The Evolution of Football Player Valuation: A Bibliometric Analysis (2000-2025)

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Abstract

Clubs and investors need to have full knowledge of the economic conditions within the football game, because the movement of the market value provides a strong force on the transfer strategy as well as the wage structure and financial regulations of fair play. A bibliometric analysis has been conducted to evaluate the market valuation of professional football players and investigate the extent to which the idea of performance metrics and the institutional factors have influenced the valuation practices of clubs in the transfer market. A sample of 357 publications, which are listed in the Scopus database between the year 2000 and 2025, was collected and utilized to determine the current trends and research gaps. VOSviewer was used to analyze the corpus and produced networks of co-authorship, co-citation, co-occurrence, and bibliographic coupling. The study reveals that recent research in the field of sports economics and finance is majorly written in Europe, published in journals dedicated to football business and economics, and uses more sophisticated tools, including machine learning, player-tracking data, and network analysis to determine player value in the transfer market. Network visualisations indicate three major areas like what drives transfer fees and wage rates received by clubs, how financial controls in leagues and revenue systems affect player values, and new valuation systems that combine on-field performance metrics with financial information. Since 2018, the trends have highlighted the high volatility of player values in an instant, the impacts of COVID-19 pandemic on salaries and market values, and the talent concentration required in order to create competitive balance. The research offers an extensive summary of the discipline, descriptions of under-researched field topics, including women football and lower leagues, and outlines the practical solutions on managing the club and future research directions.

Keywords: Market Valuation, Financial Fair Play, Player Transfer Fees, Bibliometric Analysis, Vosviewer, Merchandising Revenue

Introduction

There has been a significant rise in the market value of the modern football industry in and around the world. This is primarily due to the huge contracts with television stations, the advertisements to the corporations of numerous countries, and a significant sum of personal funds. The large sum of

money inflow has increased the disparity between the larger clubs and smaller clubs. The high-end clubs can afford to purchase high-priced players and create a strong presence in the global market with large wage packets and the low-end clubs experience immense competition when it comes to the structure of the market. This is the financial disparity that is reducing the fairness of the game both in the national and international competitions. The question of how long the sport can remain financially justifiable is of increasing concern to people. This fiscal disequilibrium has endangered the equilibrium of the competitive positions in both the domestic and international league, which has caused a question of the sustainability and integrity of the long run of the. sporting intellectual ecosystem. The 2024 record of 2,284 transfers was the highest number of international transfers in women professional football. The overall expenditure on transfer fees in clubs reached USD 15.6 million, which is more than twice as in 2023 and an all-time high. In 2024, the volume of international transfers in male professional football has attained new records, as well as the number of transfers. a total of 22,779. The total amount of money spent on transfer fees was USD 8.59 billion. Some of the critical considerations when valuing a professional football player are the potential value that can be projected in future, age and position. To the attackers, shooting is essential; to the midfielders, passing; and, to defenders, defensive capabilities are the most decisive characteristics (Khalife et al., 2025). Most importantly, nationality, location, past performance, experience, level of skills, and the level of competition are key factors that determine the value of a professional football player, with the market value and player value showing a significant negative correlation, and experience having a more intricate relationship (Cheng, 2024). Such variables as age, goals, assists, and league affiliation are key indicators of the valuation of a professional football player. The research indicates that the value growth is highly dependent on age, whereas such aspects of performance as goals and assists are critical contributors of market value (Rong et al., 2024). In a research that examined more than 2000 money transfers of players in five major European leagues between July 2012 and November 2021, the authors found out that the remaining time of contracts, the performance of the player, the demand in the market, and previous transfer fee are the main factors that contribute to the valuation of a professional football player. The econometric model created in the paper describes more than 80 percent of the variation of transfer fees (Poli et al., n.d.). The significant effect of performance, age, transfer fee, and salary on market value of football players is positive (Margareta & Malinda, 2022). The subjective value theory that informs the valuation of a professional football player includes the use value and market value in addition to empirical data and conceptual validity of such tools as Transfermarkt to take decisions in the club (Franceschi et al., 2023). The personal performance of a professional football player, the coordination of the players, and the influence of the coach on the team processes are some of the key factors that determine the valuation of a professional football player, which has an effect on the overall profitability and financial risk of team owners (Kedar-Levy and Bar Eli, 2007). The major variables that determine the valuation of a professional football player are expected marginal revenue product (E (MRP)), player price (p), ability to perform in sync with the team, and the influence of the coach that affect the expected rate of return and compensation of the player (Kedar-Levy and Bar-Eli, 2008). Other important aspects that affect the worth of a professional football player are annual revenue growth rate, performance volatility, player performance index, and individual influence estimated by centrality measures in passing matrices, as well as the expectance of contributions of the individual and market conditions by experts. In the 2022-2023 season, Mohamed Salah was rewarded with a substantial salary increase, which however, according to his performance indicators was higher than the increase would have been justified in that year, which indicates the possibility of overvaluation (Cohen and Risk, 2025). The market value estimation, data analytics, machine learning applications, strategic analysis of football management, and the difficulties of applying data-driven analytics to the football industry are among the key factors that determine the valuation of a professional football player (Islam and Nahid, 2024). The article has established several variables that affect the valuation of players as they are player performance, market demand, age, length of contract and reputation of the club. These factors explain up to 85% of transfer fees variation utilizing the statistical model created (Poli et al., 2024). Among the important criteria used to value a professional football player will be the performance measures of goals, assists, shots per game, and pass success percentage and the position of the player and the league he/she plays in. The algorithm of the Random Forest showed the most accurate predictive

