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**on: «Increasing the level of competitiveness of the
enterprise»**

Completed:

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TASK

on qualification work for student

Peng Wen

1. Theme of Qualification work: **Increasing the level of competitiveness of the enterprise**

Supervisor Alina Mykhaylivna Brychko, PhD., Associate Professor

approved by the university from _____

2. Deadline for student completed project (work) March, 18 2023

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4. Contents of settlement and explanatory notes (the list of issues to develop):

An empirical analysis was conducted on leisure sports enterprises in Wuhan, with a comparative analysis of the competitiveness levels among different districts. The current development status of leisure sports enterprises in Wuhan and the competitiveness levels among different districts were examined, and issues in the development process of Wuhan's leisure sports enterprises, differences in competitiveness levels among different districts, and the competitiveness characteristics of each district were identified. Specific methods and measures for enhancing the competitiveness of leisure sports enterprises in various regions of Wuhan were proposed.

5. Date of assignment: **December, 15 2022**

CALENDAR PLAN

№	Title the stages of the degree project (work)	Date of performance project stages	Note
1	Definition and approval of the thesis, preparation of the plan - schedule of work	<i>September, 2022</i>	done
2	Selection and analysis of literary sources, the preparation of the first theoretical chapter	<i>September - October, 2022</i>	done
3	Preparation and presentation of draft of the first chapter of the thesis	<i>November 2022</i>	done
4	Collection and processing of factual material, synthesis analysis of application issues in the enterprise	<i>December 2022</i>	done
5	Making the theoretical part of the thesis, summarizing the analytical part	<i>January 2023</i>	done
6	Design options improve the research problem	<i>January 2023</i>	done
7	Completion of the project part of the thesis, design chapters	<i>January 2023</i>	done
8	Previous work and its defense review	<i>March 2023</i>	done
9	Checking the authenticity of the thesis	<i>March, 12 2023</i>	done
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11	Defense of the thesis	<i>March, 28 2023</i>	done

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ABSTRACT

Peng Wen. Increasing the level of competitiveness of the enterprise

Master's thesis in the specialty 073 «Management», EP «Administrative Management» SNAU, Sumy-2023 - Manuscript.

This paper makes an empirical analysis of the leisure sports enterprises in Wuhan, compares the competitive level between different regions, and understands the current development status of the leisure sports enterprises in Wuhan and the competitive level of the leisure sports enterprises in various regions. Discover the problems existing in the development of Wuhan leisure sports enterprises, the differences in competitiveness at various levels and the characteristics of competitiveness of each region, and put forward specific methods and measures for improving the competitiveness of leisure sports enterprises in various regions of Wuhan.

The master thesis uses literature data method, questionnaire survey method, model method to carry on the analysis to Wuhan city leisure sports enterprise's competitive power. Aims of work to analyse the development status of leisure sports enterprises in Wuhan, and better understand their competitive advantages and disadvantages, and then take corresponding measures according to the specific situation to enhance the competitiveness of leisure sports enterprises to cope with market competition.

Recommendations: The government has issued policies related to leisure sports to support development. To improve the service quality of Wuhan leisure sports enterprises to obtain more competitive advantages. Implement market segmentation and professional management strategies. Merger and reorganization, integrate the resources of various enterprises, and achieve the healthy and rapid development of regional leisure sports enterprises. Strengthen the cooperation between leisure sports enterprises, give play to regional advantages and resource advantages. Internet of things+leisure sports enterprises. Integrate the development of tourism, entertainment, experience interaction and other projects to increase the types of business and differentiated business operations.

Key words: enterprise competitiveness; Porter's five forces model; Grey correlation

АНОТАЦІЯ

Вен Пен. Підвищення рівня конкурентоспроможності підприємства.

Магістерська робота зі спеціальності 073 «Менеджмент», ОП «Адміністративний менеджмент» СНАУ, Суми-2023 р. – Рукопис.

В кваліфікаційній роботі проводиться емпіричний аналіз підприємств відпочинково-спортивної галузі у місті Вухань, порівнюється рівень конкурентоспроможності між різними регіонами, досліджено поточний стан розвитку підприємств відпочинково-спортивної галузі у місті Вухань та рівень конкурентоспроможності цих підприємств у різних регіонах. Виявлено проблеми, що існують у розвитку підприємств відпочинково-спортивної галузі у Вухані, відмінності в рівні конкурентоспроможності на різних рівнях та особливості конкурентоспроможності кожного регіону, рекомендовано конкретні методи та заходи для підвищення конкурентоспроможності підприємств відпочинково-спортивної галузі в різних регіонах міста Вухань.

Мета роботи - проаналізувати стан розвитку підприємств дозвілля та спорту у Вухані, виявити їх конкурентні переваги та недоліки, а потім приймати відповідні заходи відповідно до конкретної ситуації для підвищення конкурентоспроможності підприємств дозвілля та спорту для впорядкування конкуренції на ринку. У статті використовуються методи аналізу літературних даних, метод опитування за допомогою анкети та метод моделювання для проведення аналізу конкурентоспроможності підприємств відпочинково-спортивної галузі у місті Вухань. Запропоновані конкретні методи та заходи для покращення конкурентоспроможності відпочинково-спортивних підприємств у різних регіонах Вухані.

Ключові слова: конкурентоспроможність підприємства; модель п'яти сил Портера; кореляція.

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INTRODUCTION

Relevance of topics. In recent years, the improvement of economic capacity and the increase of leisure time among Chinese residents have led to the rapid development of leisure sports, which has become a part of people's daily lives. An era characterized by leisure and entertainment has arrived, signaling a gradual change in people's lifestyles that will ultimately impact the future economic development of society.

An industry is a collection of companies with similar properties, and as a part of the industry, companies are inevitably connected to its development. Currently, leisure sports and their social and economic values have garnered widespread attention across society. Through related research and practical efforts, the rapid development of leisure sports enterprises has promoted the effective and benign development of the leisure sports industry, which in turn drives economic growth. In the United States, Japan, and various European countries, the economic benefits brought about by the leisure industry are significant sources of their GDP, and leisure sports have become a key driver of their national economies. In China, although the rapid development of social economy and continuous improvement of sports policies have promoted the development of leisure sports, it still remains in the early stage of development.

The development of leisure sports in China is a long and arduous process, influenced by factors such as the social environment and economic development. Its prosperity reflects the current state of social civilization, economic affluence, and people's happiness. Wuhan, as the most dynamic and rapidly developing city in central China, is perfecting its leisure sports industry structure, policies, resource allocation, and competitiveness, playing the necessary role in the realization of the "Wuhan 2049" (Wuhan 2049 Vision Development Strategy, referred to as "Wuhan 2049") vision plan, and the all-round development of leisure sports conforms to the new requirements and demands of the era for the development of leisure sports enterprises. This article, based on the current development of leisure sports domestically and internationally and the development status of leisure sports enterprises in Wuhan, further studies the competitiveness of Wuhan's leisure sports

enterprises on the basis of previous research.

Purpose and objectives of the research. The purpose of this paper - to analyze the development status of the leisure sports enterprises in nine districts of Wuhan through empirical research, and to obtain the competitive differences and characteristics of each district through the comparison of the competitiveness of leisure sports enterprises in each district, so as to find out their own. The position in the external competitive environment, a clearer understanding of its own competitive advantages and disadvantages, and then make a reasonable layout of the development strategy of leisure sports enterprises according to the specific situation, and actively take corresponding measures to enhance the competitiveness of leisure sports enterprises to deal with the fierce competition. market competition. Is to conduct empirical research on the current development status of leisure and sports enterprises in 9 districts of Wuhan, to understand their development status, and to compare the competitiveness of leisure and sports enterprises in each district to identify their differences and characteristics. This will help to determine their position in the external competitive environment, and gain a clearer understanding of their competitive advantages and disadvantages. Based on the specific situation, reasonable layout of the development strategies of leisure and sports enterprises will be carried out, and corresponding measures will be taken to enhance their competitiveness and cope with the fierce market competition.

The objectives of this paper are:

- (1) to provide a basis for the Wuhan government to formulate policies for the leisure and sports industry by analyzing the competitive structure of the leisure and sports market;
- (2) to enable leisure and sports enterprises in each district of Wuhan to understand their own strengths and weaknesses, clarify their development directions, consolidate their competitive advantages, and improve their shortcomings;
- (3) to propose suggestions for enhancing the competitiveness of the leisure and sports industry, helping enterprises in this field to gain a competitive advantage in the market, and promoting their healthy and sustainable development.

The object of study is to research the current competitiveness of leisure and sports enterprises in Wuhan and explore strategies and specific measures to enhance their competitiveness, this paper conducts field research and analyzes the development status of leisure and sports enterprises in each district of Wuhan. Based on this, the Porter's five forces model is applied to qualitatively and quantitatively analyze the downward indicators of the five competitiveness factors between leisure and sports enterprises and their peers in each district of Wuhan, including the ability to resist potential entrants and substitute threats, the ability to bargain with suppliers and buyers, etc. The five competitive forces downward indicators are identified and a competition structure model for leisure and sports enterprises is constructed, which is then evaluated using the grey relational analysis method. The scores of the five competitiveness factors and comprehensive competitiveness of leisure and sports enterprises in each district are obtained, and finally, suggestions for enhancing the competitiveness of leisure and sports enterprises in Wuhan are proposed.

The subject of research is the competitive strength of leisure sports enterprises in Wuhan.

Research methods:

Literature Review Method. Retrieve relevant websites such as CNKI, China Journal Full-text Database, and China Excellent Master's and Doctoral Thesis Full-text Database, and extensively search for materials and related literature.

