Developing a Chinese Professional Football League Management Model to Enhance League Quality

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Abstract

Background and Aim: The development of the Chinese Professional Football League in the past 30 years has not promoted the development of Chinese professional football well, but more serious problems have appeared. Based on the current situation, this paper aims to promote the high-quality development of the Chinese Professional Football League and construct the Chinese Professional Football League Management Model.

Materials and Methods: This paper uses the Delphi method to analyze and construct the management system index of the Chinese professional football league.

Results: After two rounds of Delphi method research, this paper finally constructs the Chinese professional football league management system with "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance" as the first index, and 28 secondary indicators.

Conclusion: According to the management system index of the China Professional Football League, this paper finds out the factors that affect the high-quality development of the China Professional Football League, and puts forward the countermeasures to promote the development of China Professional Football League and how to ensure the realization of the management system of China professional Football League.

Keywords: Chinese Professional Football League Management Model; Competitive Balance System Operation System; Improve the Quality of League; Delphi Method

Introduction

The core product provided by professional sports events is competition, but because the production of professional sports is a zero-sum game process, that is, "the winner is king, the loser is the loser." If the winner keeps accumulating the best stars and repeats the same result every time the game is played, then what awaits the winner will not be profit maximization, but no competitors, no viewers, and no revenue. Just as Neale (1964) proposed the famous Lewis-Skemling paradox, it is believed that if the best resources of a league are occupied by a certain team, then the team can easily win the championship, but in the long run, it is not the maximization of revenue, but the loss of audience, diminishing returns and even the league's development predicament. To promote the development of the Chinese Professional Football League, it is necessary to build a scientific and reasonable management system of the Chinese Professional Football League, and the construction of a competitive balance system is an important part of it. However, "Chinese Football Medium and Long-term Development Plan" pointed out that the "Chinese football development concept lags, the value of football and the law of development of insufficient understanding, the idea of quick success is more serious; The system and mechanism are backward, and there is still a problem of separation between government and social organizations, between management and operation, and between enterprises and enterprises. The level of rule of law is low, the practice is not correct, the competition order is chaotic, and the lack of effective

supervision; The football foundation is weak, talent shortage and insufficient facilities make it difficult to meet the growing demand for football in society." All these have fully demonstrated that the development and management of China's professional football league has reached a critical point, and it is urgent to improve the management mode to improve the development quality of the professional football league.

Thus, the research background titled "Developing a Chinese Professional Football League Management Model to Enhance League Quality" underscores the critical significance of the Chinese Professional Football League (CPFL) in the context of Chinese football development and sports industry growth. It acknowledges the pressing challenges that the CPFL currently faces, from financial stability to competitive quality and fan engagement, thus highlighting the necessity for a comprehensive and tailored management model. By drawing inspiration from successful international football leagues and adapting these best practices to the Chinese landscape, the research seeks to develop a management model that addresses these challenges and ultimately elevates the league's quality. This study holds substantial promise in fostering the progression of football in China and strengthening its position on the global football stage.

Objective

To construct the management system index of the Chinese Professional Football League scientifically and rationally, and test the rationality of the index system.

Literature Review

Terms of the concept of competitive balance, Rottenberg (1956) put forward the concept of competitive balance earlier, arguing that competitors must have the same scale or have the same ability to maintain fans' interest and economic capacity and maintain the competitive balance and the uncertainty of the result. German scholars Wicker, et al (2009) proposed that competitive balance in team sports can be defined as the balance of the strength of all participating teams in a sports league. This status is seen as indispensable to the success of sports leagues; Owen, et al (2007)) believe that the competitive balance of professional sports leagues refers to the equality of the competitive strength of all teams to a certain extent. Zhang (2001) the first domestic scholar to mention the concept of competitive balance, described competitive balance as the self-discipline of the alliance and proposed that to regulate the behavior of clubs and members of the alliance, rules and procedures should be established to influence the activities of the alliance, strengthen the management of the alliance, and coordinate and deal with various conflicts within the alliance. Its purpose is to keep the relative balance between the member clubs at the economy and sports level, to make the competition uncertain, and to maximize the overall economic benefits.