performance of the market values of players with an R-squared value of 0.90(Yalcinkaya and Iskik, 2024). Soccer Factor Model (SFM) is a useful tool to determine individual performance of a player by separating a genuine skill of a player and the power of his/her team which helps to evaluate individual performance more properly. The model gives forecasts about the performance of a player in particular matches and this improves the decision-making process of the managers (Andorra & Göbel, 2024).

Importance of the Study

Broadcasting revenues, commercialization, and the growth of football clubs in the shape of transnational firms have contributed to a significant economic change in the globalization of football, and the football market alone amounts to 270 billion euros in 2011 (Andreff, 2015). Although these financial changes have brought the industry closer to the rest of the world, they have also led to growth in economic inequality between clubs, leagues, and players (Gaviria et al., 2019). Knowledge of determinants and organizational model of football player valuation has thus become critical to the measurement of financial viability, competitive equilibrium and integrity in the sport in the long term (Franceschi et al., 2023).

The valuation of the players has a final say in activities regarding transfers, salaries, planning of a squad, and compliance with the fiscal rules like Financial Fair Play (Martin-Lozano and Carrasco-Gallego, 2024). The overvaluation puts a club in financial distress, whereas the undervaluation may cause inefficient distribution of talents and competitive inequality (Pereira and Lang, 2024). With the transfer fees and salaries steadily increasing, especially in the most prestigious leagues, the fact is that there is an increasing necessity of systematic, data-driven evaluations of market values setting and preservation (Poza, 2020). Although there is a large amount of research on the economics of football, an examination of the literature reveals that it is still scattered across various disciplines such as economics, sports management, data analytics, and sociology (Golmohammadi and Pashaie, 2024). This dichotomy does not allow having a coherent understanding of the prevailing research themes, contributors, and emerging trends in the field of player valuation. The limitation can be overcome with a comprehensive bibliometric analysis that will help map the intellectual framework of the literature and determine the collaboration patterns, clusters of research, and uncharted areas.

Through the use of bibliometric and network visualisation methods, the research has provided an objective view of how the study on valuation of football players has evolved between 2000 and 2025. The results will be relevant to scholars who need to identify research areas of study, policymakers focusing on regulating policies, and football clubs hoping to use evidence-based financial and strategic decision-making. Finally, the research will add to further insights into the nature of the relationship between the financial valuation mechanisms and the modern football ecosystem and its durability.

Methodology

Research Design

The current research takes a bibliometric research methodology to discuss the academic literature of football player valuation. The information was only obtained in the Scopus database, which included articles published in the last 20 years (2000-2025).

