University of Minho

School of Economics, Management and Political Science

Nuno Miguel Oliveira Veiga da Silva

A bibliometric analysis of the economic impact of football

April 2026

A bibliometric analysis of the economic impact of football

Nuno Silva

UMinho | 2026

University of Minho
School of Economics, Management and Political Science

Nuno Miguel Oliveira Veiga da Silva

A bibliometric analysis of the economic impact of football

Master Dissertation
Master in Economics

Conducted under the supervision of:
Professor Paulo Mourão
Professor Yvon Rocaboy*

* as part of the double degree associated to the *International Master in Public Policies*, at University of Rennes

April 2026

DIREITOS DE AUTOR E CONDIÇÕES DE UTILIZAÇÃO DO TRABALHO POR TERCEIROS

Este é um trabalho académico que pode ser utilizado por terceiros desde que respeitadas as regras e boas práticas internacionalmente aceites, no que concerne aos direitos de autor e direitos conexos.

Assim, o presente trabalho pode ser utilizado nos termos previstos na licença abaixo indicada.

Caso o utilizador necessite de permissão para poder fazer um uso do trabalho em condições não previstas no licenciamento indicado, deverá contactar o autor, através do RepositóriUM da Universidade do Minho.

Licença concedida aos utilizadores deste trabalho



Atribuição-NãoComercial-SemDerivações

CC BY-NC-ND

https://creativecommons.org/licenses/by-nc-nd/4.0/

Acknowledgments

I would like to express my sincere gratitude to Professor Paulo Mourão, supervisor of this dissertation, for all the support provided throughout this journey. His constant availability, valuable suggestions, and motivation were fundamental to conclude this work.

To my mother, there are no words that can truly express everything you do for me. I owe a large part of my academic journey and all my achievements to you.

To my father, for being a constant source of inspiration and for encouraging me to always strive for more and better in life.

To my brothers, for being an essential pillar in my life, each in your own way.

To my entire family, grandparents, uncles, aunts, and cousins, for their unconditional support and for being a solid foundation throughout my journey.

To my friends, for always being present during the most demanding moments, for their support, understanding, and companionship, and for helping me to find the necessary balance in my life throughout this stage.

To the Serviço de Regulação e Inspeção de Jogos, particularly the Lisbon Inspection Unit, for their availability and understanding, which were essential in allowing me to balance my professional life with the completion of this dissertation.

To the University of Minho, particularly the School of Economics and Management and all its faculty members, for providing the necessary conditions for my academic development. A special acknowledgment is also due to the University of Rennes for the opportunity of international mobility, which allowed me to broaden my horizons, acquire new knowledge, and develop a more comprehensive and enriching perspective.

To all those who, directly or indirectly, were part of this journey, my sincere thanks.

Statement of integrity

I hereby declare having conducted this academic work with integrity and I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho.

Declaration on the use of artificial intelligence (AI) tools

I hereby declare having acted this academic work with integrity and confirm that I have not resorted to any form of undue use of AI tools, nor to the falsification or omission of information, sources, data, results or processes in any of the stages leading to its elaboration.

I further declare that any use of AI tools was done in a transparent and responsible manner, being duly noted in the work, and that I critically verified the accuracy of the content produced with their support, assuming full responsibility for what I submit.

I further declare that I have fully acknowledged the Code of Ethical Conduct of the University of Minho, as well as the applicable standards of academic integrity and data protection.

Uma análise bibliométrica do impacto económico do futebol

Resumo

Esta dissertação apresenta uma análise bibliométrica relativa à produção científica existente sobre o impacto económico do futebol. Embora a literatura existente se tenha concentrado predominantemente no impacto económico de eventos desportivos de grande escala, os efeitos contínuos e localizados gerados pelos clubes de futebol profissional permanecem relativamente subexplorados. A primeira parte do estudo recorre a uma análise bibliométrica baseada em 500 artigos científicos com revisão por pares, indexados na Web of Science Core Collection entre 1998 e 2026. Esta análise permite oferecer uma visão estruturada da evolução da produção científica, identificando os principais contributos, os temas de investigação dominantes e os padrões geográficos, evidenciando simultaneamente uma forte concentração temática em estudos de impacto económico associados a eventos.

Para complementar estes resultados, a segunda parte da dissertação desenvolve uma análise econométrica entre países com o objetivo de explicar as diferenças na produção científica em 33 países. Através de um modelo de Mínimos Quadrados Ordinários (OLS), o estudo analisa o papel de fatores estruturais, como o PIB per capita, a população e a capacidade de investigação, bem como variáveis relacionadas com o futebol, incluindo o valor de mercado das ligas nacionais e a sua relevância relativa na economia. Os resultados indicam que o nível de desenvolvimento económico e a dimensão do país são determinantes fundamentais da produção científica, enquanto a escala económica da indústria do futebol exerce também um efeito positivo e estatisticamente significativo. De forma geral, os resultados sugerem que a investigação sobre o impacto económico do futebol tende a emergir em contextos onde o desporto possui simultaneamente relevância cultural e económica, evidenciando ainda limitações persistentes relacionadas com a disponibilidade e transparência dos dados.

Palavras-Chave: Economia do Futebol; Impacto Económico; Clubes de Futebol; Análise Bibliométrica; Produção Científica; Análise Entre Países; Economia do Desporto; Desenvolvimento Económico Local; Regressão OLS

Abstract

This dissertation presents a bibliometric analysis of the existing scientific production on the economic impact of football. While the existing literature has predominantly focused on the economic impact of large-scale sporting events, the continuous and localized effects generated by professional football clubs remain comparatively underexplored. The first part of the study employs a bibliometric analysis based on 500 peer-reviewed articles indexed in the Web of Science Core Collection between 1998 and 2026. This analysis provides a structured overview of the evolution of scientific production on the impact of football, identifying key contributors, dominant research themes, and geographical patterns, while also revealing a thematic concentration on event-driven economic impact studies.

To complement these findings, the second part of the dissertation develops a cross-country econometric analysis aimed at explaining differences in scientific production on the impact of football across 33 countries. Using an Ordinary Least Squares (OLS) model, the study examines the role of structural factors such as GDP per capita, population, and research capacity, alongside football-related variables including the market value of national leagues and their relative importance within the economy. The results indicate that economic development and country size are key determinants of scientific output, while the economic scale of the football industry also exerts a positive and statistically significant effect. Overall, the findings suggest that research on the economic impact of football is more likely to emerge in contexts where the sport is both culturally and economically significant, while also highlighting persistent limitations related to data availability and transparency.

Keywords: Football Economics; Economic Impact; Football Clubs; Bibliometric Analysis; Scientific Production; Cross-Country Analysis; Sports Economics; Local Economic Development; OLS Regression

Table of Contents

Acknowledgments ii
Statement of integrity iii
Declaration on the use of artificial intelligence (AI) tools iv
Resumo v
Abstract vi
Table of Contents vii
List of Tables viii
List of Figures viii
1. Introduction 10
2. Literature Review 12
2.1 Professional football as an economic industry 12
2.2 Local and regional economic impacts of professional football 13
2.3 Football, social cohesion and territorial identity 14
2.4 Methodological limitations and gaps in literature 15
3. Bibliometric Analysis 17
3.1 Data Collection and Research Design 17
3.2 Scientific Production and Distribution 20
3.3 Intellectual Structure and Research Influence 25
4. Empirical Analysis 37
4.1 Data and Variables 38
4.2 Descriptive Statistics and Correlation Analysis 40
4.3 Econometric Model and Regression Results 44
4.4 Diagnostic Tests and Robustness Checks 50
5. Conclusion 53
References 55
Data Sources 59

List of Tables

Table 1 - Top 5 journals by total number of articles 26
Table 2 - Top 10 authors by number of articles 28
Table 3 - Top 10 articles by total number of citations..... 30
Table 4 - Variable and Data Sources..... 40
Table 5 - Descriptive Statistics..... 41
Table 6 - Correlation Matrix of the Variables 43
Table 7 - OLS regression results explaining cross-country variation in scientific production on the impact of football..... 49
Table 8 - Diagnostic Tests Comparison..... 51

List of Figures

Figure 1 - Publication Years (1998 – 2026)..... 20
Figure 2 - Publication Years (1998 - 2025)..... 23
Figure 3 - Corresponding Author's Countries..... 25
Figure 4 - Keyword Co-occurrence Network (VOSviewer) 33
Figure 5 - "Economic Impact" cluster (VOSviewer)..... 35
Figure 6 - Density visualization of keyword co-occurrence (VOSviewer) 36

List of Abbreviations

EY – Ernst & Young

FIFA – Fédération Internationale de Football Association

GDP – Gross Domestic Product

GDP pc (gdp_pc) – GDP per capita

H_0 – Null Hypothesis

IF – Impact Factor

JCR – Journal Citation Reports

OLS – Ordinary Least Squares

R&D – Research and Development

RESET test – Regression Specification Error Test

UK – United Kingdom

UEFA – Union of European Football Associations

USA – United States of America

VIF – Variance Inflation Factor

WoS / WoSCC – Web of Science / Web of Science Core Collection

1. Introduction

Sport, in particular football, has become a central component of contemporary society, playing a relevant role not only at the cultural and social level, but also as an economic activity of significant importance. As the most widely practiced sport worldwide and an industry with growing economic value, football has increasingly established itself as a structured sector, generating significant impacts on labour markets, tourism, and the economic dynamics of the regions in which it operates. This evolution has led to a growing academic interest in the field of sports economics, regarding the analysis of its economic and social effects.

Despite this increasing interest, a substantial portion of the existing literature has focused on the analysis of large-scale sporting events, such as World Cups or Olympic Games, which are often associated with short-term economic impacts and, in many cases, overestimated benefits. In contrast, the role of football clubs as permanent and territorially embedded economic agents remains relatively underexplored. Unlike one-off events, clubs operate in a continuous way, generating direct, indirect, and induced effects in local economies, contributing to regional development, job creation, and the strengthening of territorial identity.

In this context, the present dissertation, entitled *"A bibliometric analysis of the economic impact of football"*, presents a bibliometric analysis of the existing scientific production on the economic impact of football. More specifically, this work seeks not only to understand how the scientific literature has addressed this topic, but also to identify the main factors that explain the distribution of scientific production on the impact of football at the international level.

To achieve this objective, the dissertation adopts a combined methodological approach. In a first stage, a bibliometric analysis is conducted based on the existing scientific literature, allowing for the identification of trends over time, key thematic areas, influential authors, and the geographical distribution of research. This analysis makes it possible to highlight existing gaps in the literature, in particular the limited attention given to the economic impact of football clubs when compared to large-scale sporting events.

In a second stage, the study employs an empirical analysis based on a cross-sectional econometric model, estimated using the Ordinary Least Squares (OLS) method. The aim is to explain cross-country differences in scientific production related to the economic impact of football, using structural variables such as GDP per capita, population, and research capacity, as well as football-

specific variables, including the market value of national leagues and their relative importance within the economy. This approach allows for a better understanding of how economic and structural factors influence the development of research in this area.

Additionally, the study addresses a fundamental limitation in this field: the scarcity and lack of transparency of data, both at the level of football clubs and public institutions. This limitation constrains more in-depth empirical analyses and, at the same time, explains the geographical concentration of scientific production on the impact of football observed in the bibliometric analysis.

In this way, this dissertation contributes to the literature by combining a bibliometric analysis with an econometric approach, allowing not only for a mapping of the research landscape but also for an explanation of the factors that shape its development. In doing so, it reinforces the importance of considering football not merely as a sporting phenomenon, but as a relevant economic sector whose analysis requires improved data availability and more robust methodological approaches.

2. Literature Review

Literature reviews play a central role in scientific research, as they enable the critical organization of accumulated knowledge, the identification of consensus and divergence within the literature, and the delineation of underexplored research avenues. So, this literature review aims to systematize the main theoretical and empirical contributions concerning the economic and social impacts of professional football at the local and regional levels, with a particular focus on clubs based in medium-sized cities. The objective is to frame football as a territorial and economic agent, to identify areas of consensus and debate within the literature regarding its impacts, and to highlight relevant gaps that justify the methodological approach adopted in this study.