Questionnaire Survey Method. The questionnaire used in this study was distributed by the Wuhan Sports Bureau, and its reliability and validity are reliable. To further understand its reliability and validity, 8 experts (5 professors and 3 associate professors) were invited to conduct validity tests. Six experts believed that the content and structure of the questionnaire were very reasonable, and 2 experts believed it was relatively reasonable. The evaluation results indicate that the validity of the questionnaire is high. To further confirm its reliability, 50 questionnaires were distributed for retesting, and the response rate was 100%. After testing, the reliability coefficient of the questionnaire was 0.928, which met the testing standards, indicating that the reliability of the questionnaire is high.

A total of 8328 questionnaires were distributed for the survey, and 8275 were collected, with a response rate of 99.36%. This study selected relevant information from 2075 leisure sports enterprises for research.

Model Method. This study combines Porter's Five Forces Model and Grey Relational Analysis to qualitatively and quantitatively analyze the key factors that affect the competitiveness of leisure sports enterprises in Wuhan.

The database Including report information from Wuhan enterprises, survey questionnaire information, scientific research achievements of domestic and foreign scientists in the problem field, official statistical report data, publications of scientific journals, and information on Chinese science websites.

The scientific novelty of the results. Although leisure sports have not been introduced into China for a long time, their development has been relatively rapid. In recent years, the leisure sports industry has become an important component of the national economy, leading to increasing research attention from scholars and experts. These research findings have contributed to the improvement of various aspects of the development of the leisure sports industry, including talent cultivation, enterprise development strategies, competitive model construction, and market structure. However, previous domestic research on leisure sports has mainly focused on the industry as a whole, with limited literature examining regional cases.

Furthermore, when analyzing and demonstrating problems within leisure sports enterprises, most of the research methods used have been qualitative analysis. There are relatively few documents that quantitatively process the downward indicators of the five forces, by combining specific data-based empirical analysis and using the Five Forces model and Grey Correlation Degree model to establish a competitiveness evaluation system model for leisure sports enterprises.

A retrospective analysis of relevant previous research also reflects that there are many imperfections in the current development of leisure sports enterprises in China, which requires active measures to be taken in the future to address these issues.

The practical significance of the research results is Through the review and study of relevant literature on the competitiveness of leisure sports enterprises and Porter's Five Forces model, this article found that most of the literature currently uses the Five Forces model to analyze the competitiveness of industries, and mainly focuses on qualitative analysis, with only a few literatures using Porter's Five Forces model to study the five types of competitiveness of enterprises, and there is almost no research on the competitiveness of leisure sports enterprises. Whether it is an industry, an enterprise, or an individual entity, they are all in the same environment within a certain region and at the same time, and there must be complex connections between them. Therefore, this article conducts a qualitative analysis of the downward influencing factors of the five competitiveness of leisure sports enterprises, and then quantifies each factor with indicators to deeply study the current competitiveness of leisure sports enterprises in Wuhan. Based on this research, this article proposes strategies to enhance the competitiveness of leisure sports enterprises in Wuhan, so the research has important theoretical significance.

Personal Achievements:

1 Peng Wen. Increasing the level of competitiveness of the enterprise. The 8th International scientific and practical conference *“Integration of scientific and modern ideas into practice”* (November 15-18, 2022) Stockholm, Sweden. International Science Group. 2022. Pp. 289-292

2 Peng Wen. Increasing the level of competitiveness of the enterprise. *Матеріали Всеукраїнської наукової конференції студентів і аспірантів, присвяченої Міжнародному дню студента – (14-18 листопада 2022 р.).* Суми, 2022. С.270

The structure and scope of work. Qualification work consists of an introduction, three chapters, conclusions and suggestions, a list of references, appendix. The main text is placed on 67 pages of computer text, the work contains 4 tables, 14 figures.

CHAPTER 1

THEORETICAL AND METHODOLOGICAL BASIS OF THE COMPETITIVENESS OF THE ENTERPRISE

Leisure sports is not a new concept in modern times. In 2014, Lu Feng conducted a qualitative analysis of the concept from four aspects: semantics, discipline, professional settings, and practical activities. He believed that the concept of leisure sports is relatively mature, with clear connotations and standard meanings, and has multiple logical foundations. Through a long period of social practice, the language use background of leisure sports has become a key conceptual element that is lacking in terms such as "sports leisure," "sports recreation," "recreational sports," and it is difficult for other words to replace "leisure sports" as a general term. Yu Kehong (2003) believes that leisure sports are not restricted by activity rules, forms, and other factors, and people experience mental and physical relaxation and rest through physical activities in leisure time. Based on previous studies, this article summarizes the concept of leisure sports as a way to adjust and relax the body and mind through various sports activities outside of labor or work, in order to achieve the goal of physical recovery, body health, and mental pleasure, and to improve one's amateur lifestyle.

Leisure sports have characteristics such as freedom, culture, non-utilitarianism, and initiative. First, the freedom of leisure sports is reflected in the freedom to engage in sports activities in personal leisure time without violating the law or harming others and society. Compared to other activities such as work and study, leisure sports are more free, without restrictions on the duration, amount, and purpose of the activity, allowing individuals to experience the relaxation and happiness brought by leisure sports activities.

Second, leisure sports have cultural characteristics. Each sport has its own story behind it, such as the deep origins of golf from shepherds' whips on the grasslands, basketball originating from Springfield College in the winter of 1891, and the precursor of football being the ancient Chinese game of Cuju, which is the cultural charm of leisure sports. In addition, leisure sports can also bring people closer together, as different people

with the same interest in a particular sport may become friends.

Third, leisure sports are non-utilitarian activities. The performance of leisure sports activities does not involve the high load and long duration of competitive sports, nor the pressure, rankings, and bonuses of competitions. Participants engage in leisure sports activities solely for their own physical and mental relaxation and pleasure. Finally, leisure sports have the characteristic of initiative, mainly reflected in the fact that there is no reminder or supervision from others, and participants engage in leisure sports activities spontaneously.

Different from the concept of leisure sports, leisure sports enterprises have economic purposes and their own corporate culture. Leisure sports enterprises are legally established organizations that operate for profit and mainly engage in service-oriented economic activities related to leisure sports to meet social demand. They are contractual organizations that practice independent operation, independent accounting, and profit and loss responsibility. Master thesis defines leisure sports enterprises as clubs or clubs and companies engaged in various sports projects such as fitness, yoga, chess, and ball games, as well as companies engaged in sports training and sports tourism. The survey objects in this article mainly involve three categories of leisure sports enterprises: leisure fitness services, sports training, and sports tourism.

Enterprise competitiveness emerges in an open market environment where competition breeds comparison, highlighting differences and gaps. Through natural selection, enterprises promote the progress of their industries. The emergence of enterprise competitiveness is a reflection of vibrant economic development and increased social openness, representing a milestone in human civilization. Research on enterprise competitiveness can be traced back to the period between World War I and World War II when the three mainstream Western economic schools were the Harvard School, the Chicago School, and the Austrian School. Due to the different economic theories they were based on, there were disagreements among these schools regarding the academic research on enterprise competitiveness and the mechanisms and forms of competitiveness. The most influential school was the Harvard School, led by Professor E. Mason and his disciple J. Bain. Mason established the traditional Structure-Conduct-Performance (SCP) model of

market structure, enterprise behavior, and economic outcomes, which became the outline of industrial economics in the future. Building on the research of Mason and his predecessors, Bain emphasized the importance of market structure, and studied the obstacles faced by new entrants to an industry in a market economy, achieving significant results. The "entry barrier", market concentration, and product differentiation are considered to be the key elements of market structure and important factors influencing enterprise competitiveness.

The concept of corporate competitiveness was first proposed by Adam Smith in "The Wealth of Nations," emphasizing the benefits of specialization in labor and its contribution to enhancing corporate competitiveness. The theory of labor division became the foundation for the subsequent development of corporate competitiveness. Michael Porter, an economist at Harvard Business School, believed that the five forces affecting corporate competitiveness are industry competition, the threat of potential entrants, the threat of substitutes, the bargaining power of suppliers, and the bargaining power of buyers. These five forces collectively determine the profitability of the enterprise and its position in the industry to which it belongs. Porter's "Value Chain" theory analyzes the value chain of the enterprise to effectively integrate internal resources and achieve the goal of enhancing corporate competitiveness. Venkatraman, Grant, and Barney pointed out that any tangible or intangible heterogeneous resource is the source of competitive advantage for enterprises.

Domestic scholars in China began researching corporate competitiveness relatively late. Han Zhonghe (2000) believed that corporate competitiveness is reflected in its competitive advantages in competition with rivals and its ability to provide customers with the products and services they need. Wang Mingfu (2001) believed that corporate competitiveness is the ability to resist existing and potential competitors and achieve sustainable development. Jin Bei (2001) defined corporate competitiveness as relative and dynamic, indicating that it is the ability of enterprises to continuously provide better products or services to customers than other enterprises. Modern economics interprets corporate competitiveness as the ability of an enterprise to effectively and sustainably outperform its peers in product supply or service in a competitive and open market environment, while obtaining greater profits and development space than its peers.

This article combines the research of the aforementioned scholars and summarizes the competitiveness of leisure sports enterprises as the comprehensive ability of enterprises to resist the five unfavorable factors of peer competition, the threat of potential entrants and substitutes, the bargaining power of suppliers and buyers, and enhance their economic benefits under the comprehensive influence of various factors such as social civilization, economic structure, cultural institutions, and policy support. It is an important force for leisure sports enterprises to achieve rapid economic growth and promote regional wealth growth. This article uses the "Porter Five Forces Model" to analyze the competitiveness of leisure sports enterprises into five parts. The strength of competitiveness of leisure sports enterprises is reflected in three aspects: relatively significant market share compared to other regions, high customer satisfaction, and profitability and development of leisure sports enterprises themselves. Leisure sports enterprises have three characteristic networks: systematic, dynamic, and relative.

