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Evaluating the Economic Potential of Iran's Football Industry: A Performance Gap Analysis

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Abstract

In today's global economy, sports, especially football, have become key drivers of economic activity, with an estimated fan base of five billion worldwide. Professional football is no longer just entertainment; it has evolved into a dynamic sector that makes substantial contributions to employment and economic output. Football clubs, as multifaceted economic entities, engage in competition not only on the field but also within a fiercely competitive commercial and financial environment. This study employs the Data Envelopment Analysis method to assess the economic performance and growth potential of Iran's football industry. By analyzing data from 48 football clubs—including a selected group of international benchmarks and eight clubs from Iran's Premier League—the research provides a comparative evaluation of technical efficiency across diverse organizational and market contexts. The results highlight a stark contrast between benchmark clubs and Iranian clubs. Only a handful of international clubs are positioned on the efficiency frontier, while Iranian clubs show inefficiency levels exceeding 90%, indicating a significant performance gap. This suggests a latent growth potential of more than 700% in critical areas such as revenue, market value, and global competitiveness. The findings underscore the need for institutional, financial, and managerial reforms to address these inefficiencies and unlock the considerable economic potential of Iran's football industry. Improving technical efficiency could significantly boost the international standing of Iranian clubs and contribute to the broader development of the country's sports economy.

Keywords: Football Economy, Sports Economy, Data Envelopment Analysis, Iran's Football Industry, Potential Growth Capacity, Inefficiency.

JEL Classification: L83, C67, D24, O47.

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1. Introduction

In today's world, developed countries place significant emphasis on sports and the sports industry, recognizing them as key drivers of economic growth, improved quality of life, and societal well-being. This belief is based on the understanding that the growth of sports industries directly stimulates broader economic development. Among various sports, football holds a unique global position, boasting approximately five billion fans, 130,000 professional players, and more than 4,400 professional clubs worldwide (FIFA, 2021)¹.

Over the past few decades, football has evolved into a major sector within the global sports economy, contributing not only to economic growth but also playing a significant cultural and social role across many countries. With a history spanning thousands of years, modern football has undergone profound changes and remarkable advancements, largely driven by science and technology, making it almost unrecognizable compared to its earlier forms. The professionalization and industrialization of football have led to several transformative developments, including the public listing of clubs on stock exchanges, the widespread use of satellite television for broadcasting matches, significant capital flows into equity markets, changes in club governance and management models, the globalization of player transfers, and substantial revenue growth from the commercialization of football-related products and services (Smharun, 2025: 121).

Today, football has transformed from a mere social activity into a highly productive industry that attracts significant attention from the media, sponsors, and investors. With billions of fans, popular events and matches, and the integration of commerce with the sport, football has become a key driver of economic development in many countries. By attracting substantial investments, the football industry can significantly contribute to GDP, create employment, and enhance the economic welfare of nations (Zolfaghari, Nobakht Ramazani, & Naderi Nasab, 2022). For example, during the 2021–2022 season, Spain's professional football sector generated over €18.35 billion in economic output—equivalent to 1.44% of the national GDP—and supported more than 194,000 full-time jobs (La Liga, 2023)².

These developments underscore football's strategic significance in the global economy. At the core of this expanding industry, football clubs serve as the primary agents of growth and sustainability. As the foundational units of football development, clubs occupy a central position within the broader football ecosystem, shaping both its economic trajectory

¹. <https://publications.fifa.com/en/vision-report-2021/the-football-landscape/>
<https://publications.fifa.com/en/annual-report-2021/around-fifa/professional-football-2021/>

². La Liga: <https://www.laliga.com/en-GB/news/professional-football-in-spain-generates-more-than-000111-jobs-euro930-billion-in-taxes-and-accounts-for-000percent-of-gdp>

and institutional structure (Bason & Senaux, 2023). Clubs with higher revenues have more capacity to invest in players, infrastructure, and long-term growth, which often correlates with sporting success (Deloitte, 2023)¹.

Despite these global advancements, Iran's football industry has yet to fully leverage its social popularity and competitive potential. Football is highly popular in Iran, with clubs such as Persepolis and Esteghlal ranking among Asia's most successful teams. The Tehran derby attracts over 100,000 spectators and tens of millions of television viewers. Moreover, Iranian players are increasingly scouted by Arab and European clubs. Nevertheless, despite these strengths, Iranian football clubs continue to face significant financial challenges, including structural inefficiencies, underdeveloped revenue streams, and chronic instability.

For instance, in 2023, Esteghlal Football Club failed to pay its debts and lost its AFC license due to unpaid salaries for players and coaches, leading to disqualification from the AFC Champions League (Inside World Football, 2022)². According to the club's 2023 financial report, its total revenue was approximately 62 billion Tomans, while expenses exceeded 580 billion Tomans, indicating a severe financial imbalance (Esteghlal Cultural and Athletic Club, 2023)³.

Considering these facts and the global role of football in both sports performance and financial growth, this study aims to address the performance gap in Iran's football industry by assessing the technical inefficiency of its clubs. Using the Data Envelopment Analysis (DEA) method, the study compares Iranian clubs with a selected group of international benchmarks to evaluate their distance from the efficiency frontier and estimate their capacity for growth and improvement, as the primary objective of this research is to estimate the improvement potential of Iran's football industry through measuring technical inefficiency.

The main contribution of this paper lies in its innovation within the applied football economics literature. While the methodology is widely used, the growing importance of football economics globally, even in countries where the sport is less prominent than in Iran, underscores the value of studies that enhance the sector's role in Iran's economy. This paper can thus play a crucial role in advancing empirical football economics in the country.