2.1 Professional football as an economic industry

The economics of football has progressively established itself as a relevant field within the economics of professional team sports. Halicioglu (2006) emphasizes that, despite the growing economic and social importance of football, this field remains relatively underexplored academically. This gap is particularly noteworthy given that football is currently the most popular professional team sport in the world, with more than 270 million active participants, according to FIFA (FIFA, 2007).

Over recent decades, football has evolved from a purely sporting activity into a global multi-billion-dollar industry, generating substantial revenues for clubs, athletes, and international organizations. Recent research suggests that this industry accounts for approximately 1% of global trade, highlighting its relevance as a global economic phenomenon (World Sports Advertising, 2023).

This economic dimension distinguishes football from other sports, both in terms of the scale of the financial flows involved and its capacity to generate revenues on a continuous basis.

Unlike singular sporting events, the activity of football clubs is characterized by regularity and predictability throughout the year, associated with national and international competitions, broadcasting rights, sponsorships, and recurrent consumption by supporters. This continuity grants clubs a relatively stable role as economic agents within local economies, allowing economic impacts to be distributed persistently over time rather than being confined to isolated moments (Coates & Humphreys, 2002).

Despite this framing, recent literature on the economics of football focused primarily on a business perspective, analysing issues such as demand for sporting events, clubs' market structures, the

transfer market, and revenues derived from broadcasting rights (Dobson & Goddard, 2011).Only in the last years, the academic interest has been expanded towards the economic, social, and territorial impacts of football, particularly regarding its interaction with regional and urban development. (Sánchez Santos, Castellanos García, & Pena-López, 2003; García, Lera-López, & Sánchez-Santos, 2025).

2.2 Local and regional economic impacts of professional football

A significant part of literature identifies positive effects associated with the presence of a professional team in a city. Sánchez Santos, Castellanos García and Peña López (2003) argue that football clubs can induce improvements in the local economy, generating positive impacts on individuals and firms through job creation, increased consumption and the stimulation of various sectors of activity. These effects are not limited to the direct revenues generated by club operations but also extend to the strengthening of community identity and social well-being. By enhancing the external image of the city, fostering civic pride and creating lasting symbolic ties between the population and the territory, football clubs assume a relevant role in the social and territorial valorisation of the contexts in which they are embedded.

However, these effects are neither automatic nor homogeneous. Coates and Humphreys (2003) argue that sports infrastructures can act as drivers of urban regeneration and economic growth, particularly in areas surrounding stadiums. Nevertheless, other authors warn that such impacts depend on the territorial context, the size of the club and the manner in which it is integrated into the local economy. There, the mere existence of infrastructures or a professional club does not, in itself, guarantee sustainable economic effects.

In this regard, Halabi and Frost (2007) introduce a complementary perspective by emphasizing that the economic viability of football clubs depends on internal factors such as sustainable financial management, diversification of revenue sources and the degree of engagement with the local community. This approach allows the arguments of Coates and Humphreys (2003) to be articulated with a more institutional and organizational view, suggesting that economic impacts result from the interaction between infrastructure, management models and the territorial context.

Activities such as live matches, stadium tours, museums and official club stores generate significant revenues for sectors including hospitality, catering, transport and local commerce, reinforcing the role of football as a driver of sport tourism and local economic activity (Gibson, 1998; Preuss, 2007). However, this potential tends to be stronger for clubs with greater

international visibility and commercial reach, suggesting that the magnitude of these effects may be more limited for smaller clubs.

The literature also points to relevant impacts in terms of tax revenues. Studies by Ernst & Young LLP. (2021) show that the Premier League contributed more than £3 billion in tax revenues to the UK government in a single year, highlighting football as a significant and stable fiscal source. This type of fiscal return is often used to justify public investment in stadiums and related infrastructure. Nevertheless, the extrapolation of these results to different contexts should be undertaken with caution, as peripheral leagues or smaller economies present substantially different economic and fiscal structures.

The international visibility of a football club can enhance the global recognition of the city or region in which it is based, positively influencing tourism, investment and place marketing. The case of Leicester City following its Premier League title in 2016 is particularly illustrative: the city experienced a significant increase in mentions in international media and subsequent growth in sports and cultural tourism (Premier League, 2016). In this sense, football may function as a strategic tool for urban diplomacy and territorial promotion.

The proliferation of teams and the sustained increase in stadium attendance contribute to consolidating football as a visible marker of urban and regional dynamism, reflecting its deep integration into the economic and social dynamics of the territories in which it is embedded (Coates & Humphreys, 2002).

2.3 Football, social cohesion and territorial identity

Beyond measurable economic impacts, several authors emphasize the importance of football as a social and territorial phenomenon. Castellanos and Sánchez (2007) argue that the activities of football clubs display characteristics typical of local public goods, particularly about the sense of belonging, the construction of collective identity and the branding of cities and regions.

This perspective is reinforced by Sánchez Santos, Castellanos García and Peña-López (2003), who demonstrate that clubs' contributions to the local economy are not confined to direct revenues but extend to the strengthening of community identity, civic pride and social well-being. In this context, football clubs can be understood as "community anchors", acting as institutions that structure social relations, promote community engagement and reinforce the ties between the population and the territory.

Despite broad agreement regarding the symbolic and social relevance of football, some authors warn against overestimating these effects when they are not accompanied by lasting economic benefits. Therefore, the literature suggests that the social dimension of football tends to generate more consistent effects when articulated with local development strategies that promote income retention and strengthening the territory's institutional capacities.

The United Nations (2011) reinforce this view by recognizing sport as an instrument for promoting fundamental values such as respect, fairness and social inclusion, with potential indirect effects on economic development. However, these benefits tend to be diffuse and difficult to quantify, which helps explain their limited presence in strictly quantitative economic impact studies.

2.4 Methodological limitations and gaps in literature

Despite the growing body of research on the economic impact of sport and professional football, the literature reveals significant methodological heterogeneity and persistent limitations. One of the most frequently identified challenges concerns the risk of overestimating economic impacts, particularly when studies fail to adequately account for substitution effects, opportunity costs and economic leakages (Coates & Humphreys, 2003). The importation of goods and services, the geographical mobility of players and staff, and the external distribution of broadcasting revenues may substantially reduce the net benefits retained within the local economy.

A substantial proportion of existing studies relies on multiplier-based approaches to estimate direct, indirect and induced effects. For instance, studies such as Sánchez Santos, Castellanos García and Pena-López (2003) and Castellanos and Sánchez (2007) apply this type of methodology to assess the economic contribution of football clubs at the local level, while applied reports such as those developed by Ernst & Young (2021) also adopt similar approaches when estimating the broader economic impact of professional football. Although these models provide structured frameworks for quantifying intersectoral linkages, they are often criticised for their sensitivity to underlying assumptions and for the difficulty of adapting national or regional coefficients to specific local contexts. Moreover, the availability of detailed and disaggregated data at the municipal level frequently constrains the robustness of such estimations.

Alongside quantitative approaches, qualitative case studies have contributed to a deeper understanding of the institutional, governance and social dimensions of football clubs. Authors such as Barajas and Rodríguez (2010) emphasize that financial sustainability, governance models

and territorial embeddedness play a decisive role in shaping the real economic contribution of clubs. However, these studies often focus on individual cases, limiting broader comparability.

Overall, the literature on the economic impact of sport and football exhibits a high degree of heterogeneity across methodologies, geographical contexts and analytical scales, as reflected in the diversity of approaches and case-specific analyses found in existing studies (Sánchez Santos, Castellanos García, & Pena-López, 2003; Castellanos & Sánchez, 2007). A considerable share of research concentrates on mega-events, top-tier leagues or clubs operating in large metropolitan areas (Baade & Matheson, 2004; Ernst & Young, 2021; Sánchez Santos, Castellanos García, & Pena-López, 2003), while comparatively less attention has been devoted to medium-sized clubs embedded in intermediate urban contexts. In addition, there is limited systematization of the methodological approaches employed in assessing football's economic impact, making it difficult to identify dominant paradigms, emerging trends and unresolved debates within the field.

These gaps justify the need for a structured bibliometric analysis of the existing literature, allowing for a systematic assessment of its evolution, as well as its main contributors and dominant research themes.

3. Bibliometric Analysis

3.1 Data Collection and Research Design

Bibliometric research can be understood as a variant of systematic literature review that applies quantitative and statistical techniques, such as descriptive statistics, performance analysis, and science mapping, to bibliographic data including publications and citations (Mukherjee et al., 2022).

Unlike systematic reviews guided by the PRISMA protocol, which are designed to address specific research questions through a rigorous and predominantly qualitative process of study identification, selection, and critical appraisal based on predefined criteria (Moher et al., 2009; Page et al., 2021), bibliometric analysis relies on advanced technologies, including big data tools and machine learning techniques, to objectively and comprehensively examine large volumes of scientific literature.

This quantitative approach enables the mapping of publication trends, the identification of co-authorship patterns, and the analysis of dominant thematic structures, as well as the visualization of citation networks and keyword co-occurrence relationships (Mukherjee et al., 2022). By relying on data-driven procedures, bibliometric methods reduce the subjectivity inherent in traditional narrative reviews, allowing for the assessment of scientific productivity and impact, the identification of knowledge clusters, and the examination of structural interconnections within a given research domain. Consequently, bibliometrics provides a comprehensive overview of a scientific field, highlighting key contributors (authors, institutions, and journals), mapping relationships between publications and emerging themes, and revealing research gaps, potential biases, and underrepresented areas.

Furthermore, bibliometric research employs specialized tools such as CiteSpace and VOSviewer, alongside established academic databases including Scopus and Web of Science, to generate both visual and non-visual analytical representations (Van Eck & Waltman, 2010). Beyond its descriptive dimension, this approach also seeks to advance theory by linking empirical patterns to conceptual frameworks and identifying promising directions for future research.

In line with the objectives of methodological rigor and consistency in citation analysis, the Web of Science Core Collection (WoSCC) is particularly suitable for the present study, given its more selective indexing policy and its historically consolidated citation tracking system (Falagas et al.,

2008). Widely recognized for its stringent journal inclusion criteria, Web of Science prioritizes publications with demonstrated impact and high editorial standards, thereby promoting greater homogeneity and quality control within the analyzed corpus. In addition, the standardized structure of cited references and the stability of its bibliometric indicators enhance the robustness of co-citation and impact analyses, reducing potential methodological dispersion. Compared to broader-coverage databases, the use of Web of Science ensures greater consistency, reliability, and longitudinal comparability of results, particularly in studies that depend heavily on citation accuracy.

Nevertheless, it is important to acknowledge that the exclusive use of Web of Science may result in the omission of relevant publications indexed solely in other databases, such as Scopus or certain regional repositories (Mongeon & Paul-Hus, 2016). Due to its more selective nature, WoS may offer lower coverage of emerging journals, regionally oriented publications, or scientific output in languages other than English, which may affect the geographical and disciplinary representativeness of the analyzed corpus. Therefore, although the choice of Web of Science enhances the rigor of citation-based indicators, future research may benefit from adopting a multi-database strategy, combining different sources to broaden coverage and strengthen the comparative robustness of findings.

The specific methodological steps followed in this study are detailed in the subsequent sections. The discussion begins with the data collection and research design, where the selection of the data source, the search strategy, the inclusion criteria, and the data curation procedures are described. This is followed by the analysis of scientific production on the impact of football and distribution, focusing on the temporal evolution of publications and their geographical patterns. The analysis then moves to the intellectual structure and research influence of the field, examining the most productive journals and authors, the most influential articles, and the main thematic structures identified through keyword co-occurrence networks. Together, these steps provide a comprehensive and structured overview of the research landscape on the economic impact of football.

3.1.1 Study Design and Data Curation Sources

This bibliometric analysis was conducted to provide a systematic and structured overview of the global research landscape concerning the economic impact of football. The data used in this study were retrieved on March 11, 2026, exclusively from the Web of Science Core Collection (WoSCC).

WoSCC was selected as the primary data source due to its strong international recognition, its more selective indexing policy, and its high-quality multidisciplinary coverage of peer-reviewed literature across the sciences, social sciences, and arts and humanities. Its standardized citation structure and the stability of its bibliometric indicators ensure greater consistency and reliability in performance analysis and co-citation network construction, making it particularly suitable for studies that rely heavily on citation accuracy.