Firstly, the systematic manifestation of the competitiveness of leisure sports enterprises lies in the fact that it is an organic unity composed of various key elements, and its strength or weakness is determined by the combined effect of various factors at different levels. These factors exist independently but also influence each other. To avoid one-sided and inaccurate evaluation of their competitiveness, it is necessary to start from the overall situation of leisure sports enterprises, analyze each influencing factor comprehensively and systematically, and accurately analyze the current competitiveness of leisure sports enterprises in order to increase their competitiveness in a targeted manner.

Secondly, the competitiveness of leisure sports enterprises is dynamic, which is reflected in the fact that the competitiveness of leisure sports enterprises is in an open dynamic equilibrium. The various key elements that make up its competitiveness are constantly changing and developing during the economic operation process of the enterprise, which also ensures that the connotation of the competitiveness of leisure sports enterprises is not single and fixed. To maintain the dynamic balance of the competitiveness of leisure sports enterprises, it is necessary to pay long-term attention to the interrelationship between various factors, in order to maintain a high level of competitiveness of leisure sports enterprises and promote healthy, rapid, and sustainable

development of leisure sports enterprises.

Finally, the relativity of the competitiveness of leisure sports enterprises is reflected in the fact that competitiveness is relative and needs to be compared with other leisure sports enterprises in order to understand the size of its own competitiveness. In addition, the level of competitiveness of leisure sports enterprises at different stages of development also varies when compared with their own competitiveness.

In this study, the evaluation of the competitiveness of local leisure and sports enterprises in Wuhan City will be conducted using Michael Porter's Five Forces Model. The model was established by Harvard Business School in 1979 as a theoretical framework for industry analysis and business strategy research. Based on industrial organization economics, the model derives five forces that determine industry competitiveness and market attractiveness, with market attractiveness referring to the overall profitability level of the industry. Lack of attractiveness means that the combination of these five forces will lower the overall profitability level of the industry, while a highly unattractive industry implies a market close to perfect competition, with profit margins for industry players approaching zero. The analysis model of Porter's Five Forces Model is shown in Figure 1.1



Figure 1.1 - Analysis Mode Diagram of Porter's Five Forces Analysis Model
Source: Journal of Changsha Railway College: Social Science Edition, 2005

The industry structure analysis proposed by economist Michael Porter is the basis for studying competitive strategy. Currently, scholars mainly use Porter's Five Forces Model to analyze and study the competitiveness of various industries, where an industry is a collection of companies with similar attributes. In market competition, companies also negotiate with suppliers, provide products or services to buyers, and compete with peers in the same industry. Substitutes, services, and new entrants can all pose threats to the survival and development of existing enterprises to some extent. Therefore, companies as industry units can also use Porter's Five Forces Model to study their competitiveness.

Grey relational analysis (GRA) is a quantitative analysis and comparison method for the dynamic development of a system, proposed by the renowned scholar Deng Julong. This method is commonly used in social sciences such as departmental investment returns, industrial structure, regional economic situations, as well as some natural science research, and has a wide range of applications.

In this study, the GRA method is used to evaluate the competitiveness of leisure sports enterprises. By determining the "ideal value" and calculating the correlation between the data column of each downward indicator of competitiveness and the "ideal value", the degree of correlation is determined. The closer the "ideal value" is to the value of each competitiveness indicator, the higher the correlation, and vice versa. By comparing the data of each indicator with the "ideal value", the order of magnitude of these competitiveness evaluation indicators can be obtained, which directly reflects the order of competitiveness.

Since GRA has no requirements for sample size or the regularity of data distribution, it can effectively reduce the subjective factors when determining multi-layer factors. GRA can intuitively show the strength and weakness of each indicator and can be compared by addition. Additionally, the calculation is relatively small, making it an ideal tool for analyzing the competitiveness of leisure sports enterprises.

CHAPTER 2

ANALYSIS OF LEISURE SPORTS ENTERPRISES IN WUHAN

2.1 An empirical investigation on the present situation of leisure sports enterprises in Wuhan

The main source of data for this study came from a six-month on-site survey of all sports enterprises in Wuhan conducted by Wuhan Sports Bureau, with the assistance of Wuhan Sports University, Central China Normal University, and Hubei University, when the National Sports Administration established a corporate directory database in 2020. Based on the survey, the study separated leisure sports enterprises from sports enterprises for research based on the scope of their business operations. Specifically, Wuhan City is divided into 13 administrative districts, as shown in Figure 2.1.

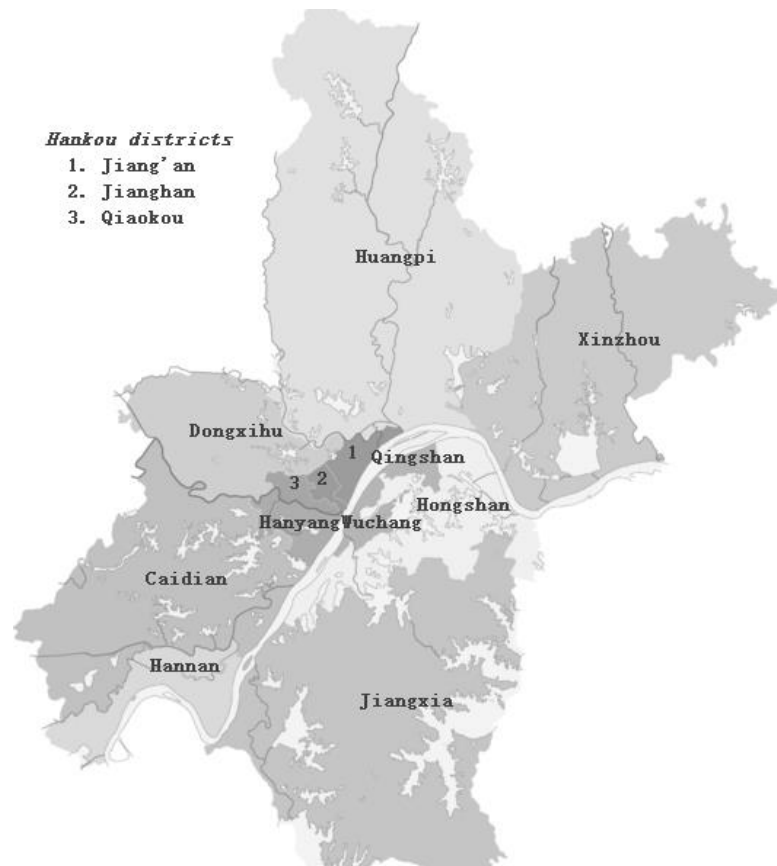


Figure 2.1 - Distribution Map of Wuhan Urban Area

Source:Amap APP

The basic situation and overall characteristics of leisure sports enterprises in each

district of Wuhan City are systematically described below.

(1) The distribution proportion of leisure sports enterprises in Wuhan city

The detailed distribution proportion of leisure sports enterprises in the 13 districts of Wuhan city is shown in Figure 2-2. Among them, the district with the largest proportion of leisure sports enterprises is Hongshan District (16.1%, 334 in total), followed by Wuchang District (15.4%, 320 in total), and Jiang'an District ranks third (12.0%, 249 in total). The rest are as follows: Qingshan District (10.3%, 214 in total), Jiangnan District (9.2%, 191 in total), Dongxihu District (7.8%, 162 in total), Qiaokou District (7.1%, 147 in total), Hanyang District (6.6%, 137 in total), Jiangxia District (5.9%, 122 in total), Huangpi District (3.9%, 81 in total), Caidian District (2.7%, 56 in total), Xinzhou District (1.8%, 37 in total), Hannan District (1.2%, 25 in total), with a total of 2075.

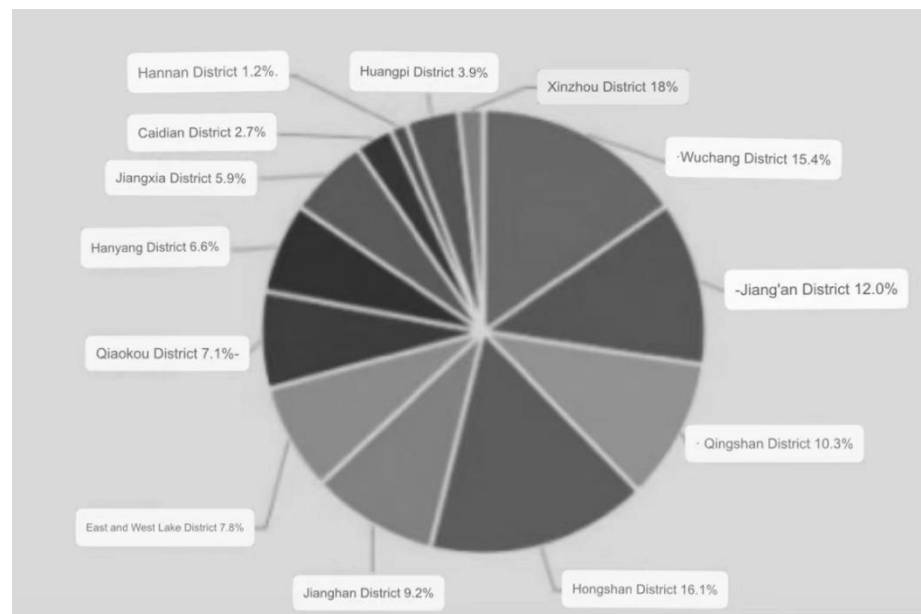


Figure 2.2 - Proportion of Leisure Sports Enterprises in Various Districts of Wuhan City

Source: The General Administration of Sport of China in 2020

From Figure 2.2, it can be seen that the proportion of leisure sports enterprises in Hongshan District, Wuchang District, Jiang'an District, and Qingshan District is all above 10%, and accounts for more than half of the total number of leisure sports enterprises in Wuhan city. The proportion of leisure sports enterprises in Jiangnan District, Dongxihu

District, Qiaokou District, Hanyang District, and Jiangxia District is between 5% and 10%, and the total number of leisure sports enterprises in these districts accounts for more than one-third of the total number of leisure sports enterprises in Wuhan city. The proportion of the other four districts is below 4%. Since the number of leisure sports enterprises in Caidian District, Huangpi District, Xinzhou District, and Hannan District is relatively small, the sum of the proportion of these four districts is 9.6%, and the total number of leisure sports enterprises in each district is less than that of any of the top four districts, so the data on various aspects of leisure sports enterprises in these four districts only serve as auxiliary reference in this paper and are not the main analysis object.