In the management system of the Chinese professional football league, scholars mainly start from the balance of competitive strength and economic strength of the league. In terms of the balance of competitive strength, the naturalized players from all countries in the world believed that the competitive ability performance of naturalized players from all countries was higher than that of local players, and the performance of naturalized players in competitions could directly affect the team's competition results, thus affecting the football influence of the country. Lian (2021) believes that the introduction of naturalized players has brought advanced football concepts and training methods from Europe and the United States to Chinese football, promoted the development of the Chinese football

competition level, and directly and effectively improved the competitive ability of local players. However, strong naturalized players may directly affect the number of appearances and playing time of local players, hindering the development of local players. In terms of economic power balance, Zhao (2013) and Li (2015) believe that the improvement of competition balance brought about by the gold-yuan policy is bound to be short-term and negative. The "Evergrande model" aggravates the competitive imbalance of the league, which is mainly manifested as the imbalance of investment funds; Human resource monopoly; and Imbalance of competitive ability. Li (2013) believes that the introduction of foreign players requires funds and big-name stars need to pay huge fees, which is not conducive to the long-term development of clubs and increases the economic burden.

At present, there is little literature on the analysis of the balance of management power division. The management mode, personnel allocation, and supervision system of CSL have had a profound impact on the development of the Chinese Professional Football League. Therefore, according to the existing research and expert interview methods, this paper adopts the Delphi method to further construct the management system index of the Chinese Professional Football League and evaluates the index system.

The concept of competitive balance, a fundamental principle in sports management, has received significant scholarly attention, with a focus on maintaining fairness in sports competitions. This concept has been adapted to the context of the Chinese Professional Football League (CPFL), where researchers have explored competitive balance primarily in terms of the balance of competitive and economic strength. The introduction of naturalized players, while enhancing performance, has raised concerns about its impact on the development of local players. The financial dynamics, as shaped by policies like the "Evergrande model" and the gold-yuan policy, have been scrutinized for their effects on financial imbalances and club economic sustainability. Notably, the division of management power has received limited attention in existing literature, despite its profound influence on the CPFL. Thus, this study aims to fill this gap by employing the Delphi method to construct and assess a comprehensive management system index for the CPFL, shedding new light on the underexplored facet of competitive balance in league management.

Conceptual Framework

The research titled "Developing a Chinese Professional Football League Management Model to Enhance League Quality" designed the conceptual framework as follows;
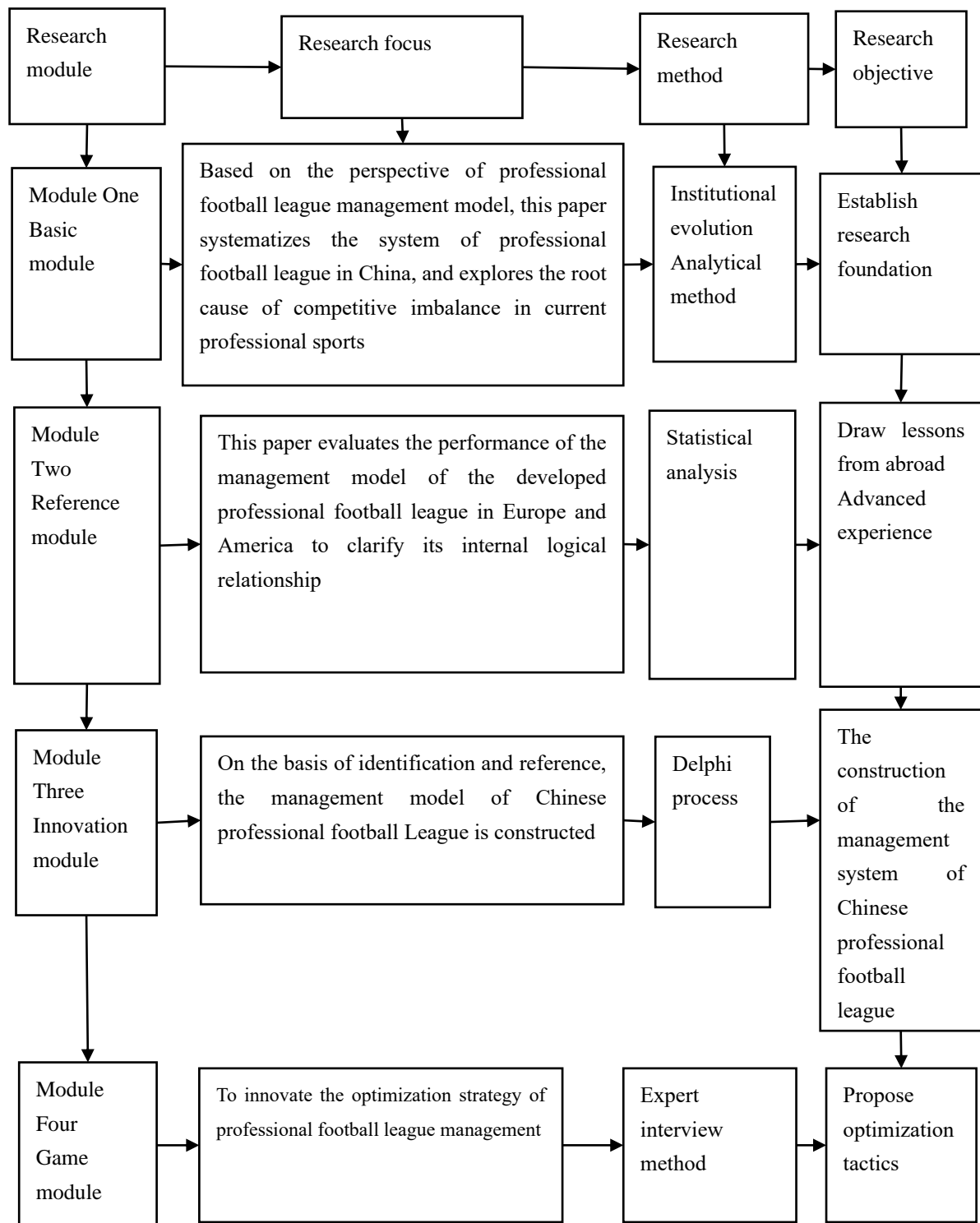
Figure 1 Conceptual Framework