The search strategy was developed through an iterative process in order to balance thematic breadth and conceptual relevance. The initial search equation applied in the "Topic" field was:

("football" OR "soccer") AND ("economic impact")

However, this formulation proved to be overly restrictive, retrieving only 347 documents, thereby limiting the scope of the analysis and excluding studies that addressed economic effects under alternative terminology.

Consequently, the search query was refined to:

("football" OR "soccer") AND ("economic impact" OR "economic effects")

This modification significantly expanded the scope of retrieved publications to 555 documents, ensuring broader representation of the research field. After applying inclusion criteria, restricting results to peer-reviewed journal articles, and conducting a preliminary relevance screening (Donthu et al., 2021), the final dataset comprised 500 articles, published between 1998 and 2026.

Subsequently, a data curation process was undertaken, including the exclusion of non-article document types, verification of potential duplicates, and terminological harmonization where necessary. This procedure ensured internal consistency of the dataset and enhanced the reliability of subsequent analyses.

The iterative refinement of search terms ensured that the dataset adequately represented the scientific landscape of research on the economic impact of football, while avoiding an excessively narrow delimitation of the field. Moreover, the need to adjust the initial query suggests that research in this area may be dispersed across different conceptual frameworks, highlighting the importance of bibliometric analysis in structuring and systematizing existing knowledge.

3.2 Scientific Production and Distribution

3.2.1 Annual scientific production of research

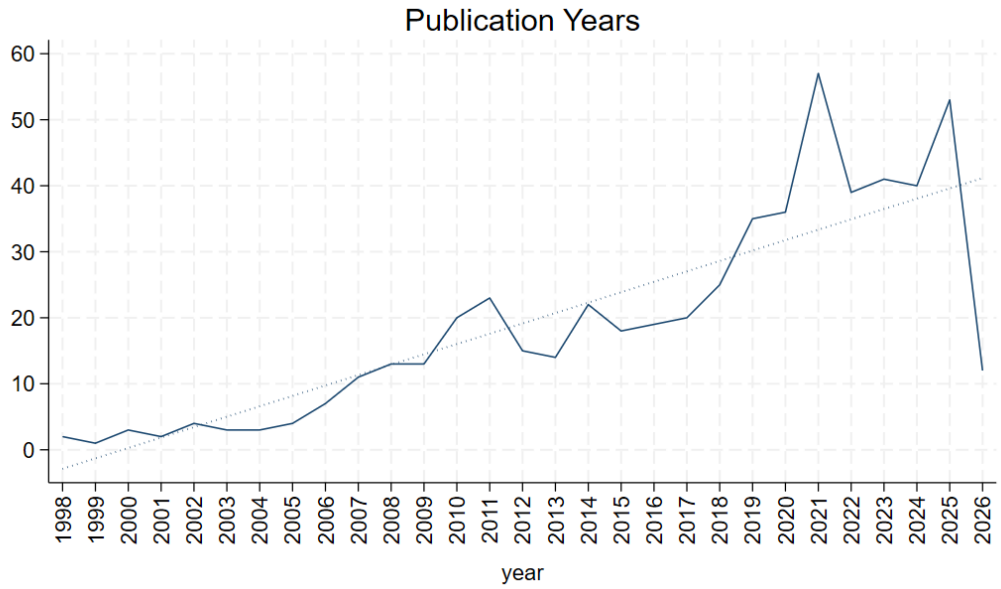


Figure 1 - Publication Years (1998 – 2026)

The analysis of the temporal evolution of scientific production on the impact of football makes it possible to assess the degree of maturation and consolidation of the research field related to the economic impact of football. Figure 1 illustrates the annual scientific output on football and its economic implications between 1998 and 2026, revealing a clear upward trajectory in the number of publications over time, although marked by several intermediate fluctuations.

During the initial period, between 1998 and 2004, scientific production on the impact of football remains relatively limited and irregular, with annual publication levels generally ranging between one and four studies. This early stage suggests that the economic impact of football had not yet developed as a distinct and structured field of research. Instead, the topic tended to appear within broader discussions related to sport economics, urban development, or the economic implications of large sporting events.

From the mid-2000s onwards, a gradual increase in academic output becomes observable. Between 2005 and 2010, the number of publications grows steadily, reaching approximately twenty publications by 2010. This expansion coincides with the increasing commercialization and globalization of professional football, as well as the growing economic relevance of broadcasting rights, sponsorship agreements, and international transfer markets (Dobson & Goddard, 2011). As

football evolved into a highly globalized industry with substantial financial flows, it increasingly attracted the attention of economists and scholars interested in the economic organization of sport (Szymanski, 2003).

During the period between 2011 and 2017, the number of publications stabilises at moderately high levels, generally fluctuating between approximately fourteen and twenty-two publications per year. This pattern suggests that the field had entered a phase of consolidation, with research becoming more structured and increasingly recognised within the broader discipline of sports economics. During this stage, academic attention expanded to include themes such as competitive balance, labour markets for professional players, governance structures, and the financial management of football clubs (Szymanski, 2003)

A more pronounced expansion can be observed from 2018 onwards, when the number of publications increases considerably. The period between 2019 and 2025 represents the most productive phase in the dataset, with several years exceeding thirty publications and reaching peaks of more than fifty publications in 2021 and 2025. This sharp increase reflects the growing academic interest in the broader socio-economic role of football, particularly regarding issues related to financial sustainability, governance challenges, and the wider economic effects of professional sport on local and regional economies.

Several structural factors may help explain this intensification of academic production in recent years. First, the increasing availability and transparency of financial information within professional football has created favourable conditions for empirical research. Over the past decades, the professionalization of sport management and the introduction of stricter financial regulations, particularly through UEFA's Financial Fair Play framework, have led clubs to produce more detailed financial reports and accounting disclosures (UEFA, 2018; Barajas & Rodríguez, 2010). This improved availability of financial data has facilitated more rigorous quantitative analyses of revenues, expenditure structures, and investment dynamics within professional football.

Second, the growing debate surrounding the economic sustainability of professional football has also contributed to the expansion of the literature. The rapid growth in revenues generated through broadcasting rights, global sponsorship agreements, and player transfers has been accompanied by a parallel escalation in wage expenditures and debt levels. This imbalance has raised concerns regarding the long-term financial viability of clubs and the stability of competitive structures,

encouraging a growing body of research focused on financial governance, economic efficiency, and sustainability within football organizations (Szymanski, 2010).

In addition, the COVID-19 pandemic represented a significant external shock to the football industry, exposing structural vulnerabilities in the financial models of professional clubs. The suspension of competitions, the organization of matches behind closed doors, and the sudden reduction in revenues linked to ticket sales, hospitality services, and matchday consumption generated new opportunities for research examining the resilience of football organizations and the broader economic implications of sport activities during periods of crisis (Steinfeldt, Dallmeyer, & Breuer, 2025).

Finally, the expansion of research on regional economics, territorial development, and place marketing has further contributed to the growing academic interest in the economic impact of football. Increasing attention has been given to the role of sport in territorial promotion strategies, urban branding, and sport tourism. Within this framework, football clubs are increasingly analysed not only as sporting organizations but also as economic and social actors capable of influencing local identity, social trust, and civic pride in the communities where they operate (Sánchez-Santos, Castellanos-García, & Peña-López, 2003; García, Lera-López, & Sánchez-Santos, 2025).

The linear trend displayed in the figure confirms a sustained increase in scientific production on the impact of football over the long term, indicating that the economic analysis of football has evolved from a relatively marginal research interest into a progressively consolidated field of academic inquiry. Overall, the temporal evolution suggests that research on the economic impact of football is currently situated in a stage of intermediate to advanced maturity, characterised by sustained growth and increasing thematic diversification within the broader domain of sport economics.

Figure 1 shows a clear upward trend in scientific production on the impact of football over time. However, it is important to note that the data were collected in early 2026, meaning that the number of publications recorded for that year is not yet complete. As shown in Figure 2, when excluding the 2026 observation, the trend up to 2025 reveals a more pronounced and consistent

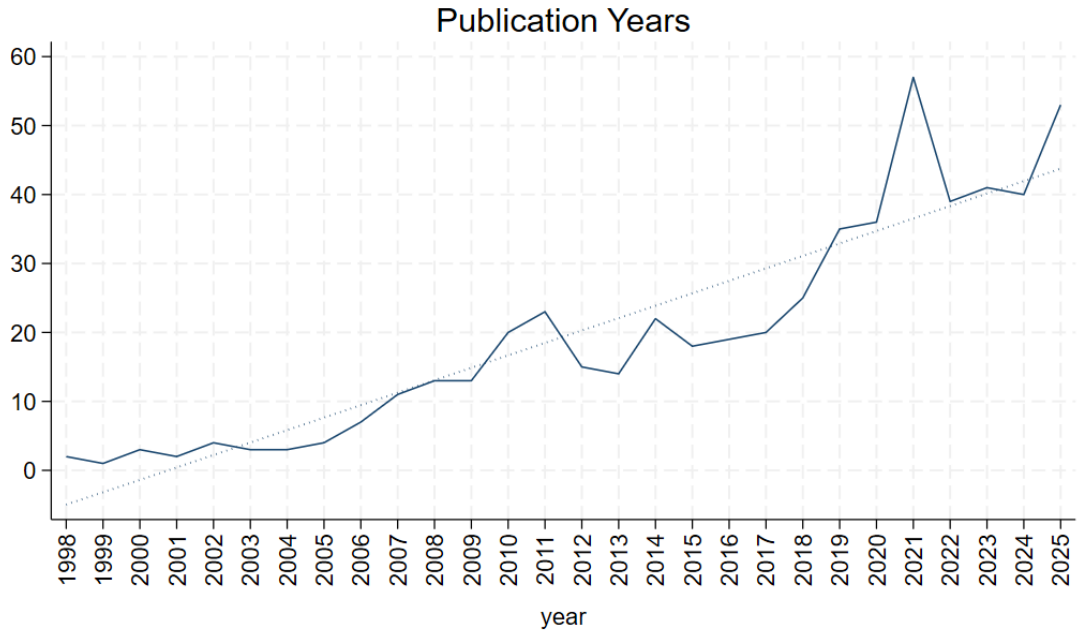


Figure 2 - Publication Years (1998 - 2025)

increase in scientific output.

Overall, this pattern reinforces the idea that the topic is undergoing a continuous process of scientific expansion, accompanying the increasing economic and social complexity associated with the global football industry.

3.2.2 Geographical Distribution of Scientific Output

The geographical distribution of scientific production on the impact of football provides important insights into the countries where research on the economic impact of football is most actively developed. Analysing the origin of publications allows the identification of the main academic hubs contributing to this field and highlights the spatial concentration of research activity (Donthu et al., 2021).

The results indicate a clear predominance of European countries, particularly, The United Kingdom, Spain and Germany. The United Kingdom emerges as the leading contributor, with 51 publications, representing the largest national share of the analysed dataset. This leading position is not

surprising, as the United Kingdom has historically played a central role in the development of modern football and has been a key contributor to the academic field of sport economics (Szymanski, 2003). British universities and research centres have long been pioneers in the economic analysis of sport, particularly in areas such as competitive balance, labour markets in professional leagues, and the economic effects of sporting events.

Following the United Kingdom, Spain (36 publications) and Germany (26 publications) also demonstrate a significant level of scientific output. Both countries host major professional football leagues with strong international visibility and have developed active academic communities dedicated to sport management and sport economics research. The prominence of these countries reflects the strong connection between football's cultural relevance and the emergence of research exploring its broader economic implications.

Outside Europe, the United States appears as the fourth most productive country, with 24 publications. Although football (soccer) has historically played a less dominant role within the American sport system compared to other sports such as American football, basketball, or baseball, U.S. academic institutions have contributed substantially to the theoretical and methodological development of sport economics. Many influential studies examining sport franchises, stadium investments, and the economic impact of sporting events originate from American researchers and institutions.

A second group of countries with moderate levels of scientific production on the impact of football includes Brazil (11 publications), Australia (10 publications), Switzerland (9 publications), and China and Portugal (8 publications each). The presence of Brazil reflects the country's strong football culture and the increasing development of sport-related academic research in Latin America. Switzerland's position is partly associated with the presence of major international sport organizations, such as FIFA and UEFA, which contribute to academic interest in the governance and economics of global football.