Data Sources and Search Strategy

The choice of Scopus was based on its large coverage of peer-reviewed journals and usefulness in conducting large-scale bibliometric research. An organised search plan was followed with the following query:

TITLE-ABS-KEY((Soccer OR Football) AND Player AND (valuation OR value OR Market Value)) AND (LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "ARTS")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE,& "English")) AND (LIMIT-TO (OA, "all")) AND PUBYEAR > 2000 AND PUBYEAR < 2025

The search was narrowed down to include only journal articles that were published in the English language, with the subject areas being Social Sciences, Business, Management and Accounting, Economics, Econometrics and Finance, and Arts and Humanities. The transparency and reproducibility of the analysis were to be ensured by including only open-access articles in the study. These filters were then applied and irrelevant records were eliminated to get the final dataset to be analyzed.

Sample selection and data processing

The results were the bibliographic information, such as authors, affiliations, countries, keywords, citation and references, that were exported to compatible formats and analyzed by VOSviewer software. Co-authors analysis, co-occurrence of keywords, co-citation analysis and bibliographic coupling were bibliometric methods that were used to determine collaboration patterns, prevailing research themes, influential authors, and emerging trends in the literature.

The structural and intellectual landscape of the research on the value of football players was interpreted by the creation of network visualisations with the help of VOSviewer. This methodology approach allows a logical and objective evaluation of the development, the focus areas, and gaps of research within the current literature.

Analysis

Co-authorship and author

Figure 1

Co-authorship and author, overlay visualization

On the basis of co-authorship and the unit of analysis as authors, it was found that out of a total 1261 authors, 36 met the thresholds, with minimum number of documents of an author being 3 and citations 0. Cluster 1 established that there is a significant difference between external and internal loads between small-sided games (SSGs) and friendly matches and that the difference in heart rate, total distance, and accelerations is significant and shows that SSGs do not recreate match-play demands of pre-season training (Pinheiro et al., 2022). Cluster 2 also found that football team composition and player role in particular affects individual and collective tactical behaviours, through their interaction and influence of the decision-making process; different roles produce different affordance landscapes, which impact the effectiveness of ball-possession and the development of particular offensive and defensive behaviours on small-sided fields (Laakso et al., 2021). Cluster 3 found that the execution time (ET) and the total index (TI) of expert players were significantly higher than novice players, but there was no significant difference in decision-making ability (DMA); Leones FC was no different to Envigado FC, which implied that there were no significant differences in expertise. Cluster4 revealed that Anaerobic Soccer Training (AnST) model could help in improving anaerobic capacity of soccer players using a combination of repeated sprints and 4 vs 4 matches, which led to an increase in peak power, mean power and a decrease in fatigue index, at the end of four weeks of training (Kusuma et al., 2024). Cluster 5 confirmed Football Competence Observation System (FOCOS) as an effective tool to measure procedural tactical knowledge of players with excellent content validity (9.02/10), intra-observer stability (k = 0.747), inter-observer ratio (k = 0.665), and reliability (G = 0.99) (Sanchez-Lopez et al., 2021). Cluster 6 discovered that agility in professional female football players is highly affected by body composition parameters, especially muscle mass, with larger muscle mass (absolute and relative) being associated with greater agility in agility tests, which is important to athletics performance (Lilić et al., 2022). Cluster 7 investigated the issue of the performance of jumping and lower-limb strength asymmetry among young soccer players during jumping on sand and conventional surfaces and found that performance has significantly decreased and the asymmetry has increased in the data on the sand surfaces, which might suggest that the use of one-leg jumps can improve the explosive strength and stability of the joints (Sannicandro et al., 2023). Cluster 8 compared locomotor activities and subjective load between elite youth soccer players and development loan players, with the difference in which development loan players always had lower values each week in all measured variables, although the differences did not get any statistical significance (p · 0.07) (Craig et al., 2022). Cluster 9 examined the Chinese attitude to the naturalisation of footballers and demonstrated that there are two primary issues in this area: the ethnic aspects of the naturalised footballer in terms of their reflection of China and the contributions to its success in the world cup; the study has shown the interrelation between football, instrumentalism, nationalism, and naturalisation, with the attitudes and perceptions of people being based on pragmatic values and ethno-cultural nationalism, and the depiction of such players by fans being the result of negotiations between the national identity and the practical advantages of having a naturalised player (Han The cluster 10 examined the financial backgrounds of 102 professional football players in Belgium, showing that every fourth dealt with at times financial issues; the analysis found the causal factors and formed a predictive model to identify those players at risk, and promoted financial management and decision-making (Balliauw and Van Den Spiegel, 2018). Cluster 11 showed statistically significant changes in shooting accuracy among U16 soccer professionals that were achieved after a six-week training programme that included 44 training units that trained situational models with special attention on straight-and-elevation shooting (Gardasevic and Bjelica, 2019). Cluster 12 evaluated the productivity of academies in English championship clubs using 2 indicators, namely Utilisation (total minutes played by academy graduates) and Starts (numbers of starts of academy players) using data covering 33 clubs over 20172020 (Balassiano and Bullough, 2021). Cluster 13 discovered that small-sided games and high-intensity interval training had significant positive effects on the development of anaerobic endurance in young football players (15-17 years old) despite no significant difference in effectiveness between these two strategies indicating that the two have equal strengths in enhancing anaerobic endurance (Ansori et al., 2024). Cluster 14 emphasized that in the EPL, TV revenues payplayer salaries and transfer costs are considered to be critically important, and the COVID-19 pandemic is estimated to lower salaries paid to