(2) Distribution of Different Types of Leisure Sports Enterprises in the 9 Districts of Wuhan City. For the purpose of analysis, this article classifies leisure sports enterprises into three types: sports tourism, sports training, and leisure fitness services. The following analysis shows the distribution of these enterprises engaged in different businesses across the 9 districts of Wuhan city. The specific distribution is shown in Figure 2.3:

1 Hongshan District, 2 Wuchang District, 3 Jiangnan District, 4 Qingshan District, 5 Qiaokou District, 6 Jiangnan District, 7 Hanyang District, 8 Jiangxia District, 9 Dongxihu District
 ■ sports tourism ■ Sports training ■ Leisure and fitness services

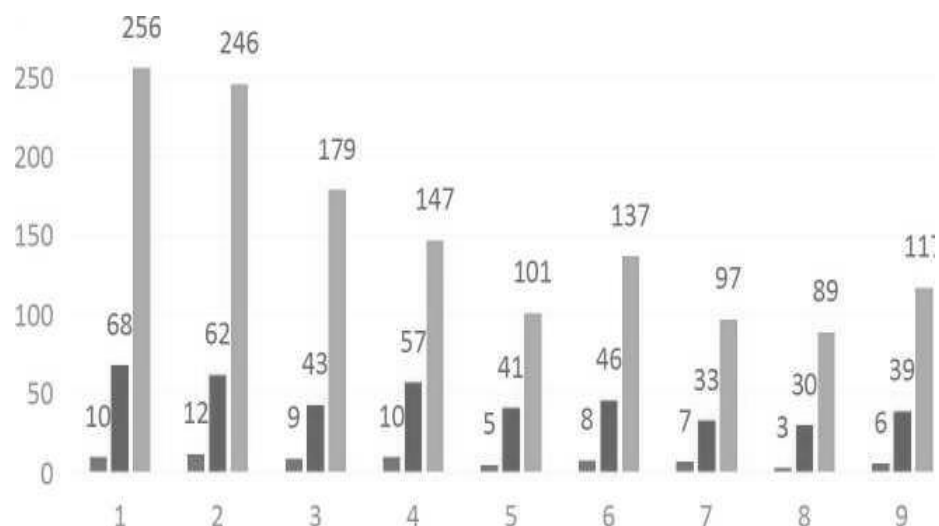


Figure 2.3 - Number distribution of leisure sports enterprises of different business types in 9 districts of Wuhan

Source: The General Administration of Sport of China in 2020

According to Figure 2.3, Hongshan District has the highest number of leisure sports

enterprises in the leisure fitness services category, followed by Wuchang District, with 26 and 246 enterprises respectively. The number of leisure fitness services enterprises in the remaining 7 districts is below 180. Among them, Jiang'an District has 197 enterprises, Qingshan District has 147, Jiangnan District has 137, Dongxihu District has 117, Qiaokou District has 101, and Hanyang District has 97. Jiangxia District has 89 enterprises. In total, there are 1876 leisure sports enterprises, of which 1387 are mainly engaged in leisure fitness services, 419 in sports training, and 70 in sports tourism.

Hongshan District, Wuchang District, and Jiang'an District have more leisure sports enterprises engaged in sports training, with little difference in the number of enterprises among these districts. Each district has relatively few enterprises engaged in sports tourism, with Wuchang District having the highest number at only 12.

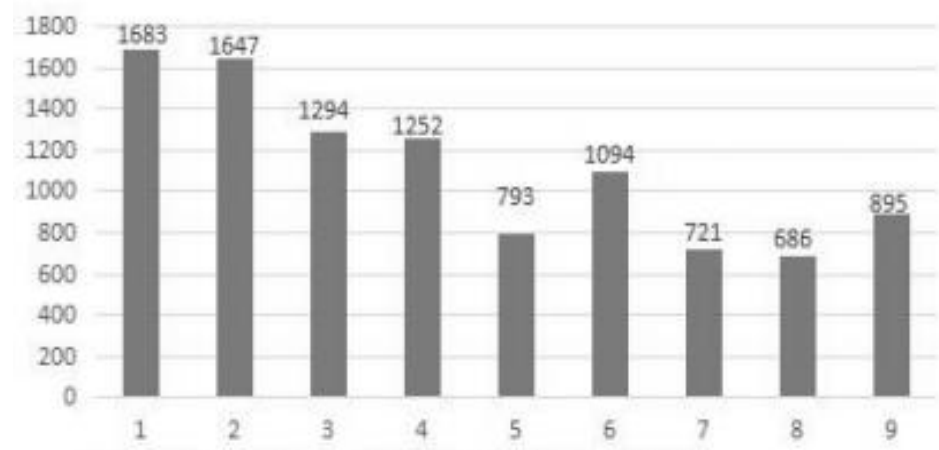
Overall, the number of leisure sports enterprises engaged in leisure fitness services is far greater than those engaged in sports training and sports tourism across all 9 districts of Wuhan city.

(3) Distribution of Leisure and Sports Industry Employees in Wuhan's Nine Districts

Based on the distribution of leisure and sports industry enterprises in Wuhan's districts shown in Figure 2.2, this section only analyzes and explains the distribution of employees in leisure and sports industry enterprises in the nine districts of Wuhan, including Wuchang, Hongshan, Jiang'an, Qingshan, Jiangnan, Dongxihu, Hanyang, and Jiangxia. The detailed distribution of employees in leisure and sports industry enterprises in the nine districts is shown in Figure 2.4.

From Figure 2.4, it can be seen that Hongshan District has the highest number of employees in leisure and sports industry enterprises in Wuhan's nine districts, with 1683 employees. The second highest is Wuchang District, with 1647 employees. Jiang'an District and Qingshan District rank third and fourth with 1294 and 1252 employees respectively. The number of employees in leisure and sports industry enterprises in Jiangnan District is 1094. The remaining four districts, including Hanyang, Jiangxia, Dongxihu, and Qiaokou, have less than 900 employees in leisure and sports industry enterprises. Wuhan's nine districts have a total of 10,065 employees in leisure and sports industry enterprises. Among them, the number of employees engaged in sports tourism is

353, the number of employees engaged in sports training is 2200, and the number of employees engaged in leisure and fitness services is 7691.



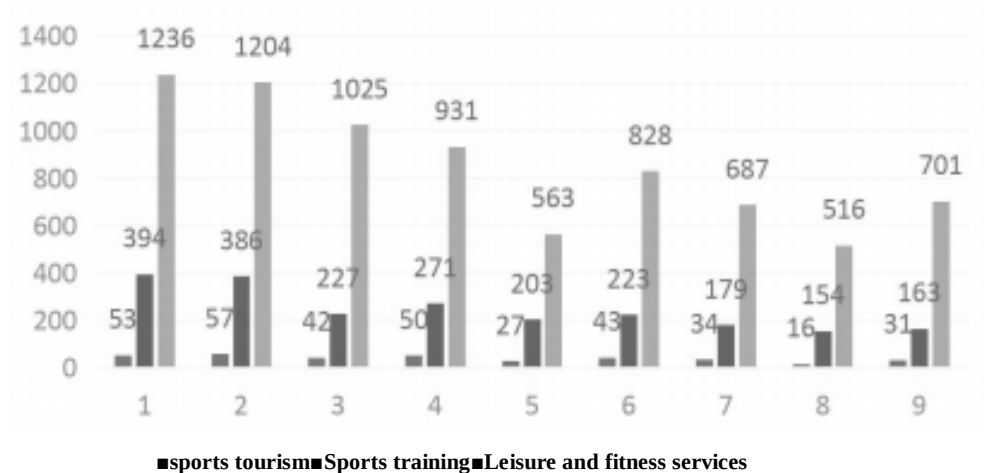
1 Hongshan District, 2 Wuchang District, 3 Jiangnan District, 4 Qingshan District, 5 Qiaokou District, 6 Jiangnan District, 7 Hanyang District, 8 Jiangxia District, 9 Dongxihu District

Figure 2.4 - Number of leisure sports employees in 9 districts of Wuhan
Source: The General Administration of Sport of China in 2020

(4) Distribution of leisure sports industry employees in different types of enterprises in 9 districts of Wuhan

The specific distribution of employees in different types of leisure sports enterprises in each district is shown in Figure 2.5.

From Figure 2.5, it can be seen that the number of employees engaged in leisure fitness services in both Hongshan and Wuchang districts is much higher than that in the other 7 districts. The number of employees engaged in leisure fitness services in Hongshan district is 1236, and in Wuchang district it is 1204. In comparison, the number of employees engaged in leisure fitness services in the other districts is below 900. Hongshan district also has the largest number of employees engaged in sports training, with 394 employees, followed by Wuchang district with 386 employees. Jiang'an district has 227 employees engaged in sports training, while Qingshan district has 271, Qiaokou district has 203, and Jiangnan district has 223. The number of employees engaged in sports training in the remaining three districts is all below 180.



1 Hongshan District, 2 Wuchang District, 3 Jiangnan District, 4 Qingshan District, 5 Qiaokou District, 6 Jiangnan District, 7 Hanyang District, 8 Jiangxia District, 9 Dongxihu District

Figure 2.5 - Comparison of the number of employees of different service types in leisure sports enterprises in 9 districts of Wuhan

Source: The General Administration of Sport of China in 2020

The number of employees engaged in leisure fitness services in each district is much higher than that of employees engaged in sports tourism and sports training. The difference in the number of employees engaged in sports training is not too significant, and the number of employees engaged in sports tourism in each district is very low.