Several additional European countries, including Ireland, France, and Italy (7 publications each), as well as the Netherlands (6 publications), also contribute to the literature, reinforcing the dominant role of Europe in shaping research on the economic aspects of football.

Beyond these leading contributors, a broader group of countries appears with smaller numbers of publications, including Turkey, Sweden, Austria, Russia, Saudi Arabia, Denmark, Iran, South Africa,

Canada, and Norway, each producing between three and five publications. Finally, a few countries such as South Korea, Hungary, Ecuador, Colombia, Qatar, Poland, the Czech Republic, Ukraine, Argentina, and Belgium appear with two publications each, illustrating the gradual internationalisation of research in this field.

Overall, the geographical distribution of publications reveals a strong concentration of research output in Europe, particularly in countries where football represents both a major cultural phenomenon and an important economic sector. At the same time, the presence of contributions from North America, South America, Asia, and Oceania suggests that the study of football's economic impact has progressively expanded beyond its traditional European core. These patterns highlight the global relevance of football as both an economic and social phenomenon and will be further explored through the analysis of their underlying linkages in the following chapter, Empirical Analysis.

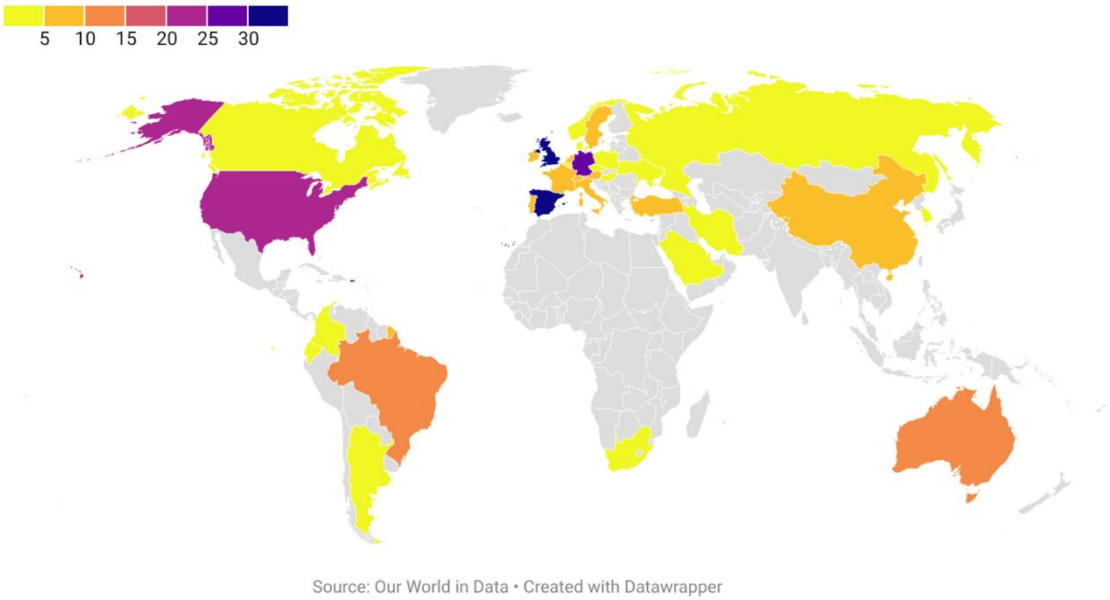


Figure 3 - Corresponding Author's Countries

3.3 Intellectual Structure and Research Influence

3.3.1 Top 5 journals by total number of articles

The analysis of the most productive journals constitutes an important component of bibli ometric performance analysis, as it allows the identification of the main scientific outlets through which knowledge within a research field is disseminated (Donthu et al., 2021; Mukherjee et al., 2022). Examining the top 5 journals that concentrate the highest number of publications also helps to

assess the degree of institutionalization of a research topic and the disciplinary domains in which the literature is embedded.

Based on the 500 articles included in the dataset, journals were identified according to their contribution to the scientific literature on the economic impact of football.

Table 1 - Top 5 journals by total number of articles

Journal	Record Count	Impact Factor (2024)	5-Year IF	JCR Quartile
Journal of Sport Economics	39	1.5	1.9	Q2 – Economics
European Sport Management Quarterly	21	3.7	4.3	Q1 – Hospitality, Leisure, Sport & Tourism Q2 – Management
Applied Economics	20	2.1	2.2	Q2 - Economics
International Journal of Sport Finance	20	0.5	1	Q4 – Hospitality, Leisure, Sport & Tourism
Applied Economics Letters	13	1.3	1.3	Q3 – Economics

The results indicate that the Journal of Sports Economics is the most productive journal in the sample, with 39 publications, representing the largest share of articles within the analysed dataset. This journal is widely recognised as one of the main academic outlets dedicated to the economic analysis of sport, publishing research on topics such as labour markets in professional sport, competitive balance, sport governance and the financial structures of football clubs. According to the Journal Citation Reports, the journal presents an Impact Factor of 1.5 and a five-year Impact Factor of 1.9, being classified in Quartile 2 (Q2) in the Economics category.

The European Sport Management Quarterly appears as the second most productive journal, with 21 publications. This journal occupies a prominent position in the field of sport management research and is classified in Quartile 1 (Q1) in the Hospitality, Leisure, Sport & Tourism category and Quartile 2 (Q2) in Management. With an Impact Factor of 3.7 and a five-year Impact Factor of

4.3, it represents one of the most influential journals within the broader field of sport management and governance, covering themes such as organizational structures in sport, financial management, and the socio-economic implications of professional sport.

Two journals share the third position in terms of publication volume: Applied Economics and the International Journal of Sport Finance, each with 20 articles. Applied Economics is a well-established journal in the field of applied economic analysis, publishing research across a wide range of empirical economic topics. Its presence among the most productive outlets highlights the increasing attention given by economists to sport as an economic sector. The journal presents an Impact Factor of 2.1 and a five-year Impact Factor of 2.2 and is classified in Quartile 2 (Q2) within the Economics category.

In contrast, the International Journal of Sport Finance focuses specifically on the financial dimensions of sport organizations, including issues related to revenue structures, investment patterns, and financial sustainability in professional sport. Despite its more specialised scope, the journal presents a lower citation impact compared with the other outlets, with an Impact Factor of 0.5 and a five-year Impact Factor of 1, being classified in Quartile 4 (Q4) in the Hospitality, Leisure, Sport & Tourism category.

Finally, Applied Economics Letters occupies the fifth position, with 13 publications in the dataset. This journal publishes shorter empirical studies within the broader field of applied economics and has increasingly included research related to sport economics. According to the Journal Citation Reports, it presents an Impact Factor of 1.3 and a five-year Impact Factor of 1.3, being classified in Quartile 3 (Q3) in the Economics category.

Overall, the distribution of publications across these journals highlights the multidisciplinary nature of research on the economic impact of football. The topic is addressed not only within specialised sport journals but also within broader economics outlets, reflecting the growing recognition of professional football as a relevant economic industry and a subject of interest for economists, sport management scholars and researchers in related disciplines.

3.3.2 Top 10 authors by number of articles

The analysis of the most productive authors provides valuable insights into the key contributors shaping the academic debate on the economic impact of football. Identifying the scholars with the

highest number of publications within the dataset helps to highlight the individuals who have played a central role in the development and consolidation of this research field.

Table 2 - Top 10 authors by number of articles

Authors	Record Count	% of 500	Authors	Record Count	% of 500
Coates D (University of Maryland Baltimore County)	10	1.802 %	Barajas A (University of Vigo)	5	0.901 %
Gasparetto T (Brock University)	8	1.441 %	Breuer C (German Sport University Cologne)	5	0.901 %
Humphreys BR (West Virginia University)	7	1.261 %	Schmidt SL (University of Duisburg-Essen)	5	0.901 %
Frick B (University of Paderborn)	6	1.081 %	Szymanski S (University of Michigan)	5	0.901 %
Maenning W (University of Hamburg)	6	1.081 %	Andreff W (University of Paris 1 Panthéon-Sorbonne)	4	0.721 %

The results show that Dennis Coates stands out as the most productive author, with 10 publications, representing approximately 1.80% of the total sample. Coates is widely recognised as one of the leading scholars in the field of sports economics, particularly known for his research on the economic impact of professional sports teams and stadiums on local economies. His work has significantly contributed to the academic debate regarding the real economic benefits generated by sport-related activities.

The second most productive author is Thadeu Gasparetto, with 8 publications, followed by Brad R. Humphreys, who has 7 publications. Humphreys is also one of the most influential researchers in sports economics and has produced extensive work on the economic effects of sports franchises, public investment in sport infrastructure, and regional economic impacts associated with professional sport teams.

Several authors share similar levels of scientific production on the impact of football within the dataset. Bernd Frick and Wolfgang Maennig each appear with 6 publications, both being well-established scholars in the field of sports economics. Their research frequently focuses on topics such as labour markets in professional sport, the economic behaviour of players and clubs, and the broader economic dynamics of sport industries.

A second group of authors includes Alberto Barajas, Christoph Breuer, Stefan L. Schmidt, and Stefan Szymanski, each with 5 publications, corresponding to approximately 0.90% of the total sample. These scholars have made important contributions to the literature on football economics, particularly in areas such as financial sustainability of football clubs, governance structures in sport organizations, and competitive balance within football leagues.

Finally, W. Andreff appears among the most productive authors with 4 publications, representing 0.72% of the total sample. Andreff has produced influential work on the economics of sport, including studies on the financial structures of professional sport and the economic organisation of football leagues.

Overall, the distribution of publications among authors suggests that research on the economic impact of football is characterised by a relatively dispersed authorship structure, without a single dominant contributor. Instead, the field is supported by a network of scholars specialising in sports economics, sport management, and applied economic analysis, reflecting the interdisciplinary nature of research in this area.

The presence of well-established sport economists among the most productive authors further reinforces the economic orientation of the literature, while also highlighting the interdisciplinary nature of research on the economic impact of football.

3.3.3 Top 10 articles by total number of citations

Table 3 presents the most cited articles within the analysed corpus of publications. The articles are ranked according to their total number of citations in the Web of Science database, allowing the identification of the most influential contributions shaping the academic debate on the economic impact of football.

Table 3 - Top 10 articles by total number of citations

Rank	Article Title	Authors	Year	Journal	Total Citations
1	The Mega-Event Syndrome: Why So Much Goes Wrong in Mega-Event Planning and What to Do About It	Müller, M.	2015	Journal of the American Planning Association	218
2	The quest for the cup: Assessing the economic impact of the World Cup	Baade, R. & Matheson, V.	2004	Regional Studies	196
3	The football players' labor market: Empirical evidence from the major European leagues	Frick, B	2007	Scottish Journal of Political Economy	169
4	The growth effects of sport franchises,stadia, and arenas	Coates, D and Humprhreys, BR	1999	Journal of Policy Analysis and Management	169
5	National well-being and international sports events	Kavetsos, G and Szymanski, S	2010	Journal of economic Psychology	168
6	Epidemiology of knee injuries among boys and girls in US high school athletics	Ingram, JG; Fields, SK; (...); Comstock, RD	2008	American Journal of Sports Medicine	141
7	Examining important relationship quality constructs of the focal sponsorship exchange	Farrelly, FJ and Quester, PG	2005	Industrial Marketing Management	137
8	Customer-based brand equity in the team sport industry Operationalization and impact on the economic success of sport teams	Bauer, HH; Sauer, NE and Schmitt, P	2005	European Journal of Marketing	126
9	The National Football Combine: Performance differences between drafted and nondrafted players entering the 2004 and 2005 drafts	Sierer, SP; Battaglini, CL;(...); Tomasini, NT	2008	Journal of Strength and Conditioning Research	125
10	Do firms maximize? Evidence from professional football	Romer, D	2006	Journal of Political Economy	121

The most cited publication is “The Mega-Event Syndrome: Why So Much Goes Wrong in Mega-Event Planning and What to Do About It” by Müller (2015), published in the Journal of the American Planning Association, with 218 citations. The article critically examines the economic and institutional dynamics associated with mega sporting events such as the Olympic Games and the FIFA World Cup. Its strong citation performance reflects the importance of the debate surrounding the economic consequences of large-scale sporting events, particularly the frequent overestimation of expected economic benefits and the systematic underestimation of associated costs.