players by 20.4 per cent and 9.5 per cent, and market values by 26.7 per cent and 12.4 per cent (Quansah et al., 2021).

Co-authorship and organization
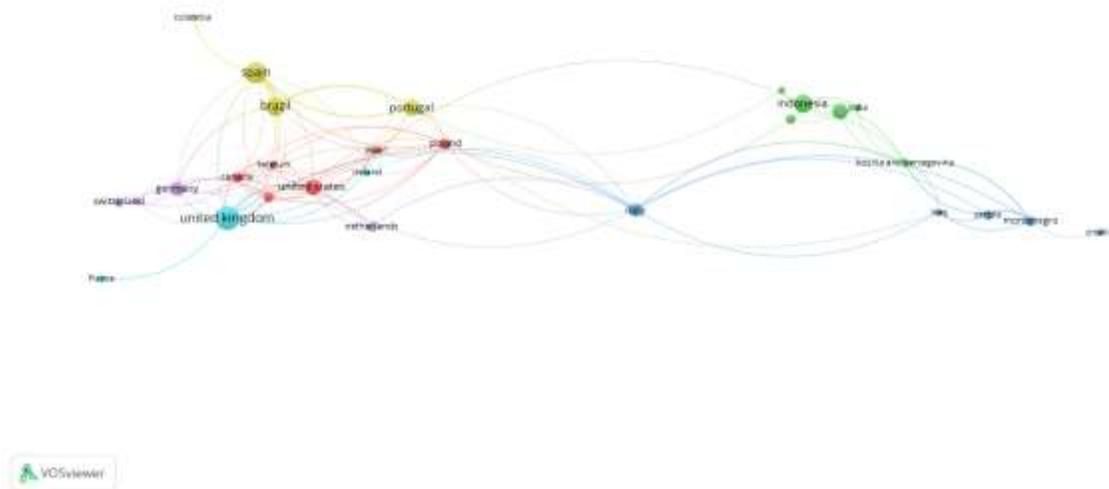
Figure 2

Overlay visualization

On the basis of co-authorship and the unit of analysis as organizations, it was found that out of a total 621 organizations, 27 met the thresholds, with minimum number of documents of an organization being 4 and citations of an organization 0. Cluster 1 explored the use of macro and micro network measurements as predictors of optimisation of training activities to match the football tactics of soccer players, particularly their efficacy in the development of football players in an under-17 male soccer scenario (Machado et al., 2021). Cluster 2 designed a football player warm-up model at 24 hours after ankle injury with evidence of feasibility and efficacy in the reduction of pain by 70.57% and functional ability by 23.24 and found significant results (p < 0.001) indicating the usefulness of the model in rehabilitation (Liza et al., 2024). Cluster 3 has found that fatigue caused by the Running -Based Anaerobic Sprint Test reduced the execution time and overall index performance in soccer players, but did not affect decision-making, with the control group exhibiting no variation in performance, meaning that the experimental group was more susceptible to fatigue (Calle -Jaramillo et al., 2023). Cluster 4 repeated the point that external and internal loads are different between small-sided games (SSGs) and friendly matches, and that there are significant differences between heart rate, total distance, and accelerations in the former and the latter, thus suggesting that a SSG cannot completely simulate a match-play requirement in pre-season training (Pinheiro et al., 2022). The cluster 5 showed that the ratio of the maximum hamstring torque to maximum quadriceps torque was different significantly only in the non-dominant leg (p ≤ 0.02) between basketball and soccer players, but not in the dominant leg (Kukrić et al., n.d.). Cluster 6 found out that training does not simulate competition demands on semi-professional football players; the ratio of more time spent in low-speed classes during training and more intense competition with higher frequency of sprints indicates higher training-specific adaptation requirements (Casamichana and Castellano, 2011). Cluster 7 examined the risk of injuries and patterns among new directly transferred football players in eight seasons (2008-2015). The results showed that no significant differences in the risk of injuries in the first and the second season were found, but practically significant increase in contact-type injuries was noted in the first season. The impact of proper squads management