¹. <https://www2.deloitte.com/uk/en/pages/sports/articles/deloitte-football-money-league.html>

². <https://www.insideworldfootball.com/2022/01/07/afc-kicks-iranian-giants-persepolis-esteghlal-champions-league/>

³. Codal:

<https://codal.ir/DownloadFile.aspx?hs=NQZQQaQQQEbZAAJsUKi%2bKtIaNPQ%3d%3d&ft=0111&let=9>

2. Analytical Foundations

Given the economic functions of sports and its significant role in the contemporary economies of nations, sports economics has become an increasingly prominent field of discussion. The emergence of sports economics dates back to 1956 in the United States, when Simon Rottenberg, widely regarded as the founder of the field, revolutionized the role of sports in society and created opportunities for revenue generation in many countries. Just as economics as a discipline can be traced back to Adam Smith's inquiries into the causes of the wealth and poverty of nations, the first application of economic methods to sports is attributed to Rottenberg in his seminal article on the labor market for baseball players, published in the *Journal of Political Economy* (Andreff & Szymanski, 2006).

The economic and commercial performance of sport has reached a distinctive position in various countries, especially in developed nations such as the United Kingdom, Spain, and Australia. For example, in Australia, the sports industry was valued at \$32.2 billion for the 2016–2017 period, contributing \$14.4 billion to the country's GDP and supporting approximately 128,000 full-time jobs. In that same year, the industry accounted for 0.8% of total GDP and 1.5% of employment in the country, with exports worth \$2.5 billion and imports totaling \$1.8 billion. From a labor productivity perspective, the industry generated an added value of approximately \$112,000 per worker annually. Moreover, it was estimated that the value-added share of the sports industry grew at a rate of 13% between 2012 to 2017. (KPMG Sports Advisory, 2020).¹ The sports industry also plays a substantial role in the economies of both developed and emerging nations. In the United Kingdom, the sector contributed £18.1 billion to the national economy in 2022, accounting for 0.8% of total economic output and supporting approximately 550,000 jobs. Between 2010 and 2022, the UK sports industry experienced a growth rate of 32.2%, significantly outpacing the overall economic growth rate of approximately 21.5% over the same period (Weston, 2024)². The sports industry in China has also demonstrated significant growth. Total output in this sector increased from 1.7 trillion Yuan in 2015 to approximately 3 trillion yuan (USD 419.71 billion) in 2019, reflecting both the industry's improvement and the growing public interest in sports across the country. Furthermore, the total output of the sports industry reached 3.3 trillion yuan (USD 461.68 billion) in 2022, marking a 5.9% increase compared to 2021. The value added by the sports industry—which represents the industry's net economic contribution—rose to 1.3 trillion yuan (USD 181.87 billion) in 2022, showing a 6.9% year-on-year growth. In addition, the sports services sector performed well,

¹ <https://www.health.gov.au/sites/default/files/documents/2020/05/sports-industry-economic-analysis.pdf>

² <https://lordslibrary.parliament.uk/contribution-of-sport-to-society-and-the-economy/>

contributing 918 billion yuan (USD 128.43 billion), or 70.1%, to the industry's total value added. The manufacturing of sports equipment and related products also showed strong performance, accounting for 386.6 billion yuan (USD 51.56 billion), or 28.2%, of the value added. The Chinese government aims to expand the sports industry to 5 trillion yuan (USD 699.52 billion) by 2025, indicating a promising future for China's sports sector (Interesse, 2024)¹.

Thus, the sports economy encompasses a variety of elements, including direct and indirect job creation, the production of sports goods and equipment, international trade in sports products, tourism development, the flourishing of local markets through sporting events, advertising and broadcasting rights, the establishment of sports facilities, cultural impacts, the growth of social and human capital, and the enhancement of public welfare in society.

The economics of sport focuses on maximizing profits by analyzing revenue sources, costs, and pricing strategies for sports clubs, including ticket prices and broadcasting rights. To achieve these goals, it is essential to identify the factors influencing demand and supply in the sports market, helping managers implement strategies to optimize profits and financial management.

Demand in the sports industry is shaped by economic and non-economic factors. The economic factors can be categorized into three groups:

1. **Individual demand**, driven by factors such as income, the price of sports services and goods, and time.
2. **Collective demand**, impacted by income distribution and the number of consumers.
3. **Other contributors**, including historical patterns, market expectations, saturation levels, and legal constraints.

Non-economic demand determinants include preferences, sports fashions, personal health, external factors (e.g., weather), cultural influences, and demographic variables like age, gender, and location (Viseu, 2000).

On the supply side, the sports industry is split between the **public** and **private sectors**. The public sector focuses on improving access by investing in infrastructure and facilities, while the private sector generates revenue through the sale of sports services, goods, and events. Understanding both supply and demand dynamics is crucial for sports clubs to manage their operations effectively.

¹. <https://www.china-briefing.com/news/chinas-economic-and-sports-industry-gains-from-paris-2024-olympics/>

Football is arguably the most popular sport across the globe. Over recent decades, football has experienced the most widespread reach among all sports, and the football economy constitutes a major portion of the overall sports economy. Since the rules of football were first written in the mid-19th century and labor unions began forming teams to compete against one another, football has evolved into a truly global sport.

Though the sport was initially spread by British migrants, unlike other sports such as rugby, football was not confined to Britain. Instead, it was embraced on a much broader scale and eventually became a universally popular sport¹. Today, football is no longer merely a sport or a form of entertainment. What is broadcast on television or what happens on the pitch is only part of the story. Football has transformed into a highly profitable and revenue-generating industry, where clubs, teams, and leagues operate like economic enterprises.

Given the widespread passion for the sport, football has consistently attracted attention from the media, commercial enterprises, sponsors, and other investors, creating an ideal environment for economic activity. In the modern world, the football industry facilitates the movement of billions of dollars through massive revenues and extravagant expenditures.

Revenue sources in the football industry include television broadcasting rights, sponsorship and commercial partnerships, match day income and ticket sales, and endorsements involving star players, among others. On the expenditure side, costs include astronomical transfer fees and player acquisitions, travel and training camp expenses, event hosting, depreciation costs, and more.