The second most cited article, “The Quest for the Cup: Assessing the Economic Impact of the World Cup” by Baade and Matheson (2004), published in Regional Studies, has accumulated 196 citations. This study represents one of the most influential empirical contributions analysing the economic impact of hosting the FIFA World Cup and has played an important role in challenging optimistic projections often associated with mega-event impact studies.

Several other highly cited articles focus on different dimensions of the economics of sport. For example, Frick (2007) provides an influential empirical analysis of the labour market for professional football players in major European leagues, while Coates and Humphreys (1999) examine the economic effects of sport franchises and stadium investments on local economies. Similarly, Kavetsos and Szymanski (2010) explore the relationship between international sporting events and national well-being, highlighting the broader social implications associated with sport beyond purely economic indicators.

Other influential publications included in the list address topics such as sport injuries, sport marketing relationships, operational success factors in sport teams, and talent evaluation within professional leagues. These studies illustrate how professional sport provides a valuable empirical setting for examining broader economic, managerial, and behavioural questions.

Overall, the distribution of the most cited articles highlights the thematic diversity of the literature, which encompasses topics such as mega-event economics, labour markets in professional sport, sport marketing, and performance evaluation. At the same time, the prominence of studies focusing on major sporting events and international competitions indicates that a significant portion of the literature analysing economic impacts in sport has concentrated on large-scale events rather than on the economic effects generated by individual football clubs or domestic league structures.

This observation reinforces the presence of an important research gap within the existing literature, as the economic impact of professional football clubs at the local and regional level remains comparatively underexplored. Consequently, this gap further supports the relevance of the present study, which seeks to contribute to the literature by examining the economic role of football clubs within their local economic contexts.

3.3.4 Keyword co-occurrence analysis

Keyword co-occurrence analysis allows the identification of the main thematic structures within a research field by examining how frequently specific keywords appear together across scientific publications (Callon et al., 1983). This method helps reveal dominant research topics, conceptual relationships, and emerging trends within the literature.

Prior to generating the keyword network in VOSviewer, a thesaurus file was applied in order to standardize similar or duplicated terms appearing in different forms across the dataset. In a first stage, variations of key expressions such as economic-impact, economic impacts, and economic impact were merged into a single standardized term (economic impact), preventing artificial fragmentation of concepts within the network. In a second stage, an additional normalization process was implemented to harmonize broader variations of commonly used terms within the literature, including expressions referring to football and professional sport structures. This procedure ensured that conceptually identical keywords were grouped under consistent terminology, allowing for a clearer representation of thematic relationships.

To focus the analysis on the most relevant concepts and reduce noise in the visualization, a minimum occurrence threshold was applied (Van Eck & Waltman, 2010; Donthu et al., 2021). After applying this threshold, 42 keywords met the selection criteria and were included in the final network analysis.

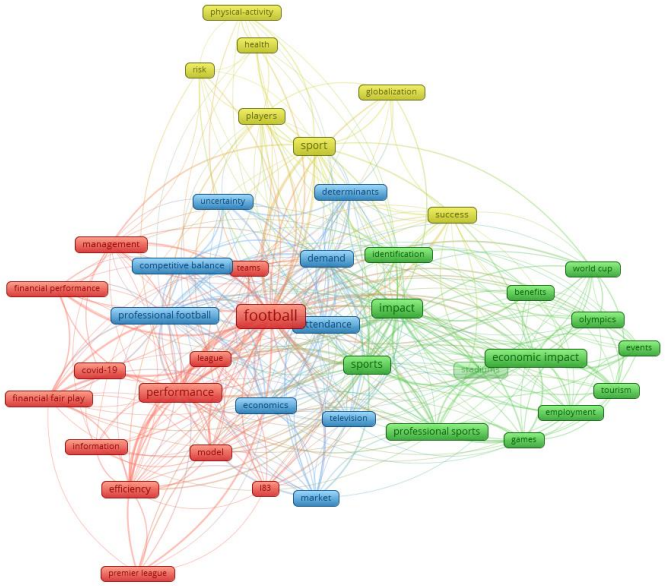


Figure 4 - Keyword Co-occurrence Network (VOSviewer)

Figure 4 presents the resulting keyword co-occurrence network, where nodes represent keywords and links represent the frequency with which two keywords appear together in the same publication. The size of the nodes reflects the number of occurrences of each keyword, while the distance between nodes indicates the strength of their association. The clustering algorithm implemented in VOSviewer groups keywords into thematic clusters represented by different colours.

The results show that "football" occupies a central position within the network, acting as the main connecting node between multiple thematic clusters. This centrality reflects the role of football as the core subject within the analysed literature, linking different strands of research related to sport economics, sport management, and the broader socio-economic implications of sport.

The network reveals several thematic clusters. One cluster is associated with performance and management aspects of football, including keywords such as performance, efficiency, model, league, financial performance, and management. These terms reflect research examining the internal functioning of football organizations, including team performance evaluation, financial governance, and managerial decision-making. Representative contributions within this strand include Bernd Frick (2007), who analyses labour market dynamics in professional football, as well as Ángel Barajas and Pedro Rodríguez (2010), who provide important insights into the financial management and sustainability of football clubs.

Another cluster is linked to market dynamics and traditional sport economics themes, including keywords such as demand, economics, market, competitive balance, and uncertainty. These topics represent well-established themes in sport economics, particularly those related to fan demand, league competitiveness, and the economic structure of professional sport markets. In this context, the work of Dennis Coates and Brad R. Humphreys (1999, 2003) provides important evidence on the economic effects of sports franchises and facilities.

A distinctive cluster connects football with broader social and sport-related dimensions, including keywords such as sport, players, health, physical activity, and risk. This cluster reflects research examining the wider social and health implications associated with sport participation and physical activity. For instance, George Kavetsos and Stefan Szymanski (2010) explore the relationship between sport and national well-being, while Jonathan G. Ingram et al. (2008) focus on health-related outcomes associated with sports participation. In addition, Hermann H. Bauer, Sauer and Schmitt (2005) analyse the broader social and consumer-related dimensions of sport, particularly in the context of team identity and engagement.

Finally, another relevant cluster is centred around the economic impact of sport, closely linked to keywords such as economic impact, tourism, employment, events, and benefits. This cluster reflects a substantial body of literature focusing on the economic consequences of sport activities, particularly large-scale events. Seminal contributions include Robert A. Baade and Victor A. Matheson (2004), who critically assess the economic impact of the FIFA World Cup, as well as studies such as José Manuel Sánchez Santos, Castellanos García and Peña-López (2003), which analyse the local economic effects of football clubs. Together, these works highlight both the potential benefits and the methodological challenges associated with measuring the economic impact of sport.

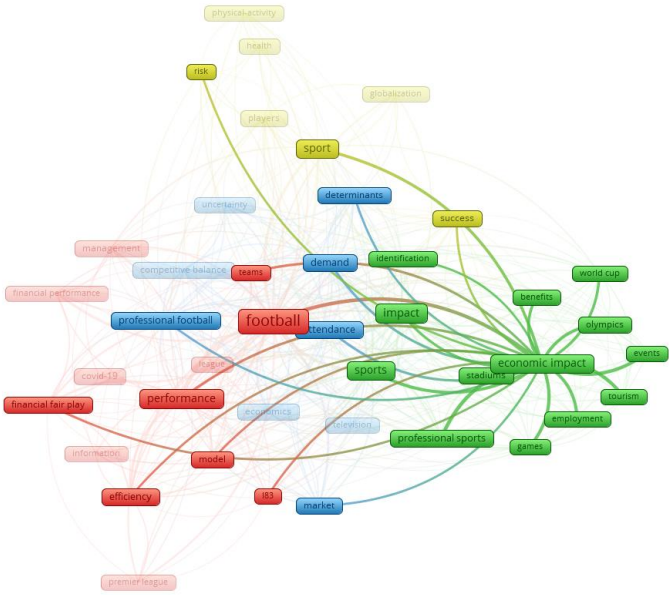


Figure 5 - "Economic Impact" cluster (VOSviewer)

Particular attention should be given to the cluster surrounding the keyword “economic impact”, which represents one of the most relevant thematic structures within the network. The keyword economic impact appears strongly connected with terms such as World Cup, Olympics, events, tourism, employment, benefits, and games. These connections indicate that a significant portion of the literature examining economic impacts in sport has focused on the economic consequences of major sporting events, particularly mega-events such as the FIFA World Cup and the Olympic Games.

The presence of keywords such as tourism and employment further suggests that many studies analyse the short-term economic benefits associated with hosting large sporting events, including increases in visitor spending, temporary employment, and broader economic activity generated during the event period.

At the same time, economic impact also shows links with more general sport-related terms such as sports, professional sports, and stadiums, indicating that some studies examine the economic implications of sport infrastructures and professional sport systems more broadly.

However, the network visualization also reveals an important structural pattern. While economic impact is strongly connected to event-related and tourism-related concepts, it shows relatively limited direct connections with keywords referring specifically to football clubs or domestic league structures. Terms such as league, teams, Premier League, and professional football appear in

other clusters and are more closely associated with research focusing on performance, competitive balance, or financial management within football organizations.

This separation between the event-focused economic impact literature and the club-level football research suggests that the economic dimension of football has frequently been analysed through the lens of large sporting events rather than through the long-term economic effects generated by professional football clubs within their local economies.

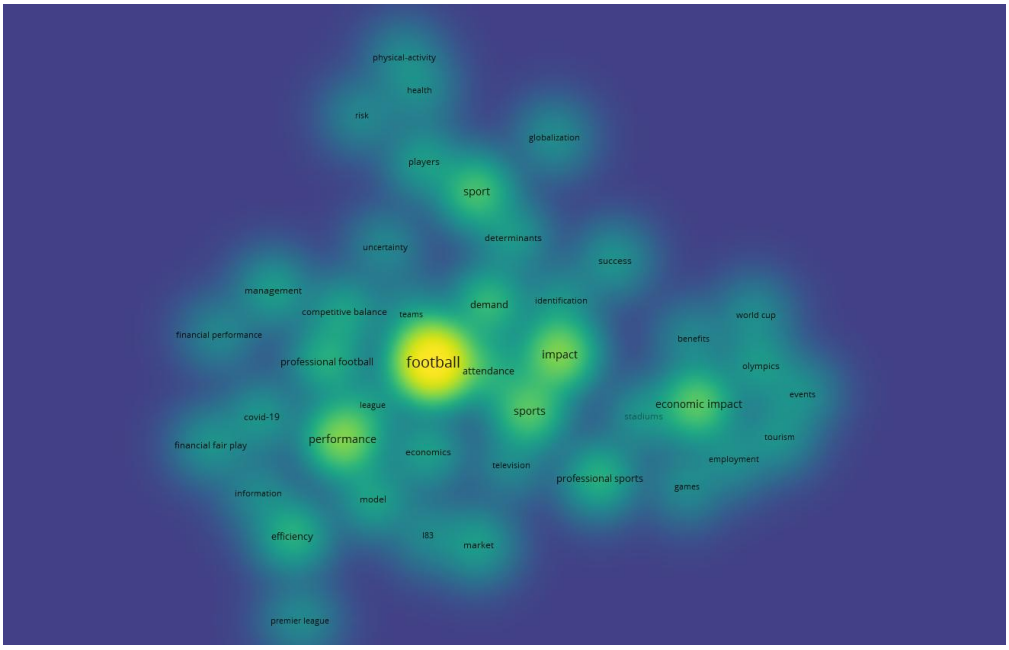


Figure 6 - Density visualization of keyword co-occurrence (VOSviewer)

Overall, the keyword co-occurrence analysis reveals a research landscape structured around several interconnected thematic areas, including sport performance, market dynamics in professional sport, and the economic effects of major sporting events. At the same time, the relatively weak presence of keywords directly associated with football clubs and their local economic impacts highlights an important gap within the literature. This observation reinforces the relevance of further research examining the role of professional football clubs as economic actors within their local and regional contexts, which constitutes one of the main objectives of the present study.

4. Empirical Analysis

While the bibliometric analysis provides a structured overview of the existing literature and highlights the main research trends in the field, it does not fully explain the underlying factors that drive the uneven distribution of scientific production on the impact of football across countries. In particular, the results reveal a clear concentration of publications in a limited number of countries, raising questions about the determinants of academic output in this domain.