(5) Distribution of operating income of leisure and sports enterprises in each district

The main revenue of leisure and sports enterprises in Wuhan is concentrated in the two major business areas of leisure fitness services and sports training. Through data analysis, it is found that the revenue distribution of leisure and sports enterprises in each district is roughly the same. Therefore, a chart is used to briefly introduce the revenue distribution of leisure and sports enterprises in each district of Wuhan, as shown in Figure 2.6:

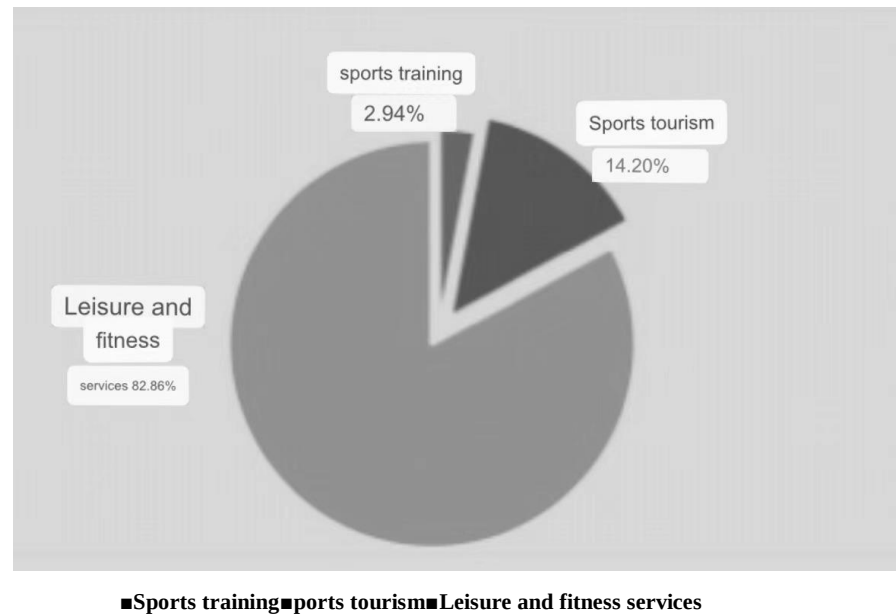


Figure 2.6 - Distribution of business income of leisure sports enterprises in Wuhan

Source: The General Administration of Sport of China in 2020

From Figure 2.6, it can be seen that the operating income of leisure and sports enterprises in Wuhan in the three business areas of sports tourism, sports training, and leisure fitness services is roughly as follows: leisure fitness services account for 80% of the total revenue, sports tourism revenue accounts for more than 10%, and sports training revenue accounts for less than 10%. Combining the data analyzed earlier, it can be seen that the number of enterprises specializing in sports training is far more than those specializing in sports tourism, but the revenue data is inversely proportional to the number of enterprises. The main reason for this is that sports tourism enterprises are positioned in the high-end market, and the requirements for the safety, practicality, and convenience of equipment and facilities required by customers are relatively high. The technology content and material quality of equipment and facilities are correspondingly high, so the cost is high, and the selling price is naturally high, so sports tourism enterprises have to be positioned in the high-end market. On the other hand, sports training enterprises are positioned in the mid-to-low-end market, so it is reasonable that the revenue results are inversely proportional to the number of enterprises. Leisure fitness service enterprises are positioned in the mid-to-high-end market, and they have the largest number of enterprises and the highest revenue. The total annual revenue of leisure and sports enterprises in

Wuhan is 494 million yuan. Figure 2.7 below is a comparison of the annual revenue of leisure and sports enterprises in the three areas of sports tourism, sports training, and leisure fitness services in each district of Wuhan.

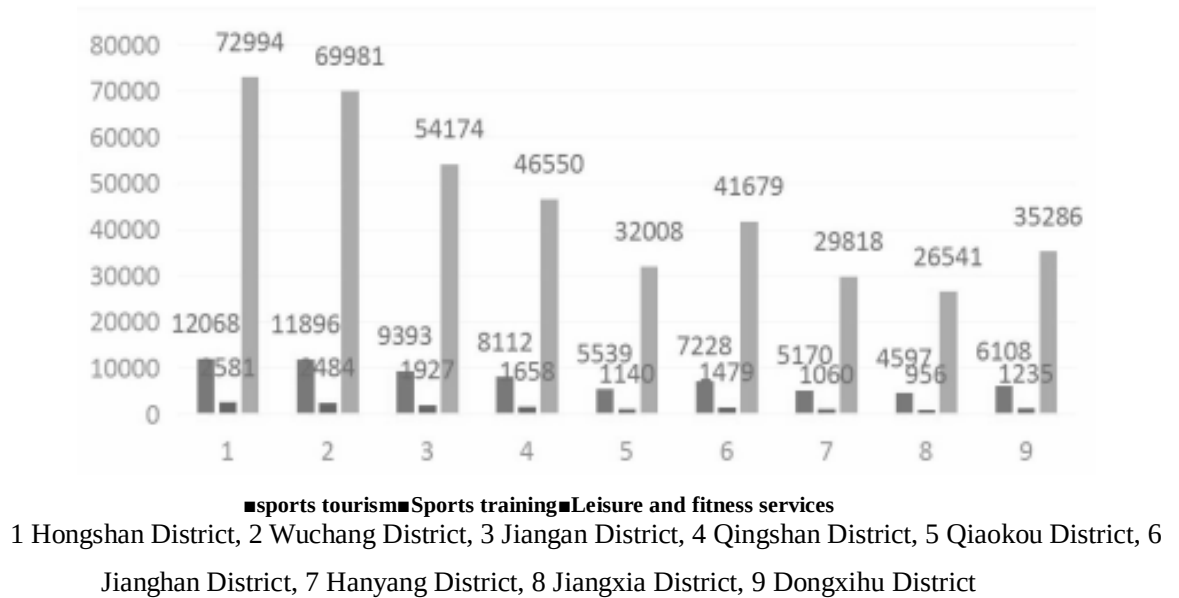


Figure 2.7 - Annual income comparison of sports tourism, sports training and leisure and fitness services in 9 districts of Wuhan

Source: The General Administration of Sport of China in 2020

Figure 2.7 - above shows that Hongshan District and Wuchang District have higher revenue in all business areas of leisure and sports enterprises than other districts. Leisure fitness services are the focus of revenue for leisure and sports enterprises in each district of Wuhan and an important part of Wuhan's national economic growth. The proportions of the three business areas are similar in each district, and there is no regional advantage in any particular business area.

2.2 Analysis on the development of leisure sports enterprises in Wuhan

Since the release of Document No. 46 by the State Council in 2014, titled "Several Opinions on Accelerating the Development of the Sports Industry and Promoting Sports Consumption," a series of policies related to the development of leisure sports have been successively introduced, including the "National Fitness Plan (2016-2020)," the

"Thirteenth Five-Year Plan for the Sports Industry," and the "Guiding Opinions on Accelerating the Development of the Fitness and Leisure Industry." Relevant implementation plans for these policies have also been formulated at all levels of government. With the introduction of these policies and the attention and support of the government, the development of leisure sports enterprises in Wuhan City has shown a trend of rapid development, characterized by the following features:

(1) Regional functional differentiation has emerged among leisure sports enterprises in Wuhan City, and there are regional advantages.

In different administrative districts of Wuhan City, leisure sports enterprises have developed their own unique characteristics. The leisure sports enterprises in the surrounding areas, such as Jiangxia District and Dongxihu District, mainly focus on developing sports tourism; while those in Hongshan District, Wuchang District, and Qingshan District mainly focus on developing sports training and leisure sports services. Hanyang District focuses on developing large-scale sports events, while Jiang'an District, Jianghan District, Qiaokou District, and others focus on developing sports commerce. Among them, Hanyang District, Jiang'an District, Jianghan District, Qiaokou District, and other areas mainly focus on the development of leisure sports services. Different regions have different advantages. The surrounding areas, such as Jiangxia District, have a better natural environment and more extensive land resources, making it easier to develop projects such as golf, horse racing, and water sports. However, compared with the central city area, they lack overall regional economic development, and the poor leisure sports awareness of local residents can affect the development of leisure sports enterprises. Although the central city area has economic advantages that surrounding areas cannot reach in the short term, it lacks venues and environments for developing sports tourism.

(2) The leisure and fitness service industry has entered the community, effectively improving residents' health levels.

The majority of leisure and sports businesses in Wuhan are concentrated in commercial districts in each area, and almost all of these commercial districts are relatively mature with a certain population size. Many companies engaged in the leisure and fitness service industry choose to operate in these mature communities, and leisure and sports

businesses are gradually shifting from the central business district to the community, reducing the distance between leisure and fitness services and residents, and making it more conducive to the development of leisure and fitness business.

(3) Leisure and sports businesses are playing an increasingly important role in the social and economic development of Wuhan.

The development of leisure and sports businesses in Wuhan has played a certain role in the increase of the city's national economic total, and is also beneficial to the adjustment and improvement of the city's sports industry structure, increasing employment opportunities, and playing a positive role in maintaining social stability. The social and economic effects of leisure and sports businesses are increasing day by day. The specific manifestations include: in addition to directly expanding the city's national economic total, leisure and sports businesses also drive the development of related industries through sports industry investment, and the benign development of related industries also contributes to certain economic benefits to society. In this process, leisure and sports businesses play an indirect role in increasing the city's national economic total.

The flourishing development of leisure and sports businesses in Wuhan relies on the maturity and rapid development of the leisure and fitness service industry, sports training, sports tourism, and other businesses, which require professional talents. Leisure and sports businesses will absorb the surplus labor of sports professionals, alleviate the employment pressure in Wuhan, and various businesses will become more professional and more conducive to the sustainable development of businesses.