and programmes of personal injuries were mentioned in the study, but the limitations presented by the single-club focus were also identified, which could limit the generalisability of the findings (Carling et al., 2018). Cluster 8 examined the financial status of professional football players in Belgium, which determined that every four players went through transient financial problems. It covered causal aspects, anticipated financial difficulties, and the need to consider better management through financial education and professional support (Balliauw and Van Den Spiegel, 2018). Cluster 9 had the results that fatigue had a negative impact on landing technique in young female soccer players, which was determined by higher LESS scores after exercise protocols. Performances of intensive neuromuscular and metabolic exercises had a serious negative effect on the quality of landing, which highlights the importance of thoroughly planning training sessions to reduce the risk of injuries (Sannicandro et al., 2024).

Co-authorship and country

Figure 3

Overlay visualization

On the basis of co-authorship and the unit of analysis as countries, it was found that out of a total 72 countries, 28 met the thresholds, with minimum number of documents of a country being 5 and citations of a country being 0. Cluster 1 discovered that perceived identity leadership by coaches and athlete leaders was linked to the excellent performance indicators, such as team and individual performance and effort, by increasing team identification and cohesion (Butalia et al., 2025). Cluster 2 discovered FIFA 11+ Kids warm-up programme to have a significant effect on the improvement of agility in young football players, and the post-test and pre-test results revealed that there was a significant reduction in time (19.03 +/- 0.74 seconds to 18.28 +/- 0.84 seconds), which was confirmed by the p-value of 0.005 (Anam et al., 2024). Cluster 3 concluded that parameters of body composition, in most cases, muscle mass, had significant effects on agility among professional female footballers. Increased body mass of the muscle, absolute and relative, was also associated with better results in tests of agility, which emphasizes the significance of a large body of the muscle in athletic performance (Lilić et al., 2022). Cluster 4 focused on normalisation of internal and external load variables and technical-tactical

performance per active playing in futsal and found that less involved players might attain similar or even better performance indicators than more involved players (Spyrou et al., 2023). Cluster 5 established that player salary and transfer costs in the English premier league depended on club revenues and especially TV revenues. The COVID -19 pandemic was estimated to decrease player income by 20.4 to 9.5 -percent and player values by 26.7 to 12.4 -percent (Quansah et al., 2021). Cluster 6 predicted the determinants of the values of European soccer clubs in 2005-2013 including player valuation, operating income, and new ownership. It determined them to have a strong influence on valuations, as well as the age of stadiums, ownership, number of supporters, and previous sport achievements (Scelles et al., 2016).