In essence, football and economics have become inseparable. As a result of the dramatic transformations in football in recent decades, economists have increasingly turned their attention to the sport, which has evolved from a game and pastime into a powerful commercial engine and a high-income industry.

3. Literature review

A review of studies related to the subject discussed in this article reveals diverse findings from research conducted in various countries, particularly in European nations.

Šíma *et al.*, (2023) examined the productive efficiency of teams in the Premier League, focusing on clubs in the 2016-2017 season. They employed a non-parametric data envelopment analysis (DEA) to analyze input variables, such as player salaries and coach wages, and output variables, including points earned, total revenue, and Facebook

¹ <https://www.britannica.com/sports/football-soccer/Professionalism?>

followers. The study found that social media and the internet played a significant role in attracting fans and increasing club revenue. It also identified the potential for reducing input variables to enhance the efficiency of underperforming clubs.

[Keskin and Öndes \(2020\)](#) assessed the efficiency of 59 major European football clubs across 10 countries, evaluating both sporting and financial performance. Their input variables included the number of players, total annual salary, and net assets, while output variables consisted of points earned, total turnover, and spectator numbers. The study revealed that the number of championships won and an increase in players positively impacted performance. However, participation in European tournaments and mid-season coaching changes negatively affected performance. Clubs with effective management, adequate infrastructure, successful transfers, and high fan support exhibited the highest efficiency.

[Wyszyński \(2016\)](#) analyzed the efficiency of Polish football clubs during the 2014-2015 season. Using DEA, the study evaluated inputs such as player and coach salaries and outputs including revenue, season points, average stadium attendance, and TV viewership. The study found that over a third of inefficient clubs were spending excessively on player and coach wages relative to their revenue. It also highlighted that highly efficient clubs did not always rank at the top of the league, suggesting that efficiency alone doesn't guarantee superior league performance.

[Guzmán and Morrow \(2007\)](#) examined the efficiency and productivity of English football clubs using a combined approach of Data Envelopment Analysis (DEA) and the Malmquist productivity index. Their DEA model used output variables such as points earned and total revenue, while input variables included staff expenses, operating costs, and managerial bonuses. The study found that reducing input levels by up to 20% could improve the efficiency of underperforming teams. It also highlighted that technological advancements positively shifted the efficiency frontier, demonstrating the significant role of technology in enhancing football clubs' productivity.

Studies in Iran's football industry have primarily focused on areas like issue diagnosis, barriers to growth, economic development, and privatization.

[Zolfaghari et al., \(2022\)](#) introduced an economic development model for Iranian Premier League football clubs, identifying several key factors that significantly influence club performance. These factors include structural improvements, club financing and resources, professional and championship sports development approaches, talent management systems, financial management systems, athletic performance, transfer markets, and strategic club management. However, the study found that club structure, club

ownership, marketing systems, and stakeholder management did not have a significant impact on the examined outcomes.

Seifpanahi *et al.*, (2022) proposed a comprehensive model outlining 28 important categories affecting the performance and success of football clubs. These categories encompass financial capacity, players, technical staff, facilities, talent scouting processes, club academies, training camps, competitions, fan support, local community and government backing, training sessions, effective and efficient management, youth teams, club branding, club history, and educational programs. All these elements were shown to contribute to enhancing club performance and success.

Moradi *et al.*, (2019) analyzed the economic and financial barriers hindering the performance and sustainable development of Iran's football industry. Their research identified 45 such barriers, categorized broadly into external factors—those beyond the control of the football industry—and internal factors, which relate to organizational aspects within the industry itself.

Rezaei & Esmaili (2019) examined challenges related to television broadcasting rights in Iran's football sector. Their analysis highlighted seven critical components affecting the sale of broadcasting rights: environmental, economic, political, cultural, structural, managerial (government-related), behavioral, and legal factors. The study emphasized that the ongoing refusal by the national broadcasting organization to pay for these rights poses a serious risk of financial collapse for the football industry. To address this, the authors recommended establishing private television networks and forming a negotiation committee involving the government, parliament, and the national broadcasting organization to ensure the sector's financial sustainability.

The reviewed literature underscores a broad and evolving research agenda concerning the economic and operational efficiency of professional football clubs. Studies from European contexts primarily focus on measuring technical efficiency using Data Envelopment Analysis (DEA), with an emphasis on optimizing the relationship between financial inputs (e.g., player and coach wages, assets) and outputs (e.g., league points, revenue, fan engagement). These analyses reveal both the critical role of financial discipline and the growing influence of intangible assets such as social media reach. Notably, they highlight that high efficiency does not necessarily align with top league rankings, pointing to the complex, multi-dimensional nature of success in modern football.

In contrast, Iranian studies have largely concentrated on diagnosing structural and economic challenges within the football industry. They emphasize issues such as inefficient club management, underdeveloped financial systems, barriers to privatization, and the

absence of sustainable revenue models. Specific attention has been given to the role of government policies, broadcasting rights, and institutional barriers in shaping the economic viability of Iranian clubs. Together, these findings reveal a significant gap in efficiency and highlight substantial untapped potential for performance and financial improvement within Iran's football sector.

A review of these articles highlights a significant gap in the domestic research landscape regarding the use of frontier-based analytical models to evaluate growth potential and economic performance in Iran's football industry. While such models, particularly Data Envelopment Analysis, have been widely applied in studies of European and other developed countries to assess the efficiency and productivity of football clubs, Iranian research has largely focused on structural challenges, managerial deficiencies, and external barriers to development. Together, these findings reveal not only the absence of efficiency-oriented assessments in the domestic context but also substantial untapped potential for performance enhancement and financial improvement in Iran's football sector. This study aims to fill this gap by applying a frontier efficiency approach to evaluate the status and improvement potential of Iranian football clubs.

4. Research Method, Data, and Model Estimation

This study aims to assess the potential improvement of Iran's football industry using a dataset of 48 DMUs, including European football clubs, through the Data Envelopment Analysis (DEA) frontier method.¹

Data Envelopment Analysis (DEA) encompasses a range of models, notably the Constant Returns to Scale (CRS) model and the Variable Returns to Scale (VRS) model.

