the model developed, nine football leagues were analysed (Germany, Brazil, Spain, France, Netherlands, England, Italy, Portugal and Russia) among the seasons of 2006-7 and 2013-14. We have elected those seasons because the Brazilian League has been fixed with twenty participants in the season of 2006. Aiming at the observation of the teams’ behaviour in each league, we have carried out an analysis of the dispersion of average positions, also with the purpose to find the existence of teams or group of teams that are dominant in each league.

## RESULTS, DISCUSSION AND CONCLUSIONS

As one of the results of this study, the Brazilian League has appeared as the most balanced league, considering the maximum unbalance. The average positions dispersion chart emphasizes competitiveness. The tournaments in England, Russia and the Netherlands have been the ones with more balance in 2013-14, in comparison with 2006-2007. Negatively, we have observed a noticeable increase in the competitiveness unbalance in Germany and France in the last seasons. There has been an evidence of the presence of clubs that are much better than other ones in the Spanish and German leagues. It is important to state the limitation of the use of the winning percentage for the analysis of competitiveness, as, besides the existence of draw as a sporting result, the likelihood of achieving the same winning percentage in leagues with different sizes is diverse. In the end, due to the limitations in the comparative models of different sporting leagues and different results in each model, the operative proposal is to analyse the dynamic effect of competitiveness in each league separately and the determinants of their changes.

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