Co-occurrence and keyword

Figure 4

Co-occurrence and keyword, overlay visualization
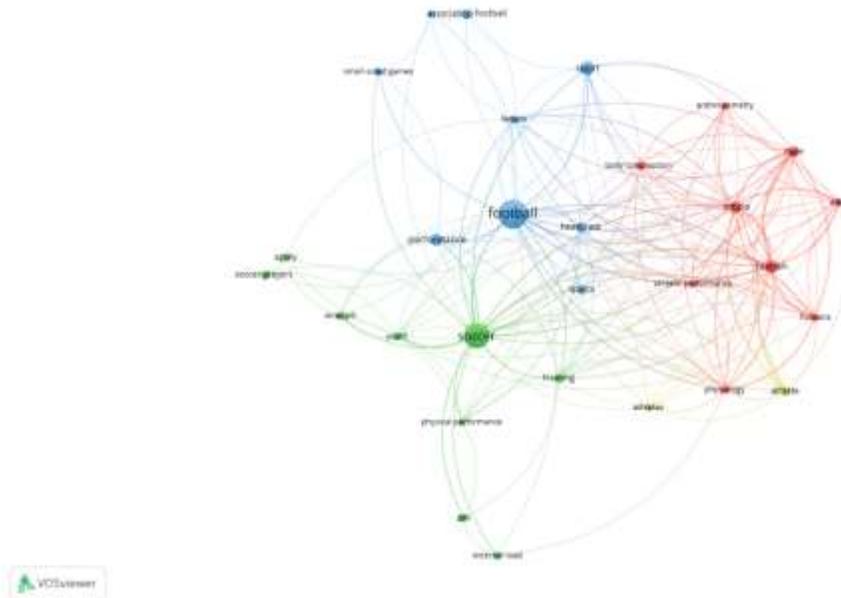
On the basis of co-occurrence and the unit of analysis as keywords, it was found that out of a total 1399 keywords, 29 met the thresholds, with minimum number of occurrences of a keyword being 7. Cluster 1 involved a study of hormonal, physical, and psychological reactions of male Tunisian rugby players across a season of international matches and found that they were more fatigued and anxious in male competition with falling testosterone levels and physical performance especially when competing in high stake matches (Elloumi et al., 2008). Cluster 2 compared internal and external loads between 4 vs 4 large (SLSG) vs. big (BLSG) fields and included more heart-rate values and external load on large (BLSG) and walking distance on small (SLSG), though these differences were not found to be statistically significant (Sannicandro et al., n.d.). Cluster 3 determined physical demands of elite women soccer players in terms of playing position and post-goal locomotor activities. It found that there were great variations of total distance, high-speed running distance, and PlayerLoad™ by position and following a scoring or conceding goal (Datson et al., 2023). Cluster 4 explored a five-week intervention training, which significantly enhanced scanning behaviour among U19 female football players, especially at the elite level, which demonstrates the role of perceptual-cognitive training in football coaching in improving making decisions on the field (Hintermann et al., 2025).