¹. Comparing the efficiency of Iranian football clubs with global clubs, despite historical and structural differences, is entirely logical within the framework of the Data Envelopment Analysis (DEA) method used in this study. The basis of this method is to assess efficiency based on the performance of the best-performing firms (Best Practice) in an industry, which are used as benchmarks. The logic behind this method is that if top firms have achieved higher outputs with the same inputs, other firms using the same inputs should be able to achieve the same output levels. If their outputs differ, this indicates inefficiency. If the goal is to measure inefficiency in order to determine the potential improvement capacity (potential improvement) for inefficient firms, this method provides a reliable answer. Such a comparison allows us to define a comparative standard for other clubs by using the best practices in global football. In this method, the efficiency of each unit (club) is measured based on its distance from the efficiency frontier (the performance of top units).

Therefore, global football clubs, which typically have better financial resources, managerial structures, and infrastructure, are considered as the standard reference for efficiency measurement. This comparison precisely aligns with the main goal of DEA, which is to identify more efficient units and their potential for improvement.

Comparing Iranian football clubs with global clubs, despite structural and financial differences, is possible due to the use of appropriate data and control variables. Variables such as financial resources, number of players, market value, and global rankings are correctly incorporated into the DEA model as inputs and outputs to minimize the impact of these differences. In this way, the comparisons are made based on the actual performance of the clubs and their optimization of resource usage, rather than superficial comparisons.

The goal of this comparison is to identify performance gaps between clubs and to calculate the potential improvement capacity for inefficient clubs, which is the main objective of this paper.

The CRS model is based on the assumption that outputs change in direct proportion to changes in inputs, implying a linear production technology. In contrast, the VRS model relaxes this assumption, allowing for non-proportional relationships between input and output changes, thereby capturing the presence of scale inefficiencies. There are many reasons why firms experience variable returns to scale. For example, a firm may exhibit increasing return to scales (IRS) if the hiring more staff permits specialization of labor, but may eventually exhibit decreasing return to scale (DRS) if it becomes so large that management is no longer able to exercise effective control over the production processes (Coelli *et al.*, 2005).

DEA models can be implemented using different orientations—input-oriented, output-oriented, or a non-oriented (graph-based) approach—depending on the nature of managerial control and the objectives of the analysis. This orientation is especially relevant in contexts where the production environment is resource-constrained and output levels are dictated by external demand or institutional mandates. For example, in sectors such as healthcare (e.g., hospitals) or sports (e.g., football clubs), resources like personnel, equipment, and time are typically limited and under managerial control, while outputs (such as patient outcomes or match results) are less directly controllable. (Coelli et al 2005. Conversely, an output-oriented approach seeks to maximize outputs given a fixed level of inputs and is more applicable when firms have greater influence over outputs, such as in manufacturing settings where production targets can be adjusted to meet strategic objectives. For instance, an automobile manufacturer may aim to optimize the number of units produced to meet demand while keeping input costs constant.

In this study, the following input-oriented Data Envelopment Analysis (DEA) model under the assumption of constant returns to scale (CCR model) is employed to evaluate the technical efficiency and capacity for improvement within Iran's football industry. This model facilitates the assessment of how effectively football clubs utilize their controllable resources—such as coaching staff, training facilities, and available practice time—compared to the best-performing peers. It also provides a benchmark for identifying potential input reductions that can be achieved without negatively affecting output levels, thereby highlighting opportunities for enhanced resource allocation and operational efficiency.

$$\text{Max} \sum_{r=1}^s u_r Y_{ro} \quad (1)$$

$$\begin{aligned}
 & \text{S. t. : } \sum_{i=1}^m v_i x_{io} = 1 \\
 & \sum_{r=1}^s u_r y_{rj} - \sum_{i=1}^m v_i x_{ij} \leq 0 \quad j = 1, \dots, n \\
 & u_r \geq 0 \quad v_i \geq 0
 \end{aligned} \tag{1}$$

Where , v_i and u_r show weight assigned to input i and output r , respectively. o denotes the index of the decision-making unit under review ($o \in \{1, 2, \dots, n\}$), y_{ro} and x_{io} , are the observed values of output r and input of i is for the DMU under review (unit o). y_{rj} and x_{ij} ; represent the corresponding input and output values for any other DMUs; The total number of inputs is denoted by m , the total number of outputs by s , and n refers to the total number of DMUs included in the analysis. These parameters form the basis for constructing the efficiency frontier against which each DMU's performance is evaluated.

4-1. Study Population and Sampling Method

This study examines clubs from five major global football leagues—English Premier League, La Liga (Spain), Ligue 1 (France), Serie A (Italy), and Bundesliga (Germany)—as well as Iran's Persian Gulf Pro League. A selective sampling method was used, resulting in a sample of 48 clubs: 40 from the European leagues (eight from each) and 8 from the Persian Gulf Pro League, based on available data. The top eight clubs from the Iranian league were included, while others were excluded due to insufficient data. Data for the 2022 season are presented in millions of euros to ensure better comparability. Since football clubs typically release their financial statements at the end of June, marking the close of each football season, the Iranian Rial and British Pound have been converted into euros based on the exchange rate at the end of June 2022. A list of the clubs included in the study is in the appendix.

Based on the described dataset, the previously introduced DEA model was applied to compute the efficiency scores of the football clubs under study. In this framework, the input and output variables utilized for the analysis are detailed as follows:

Input Variables

1. Average player and staff wage costs: these includes the total remuneration paid to all employees, encompassing players, coaching staff, and technical personnel. Given the substantial portion these wages constitute in club expenditures, and the notable wage disparities between Iranian and European clubs, this variable was selected as a key input

2. Average other operating expenses: Covers costs like travel, training camps, stadium maintenance, event hosting, advertising, and marketing, with European clubs incurring higher costs.