Methodology

This paper adopts the Delphi method for research and analysis, the steps are as follows:

Step 1: Identify the problem and determine China's professional football league management system index.

Step 2: Thirty experts were asked to evaluate the index.

Step 3: Design questionnaire.

Step 4: Send out questionnaires and collect data

Step 5: Questionnaire result statistics

Step 6: Analysis of questionnaire results

Step 7: Then 17-21 experts were invited to review the questionnaire results, re-screen the indicators, determine the indicators, and apply the Delphi method again.

Step 8: Establish the management system of the China Professional Football League according to the selected index

Results

Based on a large number of literature studies and expert interviews, the management system indicators of the China Professional Football League are preliminarily determined as three first-level indicators: "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance". To further select its secondary indicators, the selection basis of specific secondary indicators is mostly based on the competition rules and management system of the Chinese Football Association Super League, expert interviews, and field research. The secondary indexes of "League competitive strength balance" are respectively "Club youth training echelon construction", "Youth training personnel selection system", " Professional league talent transfer system", "Logistics support system of youth training", "U21 policy", "The transfer system of youth players", "Professional football League player transfer policy", "College football leagues provide talent". "Naturalization Policy for international players", "Introduction of foreign aid", "Foreign aid use policy" and "Star power". The secondary indexes of "The distribution of economic benefits balance" are "Chinese Super League company fully tap the commercial value of professional football league", "The Chinese Football Association holds shares in the league", "Chinese Super League company to football professional league business development", "Income distribution of football professional league", "Club independent commercial development rights", "Match between player salary and income of professional football league", "Employ high-level foreign coaches ", "Player transfer compensation mechanism" and "Club naming rights". The secondary indicators of "The Management power division balance" are the "Current organizational structure of the professional football League", "The current division of duties between the Football Association and the club", "Current personnel appointment of the Football Association and Chinese Super League company", "Professional football league management system", "Professional football League internal oversight", "Supervision by public opinion", "Party inspection system", "Third-party independent economic audit" and "Comprehensively strengthen the Party's leadership"

According to the Delphi method of expert consultation, the preliminary management system model of the Chinese Professional Football League is modified and improved, to form a more perfect and reasonable management system model of the Chinese Professional Football League.