In addition, the literature reveals a significant gap regarding the availability of reliable and disaggregated data at the national and regional levels, particularly concerning the economic and social contributions of football clubs. Despite the growing relevance of football as an economic and social actor, there is limited empirical evidence on how clubs contribute to local economies, stimulate economic activity, and promote social cohesion within their communities.

Furthermore, a substantial share of existing studies focuses on large-scale sporting events, such as FIFA World Cups or UEFA European Championships, often analysing their short-term economic impacts. This tendency is well documented in the literature, particularly in studies such as Robert A. Baade and Victor A. Matheson (2004), who examine the economic effects of the FIFA World Cup, as well as Dennis Coates and Brad R. Humphreys (2003), who critically assess the economic impact of sports events and facilities. In contrast, relatively fewer studies focus on the long-term and territorially embedded effects of football clubs (Sánchez Santos et al., 2003).

In this context, the empirical analysis aims to complement the bibliometric findings by exploring the structural factors that may explain cross-country differences in scientific production on the impact of football related to the economic impact of football. The motivation for this analysis therefore arises not only from the observed imbalance in the geographical distribution of research, but also from the need to better understand the conditions under which this type of research is developed, particularly in contexts where data limitations may constrain empirical investigation.

This approach is grounded in the broader literature on the determinants of scientific production on the impact of football, which highlights the role of structural and institutional factors in shaping research output. In particular, Jonathan Adams (2013) shows that scientific productivity is closely associated with economic development, while Leydesdorff and Wagner (2008) emphasize the importance of research systems and international integration. Similarly, Glänzel (2003) identifies

economic resources and institutional structures as key drivers of publication activity across countries.

By adopting a quantitative approach, this section seeks to provide additional insights into the relationship between national characteristics and scientific production on the impact of football, thereby reinforcing the interpretation of the bibliometric results and contributing to a more comprehensive understanding of the research landscape.

4.1 Data and Variables

The empirical dataset consists of a cross-country sample including 33 countries. The data combines bibliometric information obtained from the literature review with macroeconomic indicators and football-related variables collected from publicly available sources. The bibliometric component captures the number of academic publications addressing the economic impact of football, while the additional variables aim to explain the conditions under which such research tends to emerge.

The sample was restricted to countries with at least two publications in order to ensure a minimum level of representativeness and to avoid distortions associated with countries exhibiting only a single publication, which may not adequately reflect sustained research activity in the field.

The dependent variable is the number of publications identified for each country in the bibliometric analysis. This variable was constructed by counting the number of publications associated with each country in the final sample of studies examined in the previous chapter, thereby capturing the geographical distribution of academic production on the economic impact of football.

The set of explanatory variables was selected to reflect different dimensions that may influence scientific production on the impact of football. The first explanatory variable is GDP per capita (gdp_pc), used as a proxy for the level of economic development of each country (Barro, 1991). This indicator was obtained from the World Bank and corresponds to GDP per capita (current US$) for the year 2024. The use of current US dollars ensures comparability across countries in nominal terms (World Bank, 2026c).

The second explanatory variable is population (population), included to capture country size. This variable was also collected from the World Bank and corresponds to total population for the year 2024. As with GDP per capita, using the latest available annual observation helps maintain consistency across the dataset (World Bank, 2026b).

The third explanatory variable is research capacity, proxied by the number of researchers in R&D per million people (researchers). This indicator was obtained from the World Bank, which defines it as the number of professionals engaged in research and development activities, expressed per million inhabitants. This variable is particularly relevant for the purposes of this dissertation, as it captures the scientific infrastructure available in each country (World Bank, 2026a).

To account for the football dimension, two additional variables were included. The first is the FIFA men's world ranking (fifa_rank), used as a proxy for each country's sporting performance and international football relevance. The ranking values were collected from the official FIFA/Coca-Cola Men's World Ranking, using the ranking available in March 2026. At the time of data collection, FIFA indicated that the latest official update was published on 19 January 2026, with the next update scheduled for 31 March 2026 (FIFA, 2026)

The second football-related variable is the market value of the national league (market_value). This variable was collected from Transfermarkt and reflects the current total market value of clubs competing in each country's main national football league, using the values available at the time of collection in March 2026. This indicator is intended to capture the economic scale and commercial relevance of domestic professional football in each country.

In addition to the absolute measure of league market value, a derived variable was constructed to capture the relative importance of football within each national economy. Specifically, the ratio between the market value of the national league and the country's total GDP was calculated (League_GDP_share). While the market value variable reflects the overall economic scale of domestic football, this additional indicator allows for a standardized comparison across countries of different sizes, capturing the extent to which football represents a relevant component of the national economic structure.

Given the strong dispersion that typically characterizes cross-country economic data, logarithmic transformations were applied to most continuous variables in the econometric analysis, namely publications, GDP per capita, population, researchers, and market value. This procedure helps reduce skewness, mitigate the influence of extreme values, and allows the coefficients to be interpreted more conveniently in elasticity terms. The FIFA ranking was kept in levels, as it is an ordinal performance indicator rather than a standard economic magnitude.

Table 4 summarizes the variables included in the empirical analysis, their definitions, and their respective sources.

Table 4 - Variable and Data Sources

Variable	Definition	Measurement	Year / Date	Source
Publications	Number of publications about football by country	Count	1998 – 2026	Web of Science
Gdp_pc	GDP per capita	Current US$	2024	World Bank
Population	Total Population	Number of habitants	2024	World Bank
Researchers	Researchers in R&D	Per million habitants	Latest Available Year	World Bank
Fifa_rank	FIFA Men's World Ranking	Position in ranking	March 2026	FIFA
Market_value	Total market value of the main national league	€ / current market value	March 2026	Transfermarkt
League GDP Share	Ratio between the market value of the national league and total GDP	Ratio (market value / GDP)	2024 - 2026	World Bank and Transfermarkt

4.2 Descriptive Statistics and Correlation Analysis

Table 5 presents the descriptive statistics for the variables used in the empirical analysis. The dataset includes 33 observations, corresponding to the countries identified in the bibliometric analysis.

Table 5 - Descriptive Statistics

Variable	Obs.	Mean	Std.Dev.	Min	Max
Publications	33	8,15	10,85	2	51
GDP per Capita (Current US$)	33	42.619,24	29.847,05	5.190,20	112.895
Population (millions)	33	95,82	245,72	2,86	1.409,98
Researchers in R&D (per million habitants)	33	4.120,46	2.648,69	90	9.435
FIFA ranking	33	26,82	21,20	1	93
Market Value (million €)	33	1.458,51	2.506,53	18,56	12.580
League/GDP Share	33	0.00118	0.00136	0.000008	0.00575

The number of publications shows considerable variation across countries. On average, 8 publications have been identified at each observed country's institution, with a standard deviation of 10.85, indicating a relatively high dispersion in academic output on the economic impact of football. The number of publications ranges from 2 to 51, suggesting that research on this topic is highly concentrated in a small number of countries.

Regarding economic development, GDP per capita has an average value of approximately 42,619 USD, with a minimum of 5,190 USD and a maximum of 112,895 USD. This wide range reflects substantial differences in income levels among the countries included in the sample.

Population size also exhibits significant variability. The average population is approximately 95.8 million inhabitants, while the smallest country in the sample has around 2.9 million inhabitants

and the largest exceeds 1.4 billion inhabitants. Such disparities highlight the diverse demographic scales represented in the dataset.

Scientific capacity, measured by the number of researchers in R&D per million inhabitants, also varies considerably across countries. The average value is approximately 4,120 researchers per million inhabitants, with values ranging from 90 to 9,435. This large variation suggests substantial differences in national research systems and scientific infrastructure.

With respect to football-related variables, the FIFA ranking shows an average position of approximately 27, with values ranging from 1 to 93. This reflects the diversity in international football performance among the countries in the sample.

The market value of national football leagues also displays substantial dispersion. The average league market value is approximately 1,458 million, with a minimum of 18.56 million and a maximum exceeding 12,580 million. This large variation illustrates the considerable differences in the economic scale of professional football across countries.

In addition to the absolute market value, the relative importance of football within each national economy is captured by the "league share of GDP" variable. On average, this indicator represents approximately 0.12% of total GDP, suggesting that football constitutes a relatively small share of overall economic activity. However, the relatively high dispersion, with values ranging from near-zero levels to approximately 0.57% of GDP, highlights substantial cross-country heterogeneity. This indicates that, while football may have a limited macroeconomic weight in general, its economic relevance varies significantly across national contexts and may be more pronounced in specific countries.

Overall, the descriptive statistics highlight the strong heterogeneity across the sample, particularly in variables related to economic development, research capacity, and the economic scale of football. Such variability provides a suitable context for exploring the determinants of academic production in the subsequent econometric analysis.

Table 6 - Correlation Matrix of the Variables

	Publications	GDP per Capita	Population	Researchers	FIFA Rank	Market Value	League/ GDP Share
Publications	1.000						
GDP per Capita	0.194	1.000					
Population	0.091	-0.171	1.000				
Researchers	0.067	0.623***	-0.184	1.000			
FIFA Rank	-0.355**	-0.016	0.454***	-0.199	1.000		
Market Value	0.857***	0.040	-0.043	0.004	-0.443***	1.000	
League/GDP Share	0.3092*	-0.229	-0.210	-0.126	-0.305*	0.465***	1.000

*** p < 0.01, ** p < 0.05, * p < 0.10

The correlation matrix presented in Table 6 provides a preliminary overview of the relationships between the variables included in the empirical analysis.

The results reveal a strong positive correlation between the number of publications and the market value of national football leagues (0.857), which is statistically significant at the 1% level. This suggests that countries with economically larger football sectors tend to generate more academic research related to the economic impact of football.

In addition, a positive correlation is also observed between publications and the relative importance of football, measured by the league share of GDP (0.309), which is statistically significant at the 10% level. Although weaker than the relationship with market value, this finding indicates that not

only the absolute size of the football industry, but also its relative importance within the national economy, may be associated with higher levels of scientific production on the impact of football.

A moderate negative correlation is observed between publications and the FIFA ranking (-0.355), significant at the 5% level. This relationship is consistent with expectations, as the FIFA ranking is an ordinal indicator in which lower values correspond to better sporting performance. In other words, countries with stronger national teams tend to occupy lower ranking positions. Therefore, the negative coefficient suggests that countries with stronger national teams tend to produce more academic research on the economic aspects of football.

Among the explanatory variables, a relatively strong positive correlation is observed between GDP per capita and the number of researchers (0.623), which is statistically significant at the 1% level. This relationship is expected, as economically more developed countries typically possess more advanced research systems and greater scientific capacity.

Population is positively correlated with the FIFA ranking (0.454), indicating that larger countries tend to occupy weaker positions in the FIFA ranking on average, although this relationship should be interpreted cautiously.

Finally, a moderate positive correlation is observed between market value and the league share of GDP (0.465), indicating that countries with larger football markets also tend to exhibit a higher relative economic importance of football, although the relationship is not perfectly proportional.

Overall, while some explanatory variables exhibit moderate correlations, none appear to reach levels typically associated with severe multicollinearity. This issue is further assessed through formal multicollinearity diagnostics in the regression analysis presented in the following section.

4.3 Econometric Model and Regression Results

In order to analyse the determinants of academic production on the economic impact of football across countries, this study employs an Ordinary Least Squares (OLS) regression model. Given the cross-country nature of the dataset, OLS provides a suitable framework for examining the relationship between the number of publications and a set of economic, demographic and football-related variables.

The empirical analysis is based on a sample of 33 countries and aims to identify whether structural national characteristics help explain the uneven distribution of academic research on the economic impact of football.

Due to the large differences in scale across countries, several variables were transformed using natural logarithms. Cross-country economic data typically display substantial variation, particularly in variables such as GDP, population, and market size. The logarithmic transformation helps reduce the influence of extreme values and allows the estimated coefficients to be interpreted as elasticities. In this context, the coefficients represent the percentage change in the number of publications associated with a one percent change in the explanatory variable.

The baseline econometric model can therefore be expressed as follows:

$$ln\,(Publications_i) = \beta_0 + \beta_1\, ln\,(GDP_{pci}) + \beta_2\, ln\,(Population_i) +$$

$$\beta_3 ln\,(Researchers_i) + \beta_4 FIFA_rank_i + \beta_5\, Xi + \varepsilon_i$$

where i represents each country and $\varepsilon_i$denotes the error term. The variable $X_i$represents the football-related economic indicator, alternatively measured as the logarithm of the market value of the national football league or the logarithm of the league share of GDP.