Co-citation and author

Figure 5

Co-citation and author, overlay visualization
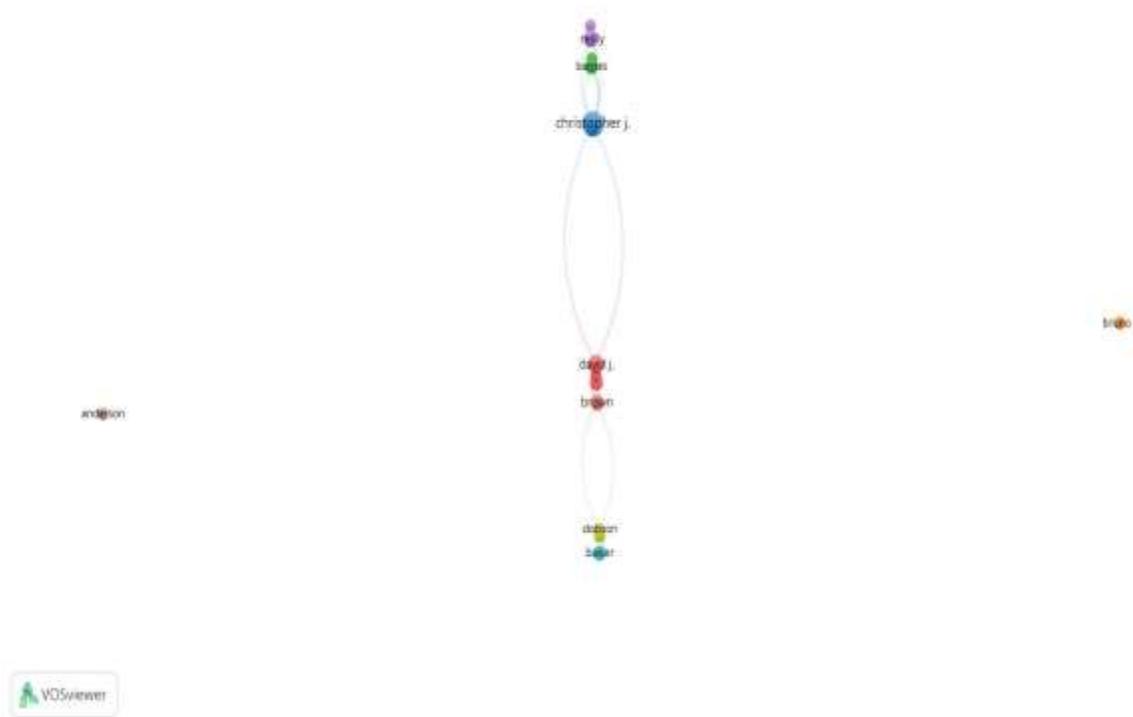
On the basis of co-citation and the unit of analysis as authors, it was found that out of a total of 1209 authors, 26 met the thresholds, with minimum number of citations of an author being 7. Cluster 1 studied the use of goalkeeper salaries in elite European football and found that in most cases, the clubs did not use metrics like individual player performance, but basic metrics when determining the salaries of the goalkeeper, such as team performance and basic defensive metrics, which requires better approaches to valuation when negotiating player contracts (Berri et al., 2023). Cluster 2 discovered that speed-endurance soccer training did have an important impact on the cardiovascular activity as well as blood pressure of amateur soccer players, with average heart rates of 91.67 per cent of maximum and substantial increases in systolic and diastolic blood pressure after four weeks of training (Kusuma et al., 2024). Cluster 3 evaluated the academy productivity at English Championship clubs using two indicators, namely, the "Utilisation" (minutes played by academy graduates) and Starts (number of times an academy player started), analysing the data of 33 clubs during the years 2017-2020 (Balassiano and Bullough, 2021).

Bibliographic coupling

Figure 6

Overlay visualization

VOSviewer
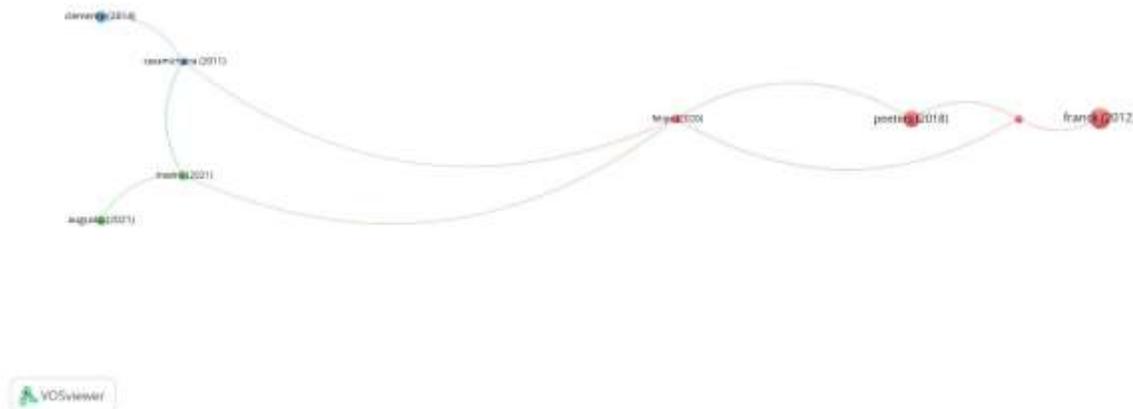
On the basis of bibliographic coupling and the unit of analysis as documents, it was found that out of a total of 357 documents, 21 met the thresholds, with minimum number of citations of a document being 22. Cluster 2 examined the effect of contextual variables on peak running performance in elite soccer male athletes using a 29-match sample of matches in Brazilian Serie A 2019. It was revealed that central defenders had lower maximum total distance within one minute than other positions. Also, the highest performance was recorded in away matches and matches that ended in a loss with the highest value being in draws compared to wins. The research has identified a strong influence of the match situation on physical performance indicators (Augusto et al., 2022). Cluster 3 concluded that the field orientation in soccer small-sided games (SSGs) did not significantly improve the representativeness of positional dynamics relative to official matches with results showing significant differing tactical behaviours in SSGs and official matches (Couto et al., 2023).