The first round of expert verification. In the first round of expert consultation, a total of 30 opinion consultation forms were issued to 30 experts, and 30 were recovered, with a recovery rate of 100%, exceeding 70% as a better limit of consultation results. Therefore, the 100% recovery rate of the first round of expert consultation shows that the research value of this paper has a certain significance and has received the attention of experts. This paper uses the coefficient of variation CV_j to analyze the first

and second indexes of the first round of expert consultation. The coefficients of variation CV_j of the three first-level indicators are 0.186, 0.184, and 0.181 respectively, lower than 0.25. It can be seen that experts have high consistency in dividing the competitive balance system of the Chinese Professional Football League into three first-level indicators: "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance". Therefore, the first-level index construction in this paper is reasonable. The coefficient of 29 variations of the 30 secondary indicators is less than 0.25, so it is believed that experts have a high consistency for these 29 secondary indicators. Among them, the coefficient of variation of the secondary index of " Star power" in "League competitive strength balance" is 0.279, higher than 0.25. Therefore, it is believed that experts have great differences in the impact of "A12 Star power" on "League competitive strength balance", and this index needs to be further revised.

This paper also uses arithmetic average M_j to analyze the primary and secondary indexes of the first round of expert consultation results. The arithmetic average M_j of the three first-level indicators are 4.167, 4.1, and 4.133 respectively, all of which are greater than 4. Therefore, it is believed that the three first-level indicators of "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance" have important evaluation significance in the competitive balance of the Chinese professional Football League. Among the 30 secondary indicators, the arithmetic average of 26 secondary indicators is greater than 4. Therefore, it is considered that these 26 secondary indicators are of high importance under the corresponding primary indicators. The arithmetic average of the four secondary indexes of " Introduction of foreign aid", " Foreign aid use policy", " Star power" and "Club naming rights" are 3.86, 3.9, 3.76, and 3.8, respectively, which are lower than 4. Therefore, it is believed that the importance of these four secondary indicators is low under the corresponding primary indicators, and it is necessary to revise and improve these four secondary indicators.

Based on the above statistical analysis of the first round of the Delphi method, this paper modifies and improves the questionnaire designed by the first round of the Delphi method. In this paper, all indexes that meet the two conditions that the arithmetic average value is greater than 4 and the coefficient of variation is less than 0.25 are retained. For indicators that do not meet only one of the two conditions, modify them with expert advice. The indexes that do not meet the two conditions that the arithmetic average is greater than 4 and the coefficient of variation is less than 0.25 are eliminated. Since the three first-level indicators of "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance" all meet the two conditions that the arithmetic average value is greater than 4 and the coefficient of variation is less than 0.25, this paper does not modify the three first-level indicators. Since the "Star power" does not meet the two conditions that the arithmetic average value is greater than 4 and the coefficient of variation is less than 0.25, the index of "Star power" is eliminated in this paper. As for the four secondary indicators of "Introduction of foreign aid", "Foreign aid use policy", "The Chinese Football Association holds shares in the league" and " Club naming rights", they do not meet one of the two conditions, so this paper modifies these four indicators based on expert opinions. In this paper, "Introduction of Foreign Aid", and "Foreign Aid Use Policy" are merged into "Regulations on the Introduction and Use of Foreign Aid" according to the competition rules and management system of the Chinese Football Association Super League and through expert interviews. As for the possible differences in expression and understanding of the two indicators of " The Chinese Football Association holds shares in the league"

and "Club naming rights", this paper also concretely expresses the two indicators as "The Chinese Football Association holds shares in CSL companies" and "Club title income distribution" according to the competition rules and management system of the Chinese Football Association Super League and the way of expert interviews.

The descriptive statistics of the first-level indicators and second-level indicators of the results of the second round of expert consultation are shown in Table 1 and Table 2.