3. Number of players: Total number of players under contract for the 2021-2022 season.

Output Variables:

1. Total revenue: Aggregated income derived from match-day, broadcasting rights sponsorships, and commercial activities.

2. Global club ranking: Based on a FIFA-approved points system that considers national team performance, with more recent results having greater weight.

3. Total market value: Reflects the club's value in the transfer market, based on player prices.

Table 1 presents the descriptive statistics of these variables for all Decision-Making Units (DMUs) included in the study.

Table 1. Descriptive statistics of the variables

Variables	Average	Std. Deviation	Minimum	Maximum
Average cost of players' and staff salaries (million euros)	0.628	0.216	0.238	1.368
Average of other expenses (million euros)	0.607	0.212	0.345	1.318
Number of players (individuals)	28.895	4.142	19	40
Total revenue (million euros)	273062.8	258682.5	2610	1100318
Global ranking of the club	15	0.164	1482	1
Total market value of each club (million euros)	394683	282606.3	6050	1003400

Source: Research findings.

The average salary cost for players and staff across the sample is approximately €628,000, with a minimum of €238,000 and a maximum of €1.368 million. The lowest value corresponds to Sepahan FC from the Iranian Persian Gulf Pro League, while the highest is attributed to AS Monaco in France's Ligue 1. The average of the "average other expenses" variable is €607,000, ranging from €345,000 for Fiorentina in Italy's Serie A to €1.318 million for AS Monaco. Regarding the "number of players" variable, the mean is about 29 players per club, with a maximum of 40 players at Paris Saint-Germain and a minimum of 19 players at Sepahan FC in 2022. The average total revenue among the 48 clubs is approximately €273 million, with Peykan FC (Iran) reporting the lowest revenue at €2.61 million, and Real Madrid generating the highest at €1.1 billion. The mean global

ranking for the clubs studied is around 15, where Bayern Munich (Germany) holds the highest position, and Aluminium FC (Iran) has the lowest rank. Finally, the average total market value is estimated at €394 million, with Manchester City (England) commanding the highest market valuation of €1.003 billion, and Aluminium FC the lowest at €6 million.

5. Results and Findings

Using the model framework described in equation (1) and the variable data presented in Table 1, the technical efficiency of 44 clubs analyzed in this study has been estimated.¹ Given the considerable variation in operational scale among the clubs—ranging from very large to smaller entities—the assumption of constant returns to scale (CRS) was adopted to estimate the production function and calculate technical efficiency. This assumption allows for flexibility in modeling the production process under heterogeneous scales of activity and reduces the influence of scale size on efficiency scores. Consequently, the efficiency estimates derived under the CRS assumption provide a more precise measure of the clubs’ technical efficiency, independent of their scale of operations. The estimated technical efficiency scores obtained from the model are summarized in the following table.

Table 2. Technical efficiency of the clubs studied in the research in 2022

Row	Club	Efficiency	Row	Club	Efficiency
1	Real Madrid	1	25	Roma	0.26
2	Barcelona	1	26	Napoli	0.42
3	Manchester City	1	27	Lyonnais	0.36
4	Liverpool	1	28	Koln	0.12
5	Paris Saint-Germain	0.77	29	Lille	0.27
6	Manchester United	0.69	30	Hertha	0.13
7	Bayern Munich	1	31	Sassuolo	0.31
8	Chelsea	0.79	32	Lazio	0.24
9	Borussia Dortmund	0.64	33	Real Sociedad	0.45
10	Juventus	0.56	34	Real Betis	0.24
11	Atletico de Madrid	0.67	35	Valencia	0.27

¹. In this study, EMS software was utilized to construct the technical efficiency frontier and to identify efficient and inefficient decision-making units.

12	Arsenal	0.58	36	Union Berlin	0.15
13	Tottenham Hotspur	0.64	37	Monaco	0.30
14	Inter Milan	0.47	38	Stade de Reims	0.12
15	Leipzig	0.60	39	Nice	0.20
16	West Ham United	0.42	40	Strasbourg	0.10
17	Bayer Leverkusen	0.49	41	Sepahan	0.02
18	Wolfsburg	0.32	42	Gol Gohar Sirjan	0.01
19	Leicester City	0.45	43	Foolad	0.02
20	AC Milan	0.45	44	Esteghlal	0.01
21	Marseille	0.28	45	Persepolis	0.01
22	Fiorentina	0.53	46	Zob Ahan	0.008
23	Sevilla	0.42	47	Aluminium	0.006
24	Villarreal	0.45	48	Paykan	0.01

Source: Research findings.

As shown in the table, five clubs—Real Madrid, Barcelona, Manchester City, Liverpool, and Bayern Munich—achieved an efficiency score of 1, indicating that they form the efficiency frontier. Real Madrid and Barcelona are the highest-earning clubs of 2022, holding global rankings of 5 and 9, respectively. Bayern Munich, Manchester City, and Liverpool also demonstrate strong performance, with global ranks of 1, 2, and 3, respectively, and substantial revenues relative to other clubs. Moreover, Manchester City and Liverpool possess the highest total market values among all European clubs. Among other European clubs, technical efficiency scores range from 0.21 to 0.90, indicating varying degrees of inefficiency. Chelsea stands out as the most efficient club within this group, whereas Strasbourg is the least efficient.

In contrast, Iranian clubs display notably low efficiency scores, with pronounced inefficiencies across the board. Foolad Khuzestan and Sepahan exhibit the lowest inefficiency among Iranian clubs, approximately 0.97 units, followed closely by Esteghlal and Persepolis at 0.98. The greatest inefficiency is observed in Zob Ahan and Aluminium, with scores nearing 0.99 units.