Trends across time and regions

The study on the market value of football players in the period of 2000 to 2025 shows a definite tendency towards collaboration in authorship, spreading ideas, and new research areas. Research shows that the European research teams are at the forefront of research activities in transfer economics, player performance measurement, and wage determination. The use of machine learning and player-tracking technology, as well as network models to forecast market values, has been increasing significantly (Cincera & Shah, 2025). Analysis of the terms used in these works shows that there are three main research areas, namely, the determinants of the transfer fees and payment to players, the impact of the league financial systems and revenue sharing on market values, and the improvements of the valuation models, which is based on both the in-game performance statistics and financial data (Poli et al., 2024). The examination of citation links shows that the initial literature mainly utilized elementary wage-determination models and crude transfer-fee calculations, but modern studies tend to focus on data analytics, positional performance measurements, and dynamics of market valuations (Yalçınkaya and Işık, 2024).

Patterns of authorship collaboration and inter-citation have changed significantly since 2010. It can be seen that there is a shift toward various advanced predictive modeling models that include real-time information, machine learning and other factors such as financial regulations and revenue sharing systems in the leagues (Liu, 2021). This development is not only the result of more academic output but also a shift toward more empirically-based answers that help clubs deal with real-life problems in the transfer-market. Since 2018, the pace has been especially sharp, as there is increased attention to the market fluctuations of the pandemic, the role of talent concentration in competitive balance, challenges of valuing women football, and using tracking data and financial models (Islam & Nahid, 2024).

The empirical results have practical implication on club executives, transfer-planning strategist and control agencies. They suggest that the theoretical study of the player valuation is shifting to an operational decision support. It is therefore theorized that future studies will focus on the currently existing gaps, such as systematic research on lower-division and non-top-tier leagues, cross-league research of valuation systems, longitudinal evaluation of model predictive accuracy, and the creation of intersections that combine real-time match analytics and financial modelling to optimize player valuation and market efficiency.

Conclusion

The current review follows the historiography of the football-player market-valuation research since primitive economic models up to the current data-driven methods. The analysis of co-authors reveals that the domination in terms of scholarship on the topic of player-market dynamics is held by the European scholars, and the focus of the recent studies is on transfer-market approaches, with performance metrics being the most used. Conventional economic literature has focused on wage determinants and transfer-fee predictions, but innovative studies examine the results of empirical studies conducted on the Finance Fair Play application, machine-learning, and the consequences of the COVID-19 pandemic. The search clarifies the teamwork networks among scholars and defines research clusters of relevance. The future research should investigate the longitudinal impacts of valuation models on the transfer strategy in different national settings, the role of high-profile acquisitions in the long-term performance and innovation of clubs (through evolution of tactics, young development and allied aspects), and the potential of modern data tools, league fiscal policies and academic research to collectively contribute to a fairer transfer market benefiting all clubs. It is analysed to reveal the collaboration networks between scholars and outline major research clusters. The future research ought to directly investigate the long-term implications of valuation models on transfer strategies in national settings, how the acquisition of expensive star players affects a club performance and innovation in the long term, both in terms of tactical refinements, youth development, and related aspects, and how the current data analytics, leagues, and academic activities complement one another in creating fairer transfer markets that suit all clubs.

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