Table 1 The descriptive statistics of the first-level indicators of the results of the second round of expert consultation

Primary index	Arithmetic mean	Standard deviation	Coefficient of variation
A League competitive strength balance	5	0	0
B The distribution of economic benefits balance	5	0	0
C Management power division balance	5	0	0

Table 2 The descriptive statistics of the second-level indicators of the results of the second round of expert consultation

Primary index	Secondary index	Arithmetic mean	Standard deviation	Coefficient of variation
A League competitive strength balance	A1 Club youth training echelon construction	4.94	0.229	0.046
	A2 Youth training personnel selection system	4.88	0.314	0.064
	A3 Professional League Talent Transfer System	4.88	0.314	0.064
	A4 Logistics support system of youth training	4.94	0.229	0.046
	A5 U21 policy	4.77	0.532	0.111
	A6 The transfer system of youth players	4.88	0.314	0.064
	A7 Professional Football League player transfer policy	5	0	0
	A8 College football leagues provide talent	4.77	0.532	0.111
	A9 Naturalization Policy for International Players	5	0	0
	A10 Regulations on the introduction and use of foreign aid	4.88	0.314	0.064
	B1 Chinese Super League company fully taps the	4.94	0.229	0.046

Primary index	Secondary index	Arithmetic mean	Standard deviation	Coefficient of variation
B The distribution of economic benefits balance	commercial value of professional football league			
	B2 The Chinese Football Association holds shares in CSL companies	4.94	0.229	0.046
	B3 Chinese Super League company to football professional league business development	5	0	0
	B4 Income distribution of football professional league	4.94	0.229	0.046
	B5 Club independent commercial development rights	5	0	0
	B6 Match between player salary and income of professional football league	4.88	0.314	0.064
	B7 Employ high-level foreign coaches	4.88	0.458	0.093
	B8 Player transfer compensation mechanism	4.88	0.314	0.064
	B9 Club title income distribution	4.88	0.314	0.064
C Management power division balance	C1 Current organizational structure of the Professional Football League	4.94	0.229	0.046
	C2 The current division of duties between the Football Association and the club	4.88	0.314	0.064
	C3 Current personnel appointment of Football Association and Chinese Super League company	4.94	0.229	0.046
	C4 Professional Football League Management System	4.88	0.314	0.064
	C5Professional Football League internal oversight	4.88	0.314	0.064
	C6 Supervision by Public Opinion	4.83	0.372	0.077
	C7 Party inspection system	4.94	0.229	0.046
	C8 Third-party independent	4.88	0.314	0.064

Primary index	Secondary index	Arithmetic mean	Standard deviation	Coefficient of variation
	economic audit			
	C9 Comprehensively strengthen the Party's leadership	4.94	0.229	0.046

In the second round of expert consultation, a total of 18 consultation forms on the management system of the China Professional Football League were issued to 18 experts, which were modified and improved after the first round of result analysis. 18 consultation forms were recovered, and the recovery rate remained at 100%, indicating that the research content on the construction of the management system of the China Professional Football League has received continuous attention from experts.

In the second round of the Delphi method survey results analysis, both the coefficient of variation and the arithmetic average of the first-level indicators show that the three first-level indicators are considered by the respondents to have a higher degree of importance, and the respondents have a higher degree of coordination to the three first-level indicators, without any disagreement. It is further proved that the respondents of the second round agree that the three first-level indexes: "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance" are necessary for the competitive balance of China Professional Football League.

Under the first-level index "League competitive strength balance", the arithmetic average of all the second-level indexes retained by the Delphi method in the first round is greater than 4, and all of them are greater than the results of the first round. The coefficients of variation were all far less than 0.25, and all were smaller than the results of the first round. After the first round of indicators "A10 Introduction of foreign aid", and "A11 Foreign aid use policy" are merged into "Regulations on the introduction and use of foreign aid", the arithmetic average of this indicator is 4.88, greater than 4, and the coefficient of variation is 0.064, less than 0.25. It is proved that the "A10 Introduction of Foreign Aid", and "A11 Foreign Aid Use Policy" are merged into "Regulations on the Introduction and Use of Foreign Aid", which has been more recognized by experts, and its importance in the "League competitive strength balance" is also more prominent. This shows that all the secondary indexes under the modified and improved "League competitive strength balance" are necessary for "League competitive strength balance".

Under the primary index "The distribution of economic benefits balance", the arithmetic average of all secondary indexes retained by the first round Delphi method is greater than 4, and all are greater than the result of the first round. The coefficients of variation were all far less than 0.25, and all were smaller than the results of the first round. After the first round of indicators "B2 The Chinese Football Association holds shares in the league" and "B9 Club naming rights" are concretely translated into "The Chinese Football Association holds shares in CSL companies" and "Club title income distribution", the arithmetic average of the two indicators rises to 4.94 and 4.88 respectively, both greater than 4, and the coefficient of variation is 0.046 and 0.064 respectively. All are less than 0.25. It is proved that the concretization of "B2 The Chinese Football Association holds shares in the league" and "B9 Club naming rights" into "The Chinese Football Association holds shares in CSL companies" and "Club title income distribution" is more acceptable to the respondents, and it is also more recognized by the experts, making its importance in the "The distribution of economic benefits balance" more prominent. This

shows that all the secondary indexes under the revised and improved "The distribution of economic benefits balance" are necessary for "The distribution of economic benefits balance".

