ABSTRACT

AN ANALYSIS OF TECHNICAL EFFICIENCY FOR EUROPEAN FOOTBALL TEAMS

Football has developed an increasing economic importance over the past years, demonstrated by an increasing capital markets presence and the rapid growth in the sports industry and its market (Bell et al., 2012). Since the middle of 1950s, there has been an academic interest in sports economics. For more than a half century, many journals and books have been published about this field of interest. Research on the sports economics has become increasingly inquisitive in the case of theoretical approach and in the usage of econometric methodology in order to get better analysis. Also, governing bodies, such as football federations, have crucial roles on the development of their domestic football. In other words, football federations are the main institutions that are expected to deal with issues on football. To do so, these organisations enact some reforms, as it has happened in Turkish Süper Lig, that are believed to find solutions on these issues. The purposes of this thesis are *i)* to analyse the existing literature about the measurement of efficiency of football clubs, *ii)* to perform Data Envelopment Analysis (DEA) to identify appropriate production sets and to evaluate the performance of football clubs regarding to offensive, defensive and team approaches in the five biggest European football leagues: English Premier League, Italian Serie A, Spanish La Liga, German Bundesliga and French Ligue 1 for the seasons between 2009-10 and 2017-18, *iii)* to compute the efficiency scores of these football clubs by Unconditional and Conditional Order-M estimators, implementing Kernel regression in order to analyse the impact of control variables over efficiency, *iv)* to analyse the impact of the institutional change enacted by the Turkish Football Federation (TFF) regarding the implementation of a foreign players' quota with a Difference in Differences (DiD) technique grafted on the computation of DEA bootstrapped scores. The main results are that Italian Serie A is found as the most efficient football league in defensive efficiency (98.7%) among the five biggest European football leagues. The same can be said for the Spanish La Liga in team efficiency (80.7%) and a bit less unambiguously for the French Ligue 1 in offensive efficiency (95.0%). Among control variables, manager changes have a consistently negative impact on overall efficiency of football teams, while numbers of games in a season have a positive and significant impact. The interpretation of these results needs, of course, further research. On the other hand, controlling for the above variables, and perhaps more interestingly, we find a positive impact on efficiency for participating to international tournaments, promotion of a team and roster value of football clubs, and a negative impact for average roster age, roster size and share of new players. Finally, for Turkish football, it is found that the reform implemented by the TFF had a significant and negative impact on Turkish football clubs: the implementation of a foreign players' quota diminished the efficiency of Turkish football clubs.

Keywords: **European Football** **Efficiency** **DEA** **Conditional Order-M**