However, considering the cost structures, revenue levels, and international rankings of Iranian football clubs, the efficiency scores obtained for them do not appear entirely unreasonable. Given that the primary objective of this study is to assess the growth potential

of Iran’s football industry, it is possible to estimate the target output for Iranian clubs based on their current efficiency scores using the following formula:

$$\text{Target Output} = \frac{\text{Actual Output}}{\text{Efficiency Level}} \tag{2}$$

In the context of Data Envelopment Analysis (DEA), the target output represents the level of output that a club could theoretically achieve if it were operating efficiently, given its current level of inputs. In other words, the DEA model identifies the maximum attainable output without increasing input levels, and this output is considered the benchmark or target. Additionally, *output slack* in the DEA framework refers to the shortfall between the actual output and the target output. This shortfall quantifies the inefficiency associated with each output variable for a given club. The output deficit, calculated using the above formula, reflects the extent to which each club falls short of its efficient output level and can serve as a basis for estimating the unrealized potential in the industry.

$$\text{Output Slack} = \text{Actual Output} - \text{Target Output} \tag{3}$$

Based on equations (2) and (3), the target output and corresponding output slack for each output variable can be calculated for all clubs included in the study. The results of these calculations for Iranian football clubs are presented in Tables 3, 4, and 5, offering a detailed assessment of their performance gaps and unrealized output potential.

Table 3. Target Total Revenue of Iranian Football Clubs (Million Euros)

Club	Output Actual	Output Slack	Output Target
Sepahan	11841	461799	473640
Gol Gohar Sirjan	9230	602028.27	611258.27
Foolad	8764	314630.83	323394.8
Esteghlal	6185	377976.49	384161.49
Persepolis	3232	182515.12	185747.12
Zob Ahan	3107	366773.95	369880.95
Aluminium	2735	393641.81	396376.81
Paykan	2610	186520.43	189130.43

Source: Research findings.

Sepahan FC faces a revenue shortfall of €462 million in order to reach the efficiency frontier. By increasing its total revenue to €473 million, the club could operate at an efficient level. Gol Gohar FC has the largest revenue gap among Iranian football clubs, requiring an increase of €602 million to achieve a target revenue of €611 million and attain efficiency. Foolad Khuzestan FC would become efficient by raising its revenue by €314 million, reaching a total of €323 million. Similarly, Esteghlal and Persepolis FCs exhibit revenue shortfalls of €378 million and €182 million, respectively. To align with the efficiency frontier, their revenues would need to increase to €384 million and €185 million. The revenue deficits and corresponding efficiency benchmarks for Zob Ahan, Aluminium, and Peykan FCs are also reported in Table 3, all of which indicate substantial gaps between actual and target performance levels.

Table 4: Target Global Ranking Values for Iranian Football Clubs

Club	Output Actual	Output Slack	Output Target
Sepahan	283 (0.003)	-276 (0.137)	7 (0.141)
Gol Gohar Sirjan	987 (0.003)	-972 (0.066)	15 (0.067)
Foolad	293 (0.001)	-285 (0.122)	8 (0.125)
Esteghlal	130 (0.007)	-128 (0.47)	2 (0.477)
Persepolis	74 (0.013)	-73 (0.763)	1 (0.776)
Zob Ahan	451 (0.002)	-448 (0.261)	3 (0.263)
Aluminium	1482 (0.0006)	-1472 (0.097)	10 (0.097)
Paykan	826 (0.001)	-815 (0.086)	11 (0.087)

Source: Research findings.

An important methodological consideration in applying the Data Envelopment Analysis model is the treatment of the global ranking variable. To ensure the correct interpretation within the DEA framework—where higher values represent better performance—the global rankings of clubs were transformed by taking the reciprocal of each club's ranking (i.e., $1/\text{rank}$). These transformed values were used in the EMS software for analysis. Accordingly, Table 4 presents the reciprocal values in parentheses for reference. However, to facilitate clearer interpretation and comparison, Table 4 also displays the actual global rankings, their target rankings required to reach the efficiency frontier, and the corresponding ranking gaps under the heading "Output Slack".

Iranian football clubs currently hold relatively low positions in the global rankings. To reach the efficiency frontier, substantial improvements are required. For instance, Gol Gohar FC, currently ranked 987th globally, would need to improve to a rank of 15. Aluminium and Peykan FCs, ranked 1482 and 826 respectively, must reach global rankings of 10 and 11 to be deemed efficient. Similarly, Sepahan and Foolad Khuzestan FCs, with current global rankings of 283 and 293, need to improve to rankings below 10. Esteghlal, Persepolis, and Zob Ahan FCs—currently ranked 130, 74, and 451—would need to reach top 5 positions to operate efficiently according to the DEA model.

Table 5: Target Market Value of Iranian Football Clubs (Million Euros)

Club	Output Actual	Output Slack	Output Target
Sepahan	10025	390975	401000
Gol Gohar Sirjan	9250	603332.7	612582.7
Foolad	17100	613896.31	630996.3
Esteghlal	14675	896815.6	911490.6
Persepolis	13025	735538.2	748563.2
Zob Ahan	6800	802723.8	809523.8
Aluminium	6050	870761.5	876811.5
Paykan	7125	509179.34	516304.3

Source: Research findings.

Estimation of Market Value Shortfalls and Industry-Level Growth Potential in Iranian Football:

Sepahan Football Club can achieve efficiency by increasing its market value by €391 million, reaching a target of €401 million. Similarly, Gol Gohar and Foolad Khuzestan—with current market values of €9 million and €17 million—must raise their values to €612 million and €630 million, respectively, to become efficient. Esteghlal and Persepolis require increases of €896 million and €735 million, achieving target values of €911 million and €747 million. Other clubs, such as Zob Ahan, Aluminium, and Peykan, also face substantial gaps in market value to reach the efficiency frontier.

In frontier-based analytical models, inefficiency reflects the unrealized potential for performance improvement. Assuming uniform access to technology and technical knowledge across all units, a non-frontier decision-making unit (DMU) is deemed capable of achieving output levels equivalent to those of efficient peers. Based on this premise, the

growth and improvement potential of a single organization—or an entire industry—can be quantified. Accordingly, this study estimates the potential for performance enhancement across Iranian football clubs, particularly within the context of the Persian Gulf Pro League, which serves as the country's premier professional football league.