In recent years, each district in Wuhan has gradually increased the infrastructure and equipment for sports exercise, providing residents with good opportunities and environments for sports consumption. The development of various businesses of leisure and sports businesses meets the increasing demand of residents for sports consumption, making an indelible contribution to residents' physical health.

(4) The development of leisure and sports enterprises has a clear role in improving the quality of life of residents and enhancing the national quality.

Each district in Wuhan city holds more than 10 mass sports activities every year, and conducts about 50 national fitness activities organized by streets, communities, townships,

and associations. Almost all communities hold sports events between communities, and 70% of communities have established sports and fitness guidance stations. Over 70% of residents benefit from these fitness activities. Leisure and sports enterprises have become an important part of improving national quality and quality of life.

(5) The operating entities of leisure and sports enterprises show a clear trend of diversification.

Research data on 1876 leisure and sports enterprises in 9 districts of Wuhan city shows that private enterprises accounted for over 90% in 2016. The reason is that government funding alone is not enough to develop leisure and sports, given the limited government finances. The influx of a large amount of social capital injects greater vitality into the development of leisure and sports enterprises, laying a good foundation for their development in Wuhan city. According to current research data, the development of leisure and sports enterprises in various districts of Wuhan city is good. In recent years, a number of leisure and fitness service chain stores such as Legend Konda and Jiangcheng Fitness E-home, as well as foreign-funded leisure and sports business enterprises with revenues exceeding tens of millions of yuan, have emerged in various districts of Wuhan city. These foreign and private enterprises have become the advantageous enterprises in the leisure and sports industry in various districts of Wuhan city, playing a good demonstration role in injecting social capital into leisure and sports enterprises. Overall, the diversified pattern of the operating entities of leisure and sports enterprises in various districts of Wuhan city has initially formed, which lays the foundation for the standardized and prosperous development of the leisure and sports market.

2.3 Problems in the development of leisure sports enterprises in Wuhan

(1) The majority of leisure and sports enterprises in each district are small in scale.

Small and medium-sized enterprises make up more than 90% of the leisure and sports enterprises in each district of Wuhan city, while large-scale enterprises are relatively scarce. In the fiercely competitive market, small enterprises are weaker than large enterprises in terms of human resources, material, and financial resources. In addition, the

large number of small leisure and sports enterprises in Wuhan city has led to the dispersion of leisure and sports resources, and the lack of certain resources in each enterprise may hinder its rapid development to some extent, and even pose a bankruptcy risk when facing threats.

(2) Lack of professional talent in leisure and sports management.

Many leisure and sports enterprises in each district lack professional management talent. Due to the small scale of these enterprises, they are mainly operated by the legal representatives and investors, with very few employees, averaging only 5 people per enterprise, including legal representatives and investors. Currently, Wuhan city and even the whole country lack the cultivation of management talent for leisure and sports enterprises, and the shortage of talent who have both sports skills and management ability is particularly serious. Most of the employees in leisure and sports enterprises graduated from sports colleges and have some sports skills and sports education capabilities. However, their ability in enterprise management and sports marketing is very weak, which is not conducive to the long-term and stable development of leisure and sports enterprises.

(3) Government policies and laws and regulations are not yet perfect.

The development of leisure and sports enterprises requires macro-control by governments at all levels. After the 2008 Beijing Olympic Games, the national government successively introduced a series of policies to support the sports industry. In addition to national policies, the policies and laws and regulations formulated by local governments for the development of leisure and sports enterprises and the protection of the rights and interests of sports consumers and leisure and sports enterprises are not yet sound. The whole Wuhan city lacks a systematic set of policies for the structure, organization, cultivation, support, and development of the leisure and sports industry. The government has not established a macro-management agency for the leisure and sports market, nor has it determined the management objects, contents, and methods. The operation of the market mainly relies on the self-discipline of each enterprise. The laws and regulations related to the coordination of leisure and sports economic activities are not yet perfect, and there are often phenomena of infringement of the rights and interests of enterprises and consumers in market competition.

(4) Insufficient leisure sports resources in various districts with low utilization rates.

Apart from facing problems such as insufficient funds, lack of professional talents, and inadequate infrastructure, leisure sports enterprises in various districts also face the issue of unreasonable development and utilization of resources. Firstly, leisure sports enterprises lack sufficient funds for professional talent training, updating of sports equipment and environmental facilities, and the addition of other value-added businesses. They also lack professional talents for the development of intangible assets, resulting in low brand effect and weak competitiveness. In addition, the unreasonable utilization of resources leads to waste. Due to the lack of development, intangible assets of leisure sports enterprises are difficult to be utilized, resulting in waste of resources. The low openness and utilization rate of large-scale venues in various districts is also a great waste of resources.

(5) Serious homogenization in the operation of leisure sports enterprises.

Most enterprises in the industry have relatively small scales and weak competitiveness. Moreover, there is a serious homogenization phenomenon among leisure sports enterprises of the same type in the same region, which greatly weakens their competitiveness. In order to expand their market share, sports training institutions and leisure fitness service providers blindly increase the types of businesses, such as running, gym fitness, aerobic exercises, dynamic cycling, and some sports training projects in fitness centers, resulting in too many types of businesses but not enough professionalism. Almost all enterprises of the same type in the leisure sports market have little difference in their operations, which seriously affects the healthy development of leisure sports enterprises.

CHAPTER 3

CONSTRUCTING THE EVALUATION SYSTEM MODEL OF LEISURE SPORTS ENTERPRISE COMPETITIVENESS

3.1 Selection of evaluation methods for enterprise competitiveness.

In order to achieve sustainable development and stronger profitability, enterprises need to understand the market competition environment and market competition structure, as well as the abilities of their own five forces. Therefore, after analyzing and briefly introducing the Five Forces Model of the leisure sports market, this chapter identifies the common key indicators of the five competitive forces of leisure sports enterprises. Data on these indicators were collected from leisure sports enterprises in the nine districts of Wuhan, with all enterprises in each district treated as a whole. Using the Grey Relational Analysis Model, the competitive abilities of the five forces among leisure sports enterprises in the nine districts were evaluated and compared, and the competitiveness of leisure sports enterprises in each district in relation to the five forces was determined. This provides a theoretical basis for strategic selection for leisure sports enterprises in Wuhan.

There are currently several methods for evaluating a company's competitiveness, such as principal component analysis, fuzzy comprehensive evaluation, TOPSIS, and data envelopment analysis. Through analysis and comparison of several evaluation methods, it was found that principal component analysis is suitable for macroscopic evaluation objects, requires linear relationships between data and variables, and involves a large workload; fuzzy comprehensive evaluation is suitable for fuzzy and complex evaluation objects, and after quantifying fuzzy factors, the credibility increases, but there is redundant information; TOPSIS is suitable for ranking the size of a company's competitiveness, but the calculation process is too complex, the workload is large, and there are differences between theory and actual results; and data envelopment analysis has restrictions on the number of evaluation indicators. This article chooses the gray relational analysis method to evaluate the competitiveness of leisure sports companies mainly because it relies on real data analysis

and does not require linear relationships between data and variables. Secondly, the weights are calculated based on data, avoiding subjective factors. In addition, it can obtain the evaluation scores of each indicator and the comprehensive competitiveness score, and the hierarchy is relatively clear. Moreover, the calculated results have a small deviation from the actual situation, and the workload is also small.

3.2 Identification of key factors in the Porter's Five Forces Model of leisure sports enterprises.

(1) Key factors of supplier bargaining power

Suppliers provide products or services to businesses, and their bargaining power is influenced by market conditions. When there is an oversupply of products or services in the market, the supplier's bargaining power is weak, and vice versa. The quality of the product or service also affects the supplier's bargaining power. When the quality is high, the supplier can increase the price offered to the business. The supplier's good reputation and strong capabilities also serve as the backbone of their bargaining power. A supplier with a highly reputable and well-known brand for the products or services they provide also has strong bargaining power. The degree of differentiation of the product is also an important factor. As the saying goes, "scarcity creates value," which can be understood as the degree of differentiation of the product, or the limited quantity available (i.e., supply shortage), making differentiation degree an important factor.

Suppliers to leisure sports enterprises mainly include network information technology suppliers, equipment and facilities suppliers, venue leasing or sales suppliers, service providers (coaches), and other infrastructure suppliers, and leisure sports enterprises choose suitable suppliers according to their own needs. There is a certain degree of differentiation in the products or services provided by suppliers to leisure sports enterprises in Wuhan, but the degree of differentiation is not very high and the substitutability is not high either. The low concentration of leisure sports enterprises in Wuhan has resulted in strong bargaining power for the suppliers of leisure sports enterprises in Wuhan. Although suppliers have strong bargaining power, they also adjust

prices based on the actual demand of leisure sports enterprises. When the demand for products or services is high, suppliers offer more discounts. When the demand for products or services is the same among all enterprises, the supplier's bargaining power depends on their relative strength compared to leisure sports enterprises.

The price of products provided by suppliers is affected by many factors, such as market conditions, product quality, supplier reputation and strength, brand awareness and reputation, degree of product differentiation, and product demand. When these factors are favorable, the price offered by suppliers to the enterprise is relatively high, and their bargaining power is strongest at this time.

(2) Key Factors Affecting Buyer Bargaining Power

Buyers choose products or services based on their needs, economic conditions, and preferences, and they always hope to get the best value for their money when purchasing a product or service. At this point, negotiation with the enterprise (merchant) is necessary. If the buyer has a high preference for the product or service, it will weaken their bargaining power. A high degree of differentiation of the product will also weaken the buyer's bargaining power. The higher the quality of the product or service, the weaker the buyer's bargaining power. Market conditions also affect the buyer's bargaining power. When the product or service is in short supply, the buyer's bargaining power is weakened. In addition, e-commerce makes the prices of the same product or service transparent, and buyers will compare prices and choose the lowest one, giving them stronger bargaining power.