The dependent variable corresponds to the logarithm of the number of publications identified in each country. The explanatory variables include GDP per capita, used as a proxy for economic development, population size, which captures country scale, and the number of researchers in research and development, which reflects scientific capacity. In addition, football-related variables are incorporated into the model: the FIFA ranking, which serves as a proxy for national football performance, and two alternative measures of the economic dimension of football. The first corresponds to the market value of the national league, capturing its absolute economic scale, while the second reflects the relative importance of football within the national economy through the ratio of league market value to GDP.

Given that these two variables capture closely related dimensions of the football industry, namely its absolute size and its relative importance, they are introduced separately in alternative model specifications in order to avoid potential multicollinearity issues.

In order to account for potential heteroskedasticity in cross-country data, all regressions were estimated using robust standard errors (White, 1980).

To better understand the contribution of each set of variables, the empirical analysis estimates four model specifications, gradually introducing additional explanatory variables. This stepwise

approach allows the robustness of the results to be assessed and facilitates the interpretation of the relative importance of each factor.

$$ln\ (Publications_i) = \beta_0 + \beta_1\ ln\ (GDP_{pci}) + \varepsilon_i$$

(Model 1)

Model (1) includes only GDP per capita as an explanatory variable. The results indicate a positive and statistically significant relationship between economic development and the number of publications. This finding suggests that countries with higher income levels tend to produce more academic research on the economic impact of football.

$$ln\ (Publications_i) = \beta_0 + \beta_1\ ln\ (GDP_{pci}) + \beta_2\ ln\ (Population_i) + \varepsilon_i$$

(Model 2)

Model (2) extends the baseline specification by introducing population as an additional explanatory variable. The results indicate that both GDP per capita and population are positive and statistically significant at the 1% level.

The coefficient of GDP per capita increases to 0.567, suggesting that a 1% increase in income levels is associated with an increase of approximately 0.57% in the number of publications, holding population constant. This reinforces the importance of economic development as a key determinant of scientific production on the impact of football.

Population also exhibits a positive and statistically significant coefficient of 0.397, indicating that a 1% increase in population is associated with an increase of approximately 0.40% in the number of publications. This result highlights the role of country size in shaping research output, suggesting that larger countries tend to generate more academic production.

The inclusion of population substantially improves the explanatory power of the model, with the R-squared increasing from 0.129 in Model (1) to 0.426 in Model (2). This confirms that country scale is a critical factor in explaining cross-country differences in scientific production on the impact of football.

$$ln\ (Publications_i) = \beta_0 + \beta_1\ ln\ (GDP_{pci}) + \beta_2\ ln\ (Population_i) + \beta_3 ln\ (Researchers_i) + \varepsilon_i$$

(Model 3)

Model (3) further extends the specification by introducing the number of researchers in research and development as a proxy for scientific capacity. The results show that GDP per capita and

population remain positive and statistically significant at the 1% level, with coefficients of approximately 0.569 and 0.397, respectively. This confirms the robustness of the relationship between economic development, country size, and scientific production on the impact of football.

In contrast, the number of researchers does not appear to have a statistically significant effect on the number of publications, as indicated by a coefficient close to zero and a very high p-value. This suggests that, within the context of this model, research capacity—at least as measured by the number of researchers—does not provide additional explanatory power beyond that already captured by GDP per capita and population.

The explanatory power of the model remains unchanged compared to Model (2), with an R-squared of approximately 0.426. This indicates that the inclusion of the researchers variable does not improve the model's ability to explain cross-country variation in scientific production on the impact of football.

Overall, these results suggest that broader structural factors, such as economic development and country size, play a more important role in explaining scientific output than more specific measures of research capacity.

$$ln\,(Publications_i) = \beta_0 + \beta_1\,ln\,(GDP_{pci}) + \beta_2\,ln\,(Population_i) +$$

$$\beta_3 ln\,(Researchers_i) + \beta_4 FIFA_rank_i + \beta_5 ln\,(MarketValue_i) + \varepsilon_i$$

(Model 4)

Model (4) introduces football-related variables, namely the FIFA ranking and the market value of the national football league, in addition to the structural controls included in previous specifications. The results indicate that GDP per capita and population remain positive and statistically significant at the 1% level, confirming the robustness of their effects across model specifications.

The number of researchers continues to be statistically insignificant, reinforcing the idea that broader structural factors such as economic development and country size already capture most of the variation in scientific production on the impact of football. Similarly, the FIFA ranking does not exhibit a statistically significant effect, suggesting that national team performance is not a key determinant of academic output in this context.

In contrast, the market value of the national football league shows a positive and statistically significant coefficient of 0.251, significant at the 5% level. Given the log-log specification, this

coefficient can be interpreted as an elasticity, indicating that a 1% increase in the market value of the league is associated with an increase of approximately 0.25% in the number of publications. This result suggests that countries with larger and more economically developed football industries tend to generate greater academic interest in the economic impact of football.

The inclusion of football-related variables substantially improves the explanatory power of the model, with the R-squared increasing to 0.584. This represents a significant improvement compared to previous specifications and highlights the importance of incorporating sport-specific economic variables in explaining cross-country differences in scientific production on the impact of football.

Overall, the results indicate that while general structural factors such as economic development and country size remain key determinants, the economic scale of the football industry plays an additional and significant role in explaining the distribution of academic research across countries.

$$ln\,(Publications_i) = \beta_0 + \beta_1\,ln\,(GDP_{pci}) + \beta_2\,ln\,(Population_i) +$$

$$\beta_3 ln\,(Researchers_i) + \beta_4 FIFA_rank_i + \beta_5 ln\,(LeagueGDPShare_i) + \varepsilon_i$$

(Model 5)

Model (5) replaces the market value of the national league with the league share of GDP, capturing the relative importance of football within each national economy. The results indicate that GDP per capita and population remain positive and statistically significant at the 1% level, with coefficients of 0.732 and 0.553, respectively, confirming the robustness of structural determinants across model specifications.

As in previous models, the number of researchers does not exhibit a statistically significant effect, suggesting that research capacity is largely captured by broader structural variables. Similarly, the FIFA ranking remains statistically insignificant, indicating that national team performance does not play a relevant role in explaining scientific production on the impact of football in this context.

The league share of GDP presents a positive and statistically significant coefficient of 0.250, significant at the 5% level. Given the log-log specification, this implies that a 1% increase in the relative importance of football within the national economy is associated with an increase of approximately 0.25% in the number of publications. This result suggests that countries where

football represents a more relevant component of the economy tend to generate greater academic interest in its economic impact.

The explanatory power of the model remains high (R^2 = 0.584), virtually identical to that of the specification using market value. This indicates that both the absolute size and the relative importance of the football industry provide similar explanatory capacity in accounting for cross-country differences in scientific production on the impact of football.

Table 7 - OLS regression results explaining cross-country variation in scientific production on the impact of football

	(1) ln_publications	(2) ln_publications	(3) ln_publications	(4) ln_publications	(5) ln_publications
ln_gdp_pc	0.355***	0.567***	0.596***	0.481***	0.732***
	(0.123)	(0.107)	(0.154)	(0.158)	(0.174)
Ln_population		0.397***	0.397***	0.302***	0.533***
		(0.0882)	(0.0898)	(0.0708)	(0.104)
Ln_researchers			-0.00223	-0.00507	-0.005
			(0.128)	(0.108)	(0.108)
Fifa_rank				-0.000665	-0.001
				(0.00482)	(0.005)
ln_market_value				0.251**	
				(0.0970)	
ln_league_gdp_share					0.250**
					(0.097)
_cons	-2.063	-8.379***	-8.383***	-8.024***	-13.573***
	(1.220)	(1.766)	(1.807)	(1.500)	(2.301)
N	33	33	33	33	33
R-sq	0.129	0.426	0.426	0.584	0.584

Standard errors in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Comparing Models (4) and (5), the results show that both the absolute size of the football industry (market value) and its relative importance within the national economy (league share of GDP) have a positive and statistically significant effect on scientific production on the impact of football.

Interestingly, both variables display nearly identical coefficients and explanatory power, suggesting that they capture closely related dimensions of the same underlying phenomenon.

These findings indicate that the economic relevance of football, whether measured in absolute or relative terms, plays a significant role in shaping the distribution of academic research across countries. However, given that market value provides a more direct measure of the economic scale of professional football, it may be considered the more intuitive specification for interpretation, while the league share of GDP offers a useful complementary perspective.

4.4 Diagnostic Tests and Robustness Checks

In order to assess the validity and reliability of the estimated econometric models, several diagnostic tests were conducted. These tests allow us to evaluate whether the main assumptions of the Ordinary Least Squares (OLS) estimator are satisfied and whether the regression results can be considered robust.

The final model explains approximately 58.4% of the variation in the dependent variable, as indicated by the R-squared statistic. This implies that the explanatory variables included in the model account for a substantial share of the cross-country variation in the number of publications related to the economic impact of football. Considering the cross-sectional nature of the dataset and the relatively small sample size, this level of explanatory power can be considered satisfactory.

The first diagnostic step consists of testing for heteroskedasticity, which occurs when the variance of the error term is not constant across observations. The presence of heteroskedasticity violates one of the classical OLS assumptions, namely the assumption of homoskedasticity. When this assumption is violated, the estimated coefficients remain unbiased, but the standard errors may become inconsistent, potentially leading to incorrect conclusions regarding the statistical significance of the explanatory variables.

To test for the presence of heteroskedasticity, the Breusch–Pagan / Cook–Weisberg test was employed. The null hypothesis of this test states that the variance of the error term is constant across observations. The results indicate a p-value of 0.0872, which is above the conventional 5% significance level. Therefore, the null hypothesis of homoskedasticity cannot be rejected, suggesting that there is no strong statistical evidence of heteroskedasticity in the estimated models.

This conclusion is reinforced by the White test, which also fails to reject the null hypothesis of homoskedasticity (p-value = 0.3175). Taken together, these results indicate that the assumption

of constant variance is not violated in a statistically significant manner. Nevertheless, given the nature of cross-country data and the potential presence of unobserved heterogeneity, all regressions were estimated using robust standard errors to ensure reliable statistical inference.

Multicollinearity was assessed using the Variance Inflation Factor (VIF), which measures the degree of linear association among explanatory variables. The results indicate that all VIF values remain well below commonly accepted thresholds. In Model (4), the maximum VIF is 2.52 and the mean VIF is 1.84, while in Model (5) the maximum VIF is slightly higher at 2.67, with a mean value of 2.02. Since these values are far below the conventional thresholds associated with severe multicollinearity (typically around 5 or 10), the results suggest that multicollinearity is not a significant concern in either specification.

Model specification was evaluated using the Ramsey RESET test, which assesses whether important variables may have been omitted or whether the functional form of the model is misspecified. The null hypothesis states that the model is correctly specified. The results yield a p-value of 0.6010 in both Model (4) and Model (5), indicating that the null hypothesis cannot be rejected. This suggests that the log-linear specification adopted in the analysis is appropriate and that there is no evidence of omitted variable bias.

In addition, the presence of outliers and influential observations was examined using studentized residuals and Cook's distance. The results indicate that Spain presents a studentized residual above the conventional threshold, suggesting it may be considered an outlier. Furthermore, Ireland is identified as a potentially influential observation based on Cook's distance. However, further inspection suggests that these observations do not exert a disproportionate influence on the overall results, as the estimated coefficients remain stable across specifications.

Table 8 - Diagnostic Tests Comparison

Diagnostic Test	Model (4)	Model (5)
Breusch–Pagan (p-value)	0.0872	0.0872
White test (p-value)	0.3175	0.3175
RESET test (p-value)	0.6010	0.6010
Max VIF	2.52	2.67
Mean VIF	1.84	2.02

Finally, a comparison between Model (4) and Model (5) shows highly consistent diagnostic results across both specifications. In both cases, there is no evidence of heteroskedasticity, multicollinearity, or model misspecification. This consistency reinforces the robustness of the empirical findings and confirms that the results are not sensitive to the specific measure used to capture the economic dimension of football.