This league holds central importance in Iran's football landscape, both in athletic and economic terms. It attracts substantial media coverage, higher-caliber players, and significant sponsorships from global sports brands. In line with international studies, research efforts tend to focus on professional leagues due to their structural and financial prominence. Moreover, access to reliable data for professional clubs is comparatively better due to transparency and reporting requirements.

This analysis includes eight clubs from the Persian Gulf Pro League, selected based on data availability and financial prominence. While the league comprises 16 clubs, limitations in accessing consistent and complete data restricted the sample to the top-performing half. Notably, the combined market value of these eight clubs amounts to €83 million, accounting for approximately 60% of the league's total market value (€137 million, [Transfermarkt, 2022](#))¹. Their combined salary expenditures also total €20 million—approximately 70% of the total salary expenses for all 16 clubs (€29 million, [Shahsavari, 2023](#))². Taken together, the dataset representing these eight clubs captures an average of 65% of the Persian Gulf Pro League's financial and operational profile, making the sample both representative and analytically robust for evaluating industry-level efficiency and potential.

Estimation of Iran's Professional Football Industry Potential and Comparative Benchmarking with Japan:

The potential capacity of Iran's professional football industry is calculated by determining the weighted average of optimal outputs. The weights for the data are derived using **Equation 4**, as follows:

$$\text{Weight of each club} = \frac{\text{Total actual revenue of the club} + \text{Total actual cost of the club}}{\text{Total actual revenue of the eight clubs studied} + \text{Total actual cost of the eight clubs studied}} \quad (4)$$

Using the output expansion formula applied to the eight Iranian football clubs under study, weights were calculated to determine each club's contribution to the league's potential output capacity. The weights were normalized such that their sum equals 1. These

¹ <https://www.transfermarkt.com/persian-gulf-pro-league/startseite/wettbewerb/IRN0>

² <https://www.isna.ir/news/1402040301269/>

weights were then used to compute the weighted optimal revenue and market value for each club. Summing the weighted values provided estimates of the potential output capacity of Iran's football industry based on this representative sample.

According to these calculations, the potential total revenue of Iran's professional football industry is estimated at €403 million. Given that the eight clubs studied represent an average of 65% of the Premier League's financial and operational structure, the total potential revenue of the league is extrapolated to €621 million. In contrast, the actual revenue of the eight clubs in 2022 was only €47 million, suggesting that the total revenue of the entire league was approximately €72 million. This results in a revenue shortfall of €549 million, highlighting the vast unrealized economic capacity of Iran's football sector. A similar gap is observed in terms of market value. According to [Transfermarkt \(2022\)](#)¹, the actual market value of the entire Persian Gulf Pro League was €137 million. However, based on DEA model projections, the potential market value of just the eight analyzed clubs should have been €654 million. Scaling this figure to the full league, the total potential market value is estimated at approximately €1 billion, indicating a gap of €863 million compared to the actual 2022 value.

With regard to global rankings, the DEA analysis shows that Iranian clubs would need to significantly enhance their international performance to become efficient. Specifically, clubs would need to improve their rankings to be among the top 20, or ideally, top 10 globally, to align with the efficiency frontier. To validate these findings, Iran's football industry can be compared with that of another Asian country with a similar global standing. According to FIFA's 2022 ranking, Iran and Japan were ranked 23rd and 24th, respectively ([FIFA, 2024](#))², making Japan a relevant benchmark. The J1 League in Japan generated ¥87 billion in 2022, equivalent to €612 million in revenue ([Statista, 2022](#))³, a figure closely matching Iran's estimated potential of €621 million. However, Japan's actual league market value stood at €316 million ([Transfermarkt, 2022](#))⁴, significantly lower than Iran's estimated €1 billion potential. This discrepancy can be attributed to different developmental models. Japan's football ecosystem focuses on talent development and exporting players rather than accumulating expensive international talent. Many top Japanese players transfer to European clubs once they reach professional status. Therefore, despite Japan's higher efficiency and sporting success, the lower market value of the J1 League is not unexpected and reflects strategic choices rather than inefficiencies.

¹. https://www.transfermarkt.com/persian-gulf-pro-league/startseite/wettbewerb/IRN0/plus/?saison_id=2120

². <https://inside.fifa.com/fifa-world-ranking/men?dateId=id03991>

³. <https://www.statista.com/statistics/000009/japan-jleague-total-revenue-breakdown-by-division/>

⁴. <https://www.transfermarkt.com/j0-league/startseite/wettbewerb/JAP0>

5. Conclusions

This study offers a comprehensive evaluation of the technical and economic performance of Iran's professional football industry by applying the Data Envelopment Analysis (DEA) method. The analysis reveals a substantial gap between the current performance of Iranian football clubs and their potential capacity, particularly in terms of revenue generation, market value, and international rankings. These inefficiencies underscore the untapped economic and sporting potential of the industry and point to the urgent need for structural reforms.

5-1. Key Findings

1. Structural and Financial Challenges: Iran's football clubs operate under significant constraints, including underdeveloped infrastructure, the absence of stable broadcasting revenue, low ticket sales, and weak financial transparency. Combined with high operational costs and outdated governance models, these factors limit clubs' ability to generate sustainable income and improve performance.

2. Significant Output Gaps: The DEA model shows that Iranian clubs are operating far below their potential. The actual revenue of the top eight clubs in 2022 was just €47 million, while their estimated potential revenue is €403 million—highlighting a gap of €356 million. Extrapolated to the entire Premier League, the total revenue gap reaches approximately €549 million. A similar disparity exists in market value, where the league's actual valuation of €137 million falls significantly short of the €1 billion potential estimated in this study. These findings align with the Deloitte Football Money League (2025) report¹, which shows that the average revenue of the top 20 European clubs has reached €560 million, with their total revenue exceeding €11.2 billion. In comparison, even the potential revenue of Iran's top football clubs—as estimated at €403 million using the DEA method—is approximately 28% lower than the European average, while their actual revenue covers only 8% of that amount. This striking gap highlights a profound inefficiency in economic performance and market utilization. Moreover, the current market value of the Iranian league stands at only 13.7% of its estimated potential, indicating a severe underutilization of the country's football assets and brand.