Under the first-level index "The Management power division balance", the arithmetic average of all the second-level indexes retained by the first round Delphi method is greater than 4 and greater than the results of the first round, and the coefficient of variation is less than 0.25, and smaller than the results of the first round. This shows that after the first round of feedback with experts, all the secondary indicators under "The Management power division balance" in this paper have been further recognized by experts, and it is also necessary for "The Management power division balance".

Therefore, based on the results of the second round of the Delphi method, this paper believes that the results are authoritative and reasonable, so the index construction of the revised management system of the Chinese Professional Football League is determined in Table 2.

To further distinguish the importance of the management system indicators of the China Professional Football League and the rationality of the index construction, this paper uses the entropy method to measure the importance of each indicator in the second round of expert score analysis. The results of empowering management system indicators of the Chinese Professional Football League in this paper are shown in Table 3.

Table 13 the index weighting results of the competitive balance operation system of the Chinese Professional Football League

Primary index	Weighting	Secondary index	Weighting
A League competitive strength balance	0.333	A1 Club youth training echelon construction	0.004154
		A2 Youth training personnel selection system	0.0085599
		A3 Professional League Talent Transfer System	0.0085599
		A4 Logistics support system of youth training	0.004154
		A5 U21 policy	0.0054115
		A6 The transfer system of youth players	0.0085599
		A7 Professional Football League player transfer policy	0.2100572
		A8 College football leagues provide talent	0.0054115
		A9 Naturalization Policy for International Players	0.2100572
		A10 Regulations on the introduction and use of foreign aid	0.0085599
B The distribution of economic benefits	0.333	B1 Chinese Super League company fully taps the commercial value of professional football league	0.004154
		B2 The Chinese Football Association holds shares in CSL companies	0.004154
		B3 Chinese Super League company to	0.2100572

Primary index	Weighting	Secondary index	Weighting
balance		football professional league business development	
		B4 Income distribution of football professional league	0.004154
		B5 Club independent commercial development rights	0.2100572
		B6 Match between player salary and income of professional football league	0.0085599
		B7 Employ high-level foreign coaches	0.004154
		B8 Player transfer compensation mechanism	0.0085599
		B9 Club title income distribution	0.0085599
C Management power division balance	0.333	C1 Current organizational structure of the Professional Football League	0.004154
		C2 The current division of duties between the Football Association and the club	0.0085599
		C3 Current personnel appointment of Football Association and Chinese Super League company	0.004154
		C4 Professional Football League Management System	00.0085599
		C5 Professional Football League internal oversight	0.0085599
		C6 Supervision by Public Opinion	0.0132502
		C7 Party inspection system	0.004154
		C8 Third-party independent economic audit	0.0085599
		C9 Comprehensively strengthen the Party's leadership	0.004154

In the competitive balance system of the Chinese Professional Football League, the three first-level indexes of "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance" have the same importance, each accounting for one-third of the weight. Among the secondary indicators, "Professional Football League player transfer policy", "Naturalization Policy for international players", "Chinese Super League company to football professional league business development" and "Club independent commercial development rights" all have a higher weight.

Conclusion

In this paper, two rounds of the Delphi method are used to consult experts and finally construct the first-level index with "League competitive strength balance", "The distribution of economic benefits balance" and "The Management power division balance". "Club youth training echelon construction", "Youth training personnel selection system", " Professional league talent transfer system", "Logistics support system of youth

training", "U21 policy", "The transfer system of youth players", "Professional football League player transfer policy", "College football leagues provide talent". "Naturalization Policy for international players", "Regulations on the introduction and use of foreign aid", "Chinese Super League company fully tap the commercial value of professional football league", "The Chinese Football Association holds shares in CSL companies", "Chinese super League company to football professional league business development", "Income distribution of football professional league", "Club independent commercial development rights", "Match between player salary and income of professional football league", "Employ high-level foreign coaches ", "Player transfer compensation mechanism" and "Club title income distribution", "Current organizational structure of professional football League", "The current division of duties between the Football Association and the club", "Current personnel appointment of Football Association and Chinese Super League company", "Professional football league management system", "Professional football League internal oversight", "Supervision by public opinion", "Party inspection system", "Third party independent economic audit" and "Comprehensively strengthen the Party's leadership" are 28 secondary indicators of the Chinese professional Football League management system, and estimated the proportion of each indicator in the evaluation.

