

Analyzing the Profitability of the Football Transfer Market using Network Science and Machine Learning

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The transfer fees in football have skyrocketed in the last 20 years, making the transfer market a valuable source of income for clubs, to the extent that several teams base their business plan on maximizing profits from player transfers. However, little research has been conducted on football's transfer market from a network science perspective.

In this work, the market is considered as a time-varying network where the nodes are the football clubs (or leagues) and the links represent the transfer relationship between them with the transfer fees as weights. We collected more than 250 000 transfers from season 2010/11 until season 2021/22 considering the top-level leagues of 32 countries and constructed a large, time-varying football transfer network. After visualizing the network and investigating its most important structural characteristics, we use machine learning methods to predict the profitability of a transfer by combining network attributes and player attributes.