3. Benchmarking with Japan: A comparison with Japan's J1 League—an Asian peer with a similar FIFA ranking—demonstrates that Iran's potential is not aspirational but attainable. Despite Japan's leaner market valuation due to its focus on talent development

¹ <https://www.deloitte.com/uk/en/services/consulting-financial/analysis/deloitte-football-money-league.html>

over high-cost transfers, its revenue generation and overall league efficiency offer a clear model for Iran to emulate.

4. Opportunities for Growth: The widespread popularity of football in Iran, combined with the presence of internationally recognized players and the historical strength of clubs like Persepolis and Esteghlal, provides a strong foundation for growth. The industry's latent potential can be unlocked through strategic policy interventions.

5. Policy Recommendations: To address the identified inefficiencies and unlock growth, the study proposes the establishment of a specialized unit within the Ministry of Sport and Youth or the Iranian Football Federation. This unit should focus exclusively on the economic governance of football, promoting financial innovation, introducing modern regulatory tools, fostering investment, and overseeing club financial operations. Furthermore, institutional reforms are needed to increase transparency, strengthen commercial rights, and modernize the league's business model.

5-2. Final Remark

The findings of this study clearly show that Iran's football industry is far from reaching its productive and economic capacity. With evidence-based policies, better economic governance, and a reform-oriented institutional approach, Iranian football can move closer to global standards—both in terms of financial performance and competitive excellence.

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Observation Contribution

Niloofer Maleki collected and analyzed the data and prepared the initial draft of the manuscript. **Dr. Hamid Kordbacheh** supervised the research, guided the study, and contributed to the revision and finalization of the manuscript.

Conflict of Interest

The authors declare that there is no financial or personal conflict of interest related to this research, and all ethical standards of publication have been observed.

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Appendix

Appendix 1. Clubs studied

Row	Club	Row	Club
1	Real Madrid	25	Roma
2	Barcelona	26	Napoli
3	Manchester City	27	Lyonnais
4	Liverpool	28	Koln
5	Paris Saint-Germain	29	Lille
6	Manchester United	30	Hertha
7	Bayern Munich	31	Sassuolo
8	Chelsea	32	Lazio
9	Borussia Dortmund	33	Real Sociedad
10	Juventus	34	Real Betis
11	Atletico de Madrid	35	Valencia
12	Arsenal	36	Union Berlin
13	Tottenham Hotspur	37	Monaco
14	Inter Milan	38	Stade de Reims
15	Leipzig	39	Nice
16	West Ham United	40	Strasbourg
17	Bayer Leverkusen	41	Sepahan
18	Wolfsburg	42	Gol Gohar Sirjan
19	Leicester City	43	Foolad
20	AC Milan	44	Esteghlal
21	Marseille	45	Persepolis
22	Fiorentina	46	Zob Ahan
23	Sevilla	47	Aluminium
24	Villarreal	48	Paykan



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ارزیابی ظرفیت اقتصادی صنعت فوتبال ایران: تحلیل شکاف عملکرد

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چکیده

در جهان معاصر، ورزش به عنوان یکی از ارکان اساسی اقتصاد جهانی شناخته می شود و به یکی از صنایع مهم و پررونق تبدیل شده است. در این میان، فوتبال به دلیل محبوبیت گسترده و برخورداری از حدود ۴ میلیارد هوادار، جایگاه ویژه ای در صنعت ورزش به خود اختصاص داده است. فوتبال حرفه ای، نه تنها میلیون ها تماشاگر را در هر فصل جذب می کند، بلکه سهم قابل توجهی در ایجاد مشاغل و کسب و کارهای مرتبط دارد. باشگاه های فوتبال حرفه ای نیز به عنوان بنگاه های اقتصادی، به طور هم زمان در دو حوزه عملکرد ورزشی درون زمین و عملکرد مالی برون زمین با یک دیگر رقابت می کنند. این پژوهش با هدف ارزیابی ظرفیت بهبود عملکرد اقتصادی صنعت فوتبال ایران، از مدل مرزی بهره گرفته است. برای این منظور، از تکنیک ناپارامتریک تحلیل پوششی داده ها به منظور اندازه گیری کارایی فنی باشگاه های فوتبال ایران استفاده شده است. در این راستا، اطلاعات صورت های مالی باشگاه ها و امتیازات آن ها در رقابت ها به عنوان شاخص هایی برای سنجش عملکرد مورد بررسی قرار گرفته است. نمونه پژوهش شامل ۴۸ باشگاه از پنج لیگ بزرگ اروپا و لیگ برتر فوتبال ایران است. نتایج تحقیق نشان می دهد که ازمیان باشگاه های بررسی شده، تنها پنج باشگاه شامل دو باشگاه از لالیگای اسپانیا، دو باشگاه از لیگ برتر انگلستان و یک باشگاه از بوندسلیگای آلمان بر روی مرز کارایی فنی قرار دارند. در مقابل، باشگاه های فوتبال ایران در مقایسه با پنج لیگ بزرگ اروپا، فاصله چشمگیری با مرز کارایی فنی دارند و میزان ناکارایی آن ها بیش از ۹۰٪ برآورد شده است و نشان دهنده ظرفیت رشد ۷۰٪ در صنعت فوتبال ایران است.

کلیدواژگان: اقتصاد فوتبال، تحلیل پوششی داده ها، صنعت فوتبال ایران، ظرفیت بهبود بالقوه، ناکارایی.

طبقه بندی JEL: L83, C67, D24, O47

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