Discussion

According to the existing research literature (Barriger, et al, 2004; He, 2009; Zheng, 2009), scholars' research on the management system and competitive balance operation system of professional sports leagues mainly focuses on the balance of competitive strength and economic strength, while the research on the division balance of management power is relatively lacking. In this paper, when analyzing the construction of the Chinese Professional Football League management system, the balance of management power division is also included in the analysis framework.

While most scholars failed to use objective statistical methods to calculate the weight of each indicator after constructing the relevant indicator system of professional sports league with the Delphi method (Shi, 2023; Liu, 2023), this paper adopted the entropy method to calculate the weight of each indicator after constructing the management system index of Chinese professional football League. The combination of the Delphi method and entropy method makes up for the shortcomings of the two methods.

Recommendation

To ensure the realization of the management system of the China Professional Football League, this paper further puts forward the two-wheel drive model of "the party's leadership is the front wheel, internal governance is the back wheel, and external supervision is the guarantee". We will give full play to the role of the Party's leadership in setting the direction, managing the overall situation, and ensuring implementation. Through internal governance to drive strategy, decision-making, business, strong supervision, and promote development. At the same time, we will strengthen intra-party supervision, prevent economic corruption, safeguard fairness and justice, and achieve escort through external supervision.

References

Barriger, A.K., Sharpe, J.W., Sullivan, B.P., & Sommers, P.M. (2004). *Has a Salary Cap Improved Competitive Balance?* Department of Economics: Middlebury College. Paper No. 04-02. 2004.

Wicker, P., Breuer, C., & Pawlowski, T. (2009). Promoting Sport for All to Age-specific Target Groups: The Impact of Sports Infrastructure. European Sport Management Quarterly. 9. 103-118. 10.1080/16184740802571377.

He, W., & et al. (2009). Measurement and Analysis of competitive balance in Professional sports League. *Sports Science*, 29(12), 12-18.

Li, F. (2014). Research on the status quo and countermeasures of foreign players introduced by Chinese Super League clubs in 2012. Wuhan Institute of Physical Education,2014.

Li, W., Lu, Z.& Zhang, S. (2015). Reflection on the competitive balance mechanism of the Chinese Football Professional League -- Based on the impact of the "Evergrande Model" on league competitive balance. *Journal of Physical Education*, 22(01), 23-27.

Lian, J. (2021). *Study on the influence of naturalized players on the development of Chinese football.* Harbin Institute of Physical Education.

Liu, B. (2023). *Research on Mass Track and field evaluation index System under the background of sports power construction.* Beijing Sport University.

Neale. (1964). The peculiar economics of professional sports. *Q J Economics*, (1), 1-14.

Owen, P.D., Ryan, M., Weatherston, C.R. (2007). Measuring competitive balance in professional team sports using the Herfindahl-Hirschman index. *Review of Industrial Organization*, 31, 289–302.

Rottenberg, S. (1956). The Baseball Players' Labor Market. *Journal of Political Economy*, 64, 242-258. http://dx.doi.org/10.1086/257790

Shi, J., & Wang, J. (2023). Research on benefit evaluation index System of competitive Sports events in Jiangsu Province. *Sports Science and Technology*, 44(01), 9-14. (in Chinese)

Zhang, L. (2001). *Operation Mechanism of Professional Sports Clubs.* Beijing: People's Sports Publishing House,2001.

Zhao, J. (2013). *Competitive Balance Analysis of Chinese Super League*. Beijing Sport University.

Zheng, F., & et al. (2009). Basic Assumptions and Metrics of the competitive strength of professional sports clubs. *Science of Physical Education and Sports*, 29(7), 29-36.