Leisure and sports companies mainly provide leisure and sports-related services, including leisure fitness services, sports tourism, sports training, etc. The price, quality, and after-sales service of the services provided by leisure and sports companies will directly affect the buyer's bargaining power. Therefore, quality-related indicators of leisure and sports companies can be used to quantify the buyer's bargaining power.

(3) Key Factors Affecting the Threat of Potential Entrants

The threat of potential entrants comes from the fact that once they enter the market, they will seize market share and compete for resources such as suppliers. The conventional development of some existing companies in the market will be affected, which may result in a decrease in profitability and even potential risks of being squeezed out. The capital,

size, and reputation of existing companies in the market directly affect the threat of potential entrants. Generally speaking, companies with abundant capital, large size, and high reputation can cope with the threat of potential entrants.

Currently, some leisure and sports companies in Wuhan have already reached a certain scale, with Legend Kangda Jiangcheng Fitness e-Home as the representative. In general, potential entrants cannot match the number of physical stores, members, distribution range, annual income, and brand awareness of existing stores. Therefore, indicators related to capital, economies of scale, brand awareness, and other relevant factors of leisure and sports companies can be used to quantify the threat of potential entrants.

(4) Key Factors of Competitiveness among Existing Peers

Porter believes that competition among existing peers in the industry is closely related to interests. Every enterprise wants to gain more benefits, so it must adopt strategies and measures that can help it develop better to gain a competitive advantage and occupy more market share, in order to increase its economic benefits. This creates mutual competition among existing peers. Competitiveness among peers refers to the ability of existing enterprises in the industry to make strategic choices and implement them in order to seize market share. Therefore, the strategies chosen by enterprises can reflect their strengths and weaknesses in competitiveness. If an enterprise chooses the right strategy, its competitiveness will be stronger, and its market share will become larger.

Secondly, a company's business growth can reflect its competitiveness, and the trend of business growth can indicate a company's future development trend. Generally speaking, if a company's business growth rate is high, it is more likely to have a certain control over the development of the entire market in the future. In addition, in the process of competing for market share, better services, more differentiated products, and better brand building can attract more consumers.

Recreational sports enterprises in Wuhan mainly operate in the leisure fitness service industry, followed by sports training services, and there is not much differentiated management. Various recreational sports enterprises mainly compete for market share through price wars and improving service quality. Therefore, indicators such as business

growth rate, value-added service types, annual complaint rate, and satisfaction with services can be used to quantify the competitiveness among peers in the industry to a certain extent.

(5) Key factors of substitute threat

Substitutes refer to products that have similar functions to existing products. Substitutes can also meet the needs of consumers that existing products provide, and may even have more functions and better experiences than existing products. Porter believes that the threat of substitutes comes from the stable demand for products by consumers, and the increasing sales of substitutes produced in the industry squeezes the sales of existing products in the industry, thereby affecting the sales prices and sales volumes of enterprise products. Existing companies in the industry usually adopt cost reduction or price reduction strategies to survive. Cost reduction may affect the quality of the products to a certain extent. When the quality of substitutes is better and the price is lower, the impact on the profits of existing enterprises is greater. Therefore, the better the quality, the lower the price, and the larger the quantity of substitutes, the greater the threat to existing enterprises.

Currently, there are not many substitutes for the services provided by leisure and sports companies. Even if there are substitutes, they can only replace some functions and cannot completely replace them. Many substitute services have leisure functions but not sports functions, and those with sports functions do not necessarily have leisure functions. In summary, leisure and sports companies face relatively small threats from substitutes.

When analyzing the relevant factors of the five forces model proposed by Michael Porter, there is no clear downward impact factor for the five forces. Therefore, this article combines relevant literature to study the key factors of the downward impact of the five competitive forces in the five forces model of leisure and sports companies, and summarizes the key common impact factors of the five forces model of Porter as shown in Table 3.1.

(6) Principles for constructing the evaluation index system of competitiveness of leisure sports enterprises

Firstly, follow the principles of scientificity and practicality. The evaluation index system for the competitiveness of leisure sports enterprises should be established based on

the actual needs of leisure sports enterprises' daily production. The evaluation indicators should be able to scientifically and objectively reflect the competitiveness of leisure sports enterprises in these five aspects.

Table 3.1 - Key factors and descriptions of the Five Forces model

Five forces	Main influencing factors
The ability of the peer competitors	1. Cost performance of peer products, 2. Strategic choice of peer enterprises, 3. Differentiated operation, 4. Business growth rate, 5. Brand building of peer enterprises
The ability of the potential competitors	1. Scale of potential competitors, 2. Capital level, 3. Brand building
The threat of alternatives	1. Cost performance of substitutes, 2. Number of substitutes, and 3. Sales of substitutes
The bargaining power of the buyer	1. Quality of the products or services of the enterprise, 2. Market quotation, 3. The buyer's preference for the products
Supplier's bargaining power	1. Quality of suppliers' products or services, 2. Market quotation, 3. Credit and strength of suppliers, 4. Brand construction and product demand for suppliers

Source: own research

Secondly, follow the principles of systematicity and hierarchy. The competitiveness of leisure sports enterprises is the result of many factors interrelated and interacting with each other. It is necessary to hierarchically extract the many factors that are complicated and interrelated in establishing an evaluation index system, making the structure clear and complete.

Thirdly, follow the principles of dynamism and stability. The influencing factors of the competitiveness of leisure sports enterprises are sometimes dynamic, while others are stable. For example, the size and capital level of an enterprise within a stage will not change significantly and are relatively stable factors, while market conditions may change rapidly. A product in high demand today may be oversupplied tomorrow. Therefore, the dynamism and stability of the influencing factors should be included when collecting the indicators of the competitiveness of leisure sports enterprises.

Then, follow the principles of measurability and comparability. Measurability and comparability are the basic principles for the development of evaluation indicators for enterprise competitiveness. The use of quantifiable indicators makes it easier to measure

and collect data, and the comparison of numerical values can provide more intuitive comparisons and judgments of the size of enterprise competitiveness.

Finally, follow the principles of completeness and conciseness. To make the evaluation index system more objective in reflecting the competitiveness of enterprises, it is necessary to select more comprehensive evaluation indicators. However, the number of indicators and the workload of data collection and processing will increase accordingly. Therefore, the determination of competitiveness evaluation indicators should be based on a relatively complete evaluation index system, selecting several important indicators to achieve concise, brief, and effective purposes.

(7) Assumptions

Wuhan's leisure and sports enterprises face the same supplier environment.

In the actual production process, selecting suppliers from an enterprise's perspective is similar to how consumers choose products from businesses - both hope to buy products or services with higher cost-effectiveness. Most leisure and sports enterprises choose a more suitable supplier based on the needs of the enterprise, while a few high-end enterprises choose suppliers with excellent product quality and higher prices. Only when a supplier's product cost-effectiveness is relatively high or there is only one supplier, will leisure and sports enterprises choose the same product supplier. As a supplier provides a variety of products to a leisure and sports enterprise, one supplier cannot provide all the necessary production materials for the enterprise, so multiple suppliers provide products for the same enterprise. Analyzing the bargaining power of each supplier, considering the various factors that affect bargaining power, can be a very complex and time-consuming process, with little significance. Therefore, simplifying the analysis process without affecting the results, this article assumes that all leisure and sports enterprises in each administrative region of Wuhan choose the same supplier. Therefore, the comparison of strength between leisure and sports enterprises and suppliers in each region is equivalent to the comparison of strength between leisure and sports enterprises in each region.

There is no difference in the customer base of leisure and sports enterprises.

The target customer base of different leisure and sports enterprises is not the same, which also affects customers' bargaining power. Currently, the main customer base of

leisure fitness service enterprises is young and middle-aged people, while the customer base of sports training enterprises is mainly students of all ages. Due to the relatively high cost of equipment for sports tourism, the customer base for sports tourism is mainly high-end customers. This article mainly evaluates the relative competitiveness of leisure and sports enterprises in Wuhan, so it assumes that the customer base of leisure and sports enterprises in the nine districts is the same. Therefore, the relative bargaining power between buyers and leisure and sports enterprises can be transformed into a comparison of the quality of products or services provided by leisure and sports enterprises in each region to the same buyer.

(8) Construction of Evaluation Index System for Competitiveness of Leisure Sports Enterprises

Based on the characteristics and daily production of leisure sports enterprises in Wuhan, and combined with Table 3.1, the main downward indicators of the five forces of competitiveness of leisure sports enterprises are formulated, and the grey correlation degree method is used to construct the evaluation index system for competitiveness of leisure sports enterprises. By using the grey correlation degree to evaluate the index system, this paper can scientifically and fairly judge the basic competitiveness of leisure sports enterprises in each administrative region. According to the identification of key factors in the competitiveness of leisure sports enterprises, the threat of substitutes in the leisure sports industry to existing enterprises is relatively small. Therefore, when studying the competitiveness of leisure sports enterprises among different regions using the grey correlation degree evaluation system, relative values are used. Since the threat of substitutes is small, the relative differences between different regions are not significant and have no significant research significance. Therefore, this paper removes the threat of substitutes and analyzes the remaining four forces. The grey correlation degree evaluation index system for the competitiveness of leisure sports enterprises is shown in Table 3.2.

(9) Dimensionless processing of data: Since multiple downstream indicators of leisure sports enterprises' competitiveness with different nature, meaning, role and expression are used for comprehensive evaluation of leisure sports enterprises'

competitiveness, there is no unified measurement standard among the evaluation indicators, which brings difficulties to the evaluation of enterprises' competitiveness. In order to simplify this trouble of comparing data with different attributes, the gray correlation degree evaluation method performs dimensionless processing on the original data so that all data are located in the (0,1) interval, and the processed data can be directly used for the next research analysis.