Overall, the diagnostic tests indicate that the estimated econometric models do not suffer from major violations of the classical OLS assumptions. The absence of significant multicollinearity, the lack of strong evidence of heteroskedasticity, and the satisfactory results of the RESET test all support the robustness and reliability of the regression results presented in the previous section.

5. Conclusion

This dissertation aimed to analyse the economic relevance of football through a combined bibliometric and empirical approach, allowing for both a structured understanding of the research landscape and an explanation of cross-country differences in scientific production on the impact of football.

The bibliometric analysis reveals a clear expansion of the literature over time, especially in the recent years, reflecting the growing recognition of football as an economic and social phenomenon. However, this growth is not evenly distributed across topics. A substantial share of the literature remains focused on large-scale sporting events, such as FIFA World Cups, rather than on the long-term economic impact of football clubs. This supports previous findings in the literature, particularly those of Robert A. Baade and Victor A. Matheson, as well as Dennis Coates and Brad R. Humphreys, who highlight the tendency to overestimate the economic benefits of mega-events.

In contrast, the economic role of football clubs as continuous and territorially embedded institutions remains comparatively underexplored. This suggests that the literature has prioritised short-term, event-driven impacts over more stable and long-term economic contributions. The findings of this dissertation reinforce the relevance of shifting the focus towards football clubs, which operate as permanent economic agents within their local contexts.

The empirical analysis provides further insights into these patterns. The results indicate that structural variables such as GDP per capita and population are strong and statistically significant determinants of scientific production on the impact of football. This confirms that economic development and country size play a central role in shaping research capacity. More important, football-related variables, such as the market value of national leagues and the league share of GDP, also exhibit positive and significant effects. The consistency of these results across alternative specifications suggests that both the absolute size and the relative importance of football within the economy contribute to generating academic interest.

These findings indicate that research on the economic impact of football tends to emerge in contexts where the sport is not only cultural relevant but also economically significant. In contrast, variables such as research capacity and FIFA ranking do not show a statistically significant effect, suggesting that broader structural conditions and economic relevance outweigh purely sporting performance in explaining scientific output.

Despite these contributions, several limitations must be acknowledged. The empirical analysis is based on a small sample of countries, which may affect the results. In addition, the focus on countries with positive levels of scientific production on the impact of football may introduce selection bias. In this context, future research could benefit from the use of two-part models, which would allow for a more comprehensive analysis by distinguishing between the likelihood of producing research and the intensity of that production. This approach would be particularly useful in larger samples including countries with zero publications.

Furthermore, the results highlight a fundamental constraint in the field: the limited availability and transparency of data, in particular at the club and municipal levels. This limitation not only restricts empirical research but may also help explain the geographical concentration of scientific production on the impact of football observed in the bibliometric analysis.

To conclude, this dissertation contributes to the literature by bridging bibliometric analysis with empirical investigation, providing new insights into both the structure of the research field and the determinants of its development. At the same time, it highlights the need for further research, improved data availability, and more refined methodological approaches to better understand the economic role of football clubs within local and national economies.

References

Adams, J. (2013). The fourth age of research. *Nature, 497*(7451), 557–560. https://doi.org/10.1038/497557a

Baade, R. A., & Matheson, V. A. (2004). *The quest for the cup: Assessing the economic impact of the World Cup*. Regional Studies, 38(4), 343–354 https://doi.org/10.1080/03434002000213888

Barajas, Á., & Rodríguez, P. (2010). Finances of Spanish football clubs: Crisis and player salaries. *International Journal of Sport Finance*, 5(1), 52–66. https://doi.org/10.1177/155862351000500105

Bauer, H. H., Sauer, N. E., & Schmitt, P. (2005). Customer-based brand equity in the team sport industry: Operationalization and impact on the economic success of sport teams. *European Journal of Marketing*, *39*(5-6), 496-513. https://doi.org/10.1108/03090560510590683

Barro, R. J. (1991). *Economic growth in a cross section of countries*. *The Quarterly Journal of Economics*, 106(2), 407–443 https://doi.org/10.2307/2937943

Callon, M., Courtial, J. P., Turner, W. A., & Bauin, S. (1983). From translations to problematic networks: An introduction to co-word analysis. *Social Science Information*, 22(2), 191–235. https://doi.org/10.1177/053901883022002001

Castellanos, P., & Sánchez, J. M. (2007). The economic value of a sports club for a city: empirical evidence from the case of a Spanish football team. *Urban public economics review*, (7), 13-38. https://www.researchgate.net/publication/242669908_The_economic_value_of_a_sports_club_for_a_city_empirical_evidence_from_the_case_of_a_Spanish_football_team

Coates, D., & Humphreys, B. R. (1999). The growth effects of sport franchises, stadia, and arenas. *Journal of Policy Analysis and Management: The Journal of the Association for Public Policy Analysis and Management*, *18*(4), 601-624. https://doi.org/10.1002/(SICI)1520-6688(199923)18:4%3C601::AID-PAM4%3E3.0.CO;2-A

Coates, D., & Humphreys, B. R. (2002). The Economic Impact of Postseason Play in Professional Sports. *Journal of Sports Economics*, *3*(3), 291-299. https://doi.org/10.1177/1527002502003003005

Coates, D., & Humphreys, B. R. (2003). Professional sports facilities, franchises and urban economic development. *Public Finance and Management*, 3(3), 335–357. https://doi.org/10.1177/152397210300300303

Dobson, S., & Goddard, J. (2011). *The economics of football* (2nd ed.). Cambridge University Press.https://www.researchgate.net/profile/Stephen-Dobson-8/publication/227388381_The_Economics_of_Football/links/02e7e53c8d9bf708b7000000/The-Economics-of-Football.pdf

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: an overview and guidelines. *Journal of Business Research*, 133, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Ernst & Young LLP. (2021). *Economic and social impact of the Premier League: 2019/20 season*. https://www.premierleague.com/news/2434933

Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. *The FASEB Journal*, 22(2), 338–342. https://doi.org/10.1096/fj.07-9492lsf

Farrelly, F. J., & Quester, P. G. (2005). Examining important relationship quality constructs of the focal sponsorship exchange. *Industrial marketing management*, *34*(3), 211-219. https://doi.org/10.1016/j.indmarman.2004.09.003

FIFA. (2007). *FIFA Big Count 2006: 270 million people active in football*. FIFA Communications Division. https://digitalhub.fifa.com/m/55621f9fdc8ea7b4/original/mzid0qmguixkcmruvema-pdf.pdf

Frick, B. (2007). The football players' labor market: Empirical evidence from the major European leagues. *Scottish Journal of Political Economy, 54*(3), 422–446. https://doi.org/10.1111/j.1467-9485.2007.00423.x

Frost, L., & Halabi, A. K. (2007). *Measuring the success of country football clubs* (Working Paper No. 1607). Monash University, Department of Economics. https://www.monash.edu/business/economics/our-research/working-papers/_archive/2007/1607measuringfrosthalabi.pdf

García, J., Lera-López, F., & Sánchez-Santos, J. M. (2025). Hosting a football club as a source of social trust and civic pride. *Soccer & Society*, 26(5), 766–783. https://doi.org/10.1080/14660970.2025.2497548

Gibson, H. J. (1998). Sport Tourism: A Critical Analysis of Research. *Sport Management Review*, *1*(1), 45–76. https://doi.org/10.1016/S1441-3523(98)70099-3

Glanzel, W. (2003). *Bibliometrics as a research field a course on theory and application of bibliometric indicators*. https://nsdl.niscpr.res.in/bitstream/123456789/968/1/Bib_Module_KUL.pdf

Halicioglu, F. (2006). The impacts of football point systems on the competitive balance: evidence from some European footbal leagues. https://mpra.ub.uni-muenchen.de/10798/

Ingram, J. G., Fields, S. K., Yard, E. E., & Comstock, R. D. (2008). Epidemiology of knee injuries among boys and girls in US high school athletics. *The American journal of sports medicine*, *36*(6), 1116-1122. https://doi.org/10.1177/0363546508314400

Kan, E. (2025). A bibliometric evaluation of the relationship between sports, psychology, and economics. *Sport Econ Research*, 2, 134–152. https://doi.org/10.71125/sporteconres.21

Kavetsos, G., & Szymanski, S. (2010). National well-being and international sports events. *Journal of economic psychology*, *31*(2), 158-171. https://doi.org/10.1016/j.joep.2009.11.005

Leydesdorff, L., & Wagner, C. S. (2008). International collaboration in science and the formation of a core group. *Journal of Informetrics, 2*(4), 317–325. https://doi.org/10.1016/j.joi.2008.07.003

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group (2009). *Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement*. PLoS Medicine, 6(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Mongeon, P., & Paul-Hus, A. (2016). The journal coverage of Web of Science and Scopus: a comparative analysis. *Scientometrics*, 106(1), 213–228. https://doi.org/10.1007/s11192-015-1765-5

Mukherjee, D., Lim, W. M., Kumar, S., & Donthu, N. (2022). Guidelines for advancing theory and practice through bibliometric research. *Journal of Business Research*, 148, 101–115. https://doi.org/10.1016/j.jbusres.2022.04.042

Müller, M. (2015). *The mega-event syndrome: Why so much goes wrong in mega-event planning and what to do about it*. Journal of the American Planning Association, 81(1), 6–17. https://doi.org/10.1080/01944363.2015.1038292

Page, M. J., McKenzie, J. E., Bossuyt, P. M., et al. (2021). *The PRISMA 2020 statement: An updated guideline for reporting systematic reviews*. BMJ, 372, n71. https://doi.org/10.1016/j.jclinepi.2021.02.003

Premier League. (2016). *Leicester City's title win delivers major economic boost to local economy*. https://www.premierleague.com/en/news/143055

Preuss, H. (2007). The Conceptualisation and Measurement of Mega Sport Event Legacies. *Journal of Sport & Tourism*, *12*(3–4), 207–228. https://doi.org/10.1080/14775080701736957

Romer, D. (2006). Do firms maximize? Evidence from professional football. *Journal of Political Economy*, *114*(2), 340-365. https://doi.org/10.1086/501171

Sánchez Santos, J., Castellanos García, P., & Pena López, J. (2003). Economia, futebol e bem-estar social. Corunha: Conselho Provincial da Corunha. http://hdl.handle.net/2183/21604

Sierer, S. P., Battaglini, C. L., Mihalik, J. P., Shields, E. W., & Tomasini, N. T. (2008). The National Football League Combine: performance differences between drafted and nondrafted players entering the 2004 and 2005 drafts. *The Journal of Strength & Conditioning Research*, *22*(1), 6-12. https://doi.org/10.1519/JSC.0b013e31815ef90c

Steinfeldt, H., Dallmeyer, S., & Breuer, C. (2025). COVID and the crisis: The economic impact of the COVID-19 pandemic on elite athletes. *European Sport Management Quarterly*, 25(2), 197–217. https://doi.org/10.1080/16184742.2024.2302824

Szymanski, S. (2003). The economic design of sporting contests. *Journal of Economic Literature*, 41(4), 1137–1187. https://doi.org/10.1257/jel.41.4.1137

UEFA. (2018). *UEFA Club Licensing and Financial Fair Play Regulations*. Union of European Football Associations. https://documents.uefa.com/v/u/MFxeqLNKelkYyh5JSafuhg

United Nations. (2011). *Sport as a tool for development and peace: Towards achieving the Millennium Development Goals*. https://www.un.org/

Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3

White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica*, 48(4), 817–838. https://doi.org/10.2307/1912934

World Sports Advertising. (2023). *Impact of sport on the global economy*. https://www.worldsportsadvertising.com/news/impact-of-sport-on-global-economy

Data Sources

Transfermarkt. (2026). Market values. https://www.transfermarkt.com/navigation/marktwerte

FIFA. (2026). FIFA men's world ranking. https://inside.fifa.com/fifa-world-ranking/men

World Bank. (2026a). Researchers in R&D (per million people). https://data.worldbank.org/indicator/SP.POP.SCIE.RD.P6

World Bank. (2026b). Population, total. https://data.worldbank.org/indicator/SP.POP.TOTL

World Bank. (2026c). GDP per capita (current US$). https://data.worldbank.org/indicator/NY.GDP.PCAP.CD

Web of Science. (2026). Core Collection database. https://www.webofscience.com