Table 3.2 - Wuhan leisure sports enterprise competitiveness evaluation index system

First-order index	Secondary index	unit
The threat of peer competitors	Business growth rate: X1	%
	Service satisfaction: X2	/
	Value-added service category X3	unit
Potential entry into the threat	Annual turnover of X4	RMB
	Annual interest rate X5	%
	Number of employees: X6	person
	Number of physical stores X7	unit
	Brand awareness X8	%
The bargaining power of the buyer	Business type X9	unit
	Average class hour fee: X10	RMB
	Annual business complaint rate: X11	%
Supplier's bargaining power	Business volume: X12	/
	Market share of X13	/
	Revenue rank X14	/

Source: own research

In Figure 3.2, the four forces in the first-level indicators are qualitative indicators, and the second-level indicators, which are the downstream indicators of the first-level indicators, are quantitative indicators. In order to make the second-level indicators better reflect the objective situation of the first-level indicators, it is necessary to distinguish the second-level according to different properties, and classify them into four types of indicators, such as benefit-type, cost-type, moderate-type and interval-type, according to the types of indicators. Next, the data of these four types of indicators are dimensionless using different normalization functions respectively, and let the original data be X and the dimensionless function be Y_i with the following formula:

benefit-type:
$$Y_i = \frac{X_i - X_{\min}}{X_{\max} - X_{\min}} \quad (1)$$

cost-type:
$$Y_i = \frac{X_{\max} - X_i}{X_{\max} - X_{\min}} \quad (2)$$

moderate-type:
$$Y_i = \frac{1}{1 + |X_n - X_i|} \quad (3)$$

interval-type:
$$Y_i = \begin{cases} 1, X_1 < X_i < X_2 \\ 1 - \frac{X_1 - X_i}{\max(X_1 - X_{\min}, X_{\max} - X_2)}, X_i < X_1 \\ 1 - \frac{X_i - X_2}{\max(X_1 - X_{\min}, X_{\max} - X_2)}, X_i > X_2 \end{cases} \quad (4)$$

Y_i is the dimensionless function range, X_i is the indicator value, X_n is the ideal value, $[X_1, X_2]$ is the ideal value interval, $X_{\max}$ is the maximum value of the indicator, and $X_{\min}$ is the minimum value of the indicator.

Calculation of the correlation of each dimensional indicator:

Determine the set of ideal values(f°)

Choose any one of the four competitiveness of the primary indicators, assuming that it corresponds to m secondary indicators, and let the ideal value set function $f^\circ = [p_1^0, p_2^0, \dots, p_m^0]$ ($k = 1, 2, \dots, m$), when choosing the ideal value of the competitiveness index, we should combine with the actual situation of the enterprise.

The indicators should be both advanced and feasible. After the determination of the indicators, the following matrix C is formed:

$$C = \begin{bmatrix} p_1^0 & p_2^0 & \dots & p_m^0 \\ p_1^1 & p_2^1 & \dots & p_m^1 \\ \vdots & \vdots & \ddots & \vdots \\ p_1^n & p_2^n & \dots & p_m^n \end{bmatrix}$$

p_m^n denotes the raw value of the competitiveness index of the m th firm in the n th regional leisure sports firm.

Standardization of Competitiveness Indicators of Leisure Sports Enterprises

The matrix D of standardized values of each indicator is obtained after processing matrix C according to the above standardization treatment:

$$D = \begin{bmatrix} D_1^0 & D_2^0 & \dots & D_m^0 \\ D_1^1 & D_2^1 & \dots & D_m^1 \\ \vdots & \vdots & \ddots & \vdots \\ D_1^n & D_2^n & \dots & D_m^n \end{bmatrix}$$

Calculation of correlation coefficient

According to the gray system theory, $D_0 = \{D_1^0, D_2^0, \dots, D_m^0\}$ is used as the reference series and $D = \{D_1^i, D_2^i, \dots, D_m^i\}$ series is used as the compared series. According to the grey correlation coefficient method, the correlation coefficients $\xi_i(k)$, ($k = 1, 2, \dots, m$) between the k th indicator of i regional leisure sports enterprises

and their ideal indicators are obtained.

$$\xi_i(k) = \frac{\min_i \min_k |D_k^* - D_k^i| + \rho \max_i \max_k |D_k^* - D_k^i|}{|D_k^* - D_k^i| + \rho \max_i \max_k |D_k^* - D_k^i|} \quad (5)$$

$\rho \in [0,1]$, usually ρ value of 0.5.

According to Formula (5), the evaluation matrix of the four downward force indicators can be obtained:

$$G = \begin{bmatrix} \xi_1(1) \xi_1(2) \cdots \xi_1(m) \\ \xi_2(1) \xi_2(2) \cdots \xi_2(m) \\ \vdots \\ \xi_n(1) \xi_n(2) \cdots \xi_n(m) \end{bmatrix}$$

Calculation of Weighted Indexes for Competitive Indicators in the Leisure Sports Industry

Weight represents the importance of an indicator to its subject. In this article, the weight of each competitive indicator in the leisure sports industry represents its contribution to competitiveness. The sum of all indicator weights is 1, and each indicator weight value is between 0 and 1. SPSS software was used to analyze the data and determine the weights of each indicator.

The raw data of each indicator X was standardized using the following formula:

$$x_i = \frac{X_i - \bar{X}_i}{S_i}$$

Correlation Coefficient Matrix

$$R = \begin{bmatrix} r_{11} r_{12} \cdots r_{1n} \\ r_{21} r_{22} \cdots r_{2n} \\ \vdots \\ r_{n1} r_{n2} \cdots r_{nn} \end{bmatrix}$$

Where r_{ip} is the correlation coefficient between x_i and x_p , and the values of i and p range from $(1, m)$, where m is an integer. The formula for calculating r_{ip} is as follows:

$$r_{ip} = \frac{\sum_{k=1}^m (x_{ki} - \bar{x}_i)(x_{kp} - \bar{x}_p)}{\sqrt{\sum_{k=1}^m (x_{ki} - \bar{x}_i)^2 \sum_{k=1}^m (x_{kp} - \bar{x}_p)^2}} \quad (6)$$

Calculation of Contribution Rates of Principal Components

Solve the equation $|R - \theta_i I| = 0$ to obtain m eigenvalues $(1, 2, 3, \dots, m)$ and arrange them in descending order of magnitude. For each eigenvalue θ_i , obtain the corresponding eigenvector e_i ($i=1, 2, \dots, n$), and let 1

$$\sum_{p=1}^n e_{ip}^2 = 1$$

where e_{ip} represents the p -th component of the vector e_i .

Principal component contribution formula:

$$z^* = \frac{\theta_i}{\sum_{k=1}^n \theta_k} \quad (i=1, 2, \dots, n) \quad (7)$$

Principal component cumulative contribution formula:

$$z^x = \frac{\sum_{k=1}^i \theta_k}{\sum_{k=1}^n \theta_k} \quad (i=1, 2, \dots, n) \quad (8)$$

The cumulative contribution rate of the principal component is the percentage of the cumulative variance of the principal component, with θ representing the feature root and the cumulative variance in general m factors with a percentage of 85% can be used as the main component, where $m \leq n$.

Principal component load calculation:

$$t_{ip} = n(z_i, x_p) = \sqrt{\theta_i} e_{ip} \quad (i, p=1, 2, \dots, n) \quad (9)$$

Principal component score matrix:

$$Z = \begin{bmatrix} z_{11} & z_{12} & \cdots & z_{1m} \\ z_{21} & z_{22} & \cdots & z_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ z_{q1} & z_{q2} & \cdots & z_{qm} \end{bmatrix}$$

Calculation of index weight

Index coefficient:

$$a_{ip} = \frac{t_{ip}}{\sqrt{\theta_p}} \quad (10)$$

a_{ip} represents the coefficient of the i -th indicator in the p -th principal component.

Weight calculation formula:

$$b_i = \frac{\sum_{p=1}^k (a_{ip} z_p)}{\sum_{p=1}^k z_p} \quad (11)$$

$$c_i = \frac{b_i}{\sum_{i=1}^t b_i} \quad (12)$$

The weight of m evaluation indicators is denoted as $W=[w_1, w_2... w_m]T$, where,

$$\sum_{p=1}^m w_p = 1$$

Comprehensive evaluation result: $R=WG$

In this paper, the calculation results of four kinds of downward competitiveness indicators are taken as the evaluation system, combined with the gray relational degree analysis method the relationship between strength and weakness of leisure sports enterprise competitiveness can be calculated.

3.3 Establishment of Grey Relational Degree Evaluation Model for leisure sports enterprises.

(1) Evaluation Results of Competitive Strength of Leisure Sports Enterprises in Nine Districts of Wuhan City

Based on the formula above, the original data was input and calculated to obtain the dimensionless result matrix and correlation matrix, as shown in the appendix. The weight of each indicator was calculated through data entry and calculation using SPSS software as follows:

$$W=[W1, W2, \dots, W14]T=[0.0651, 0.0918, 0.0956, 0.0625, 0.0588, 0.0892, 0.0926, 0.0394, 0.0323, 0.0805, 0.0210, 0.0986, 0.0978, 0.0712]T$$

The competitive strength results of the nine administrative districts in Wuhan

were then calculated and the specific values and rankings are shown in Table 3.3.

Table 3.3 shows the results of the quantitative evaluation of the competitive strength of the leisure and sports enterprises in the nine administrative districts of Wuhan based on the five-force model. These results were calculated using the grey correlation analysis method, and include the ability of each district to compete with its peers, the ability to resist potential new entrants, bargaining power with suppliers, bargaining power with buyers, as well as the overall competitive strength and ranking of each district.

Table 3.3 - Competitiveness evaluation results of leisure sports enterprises in 9 administrative regions of Wuhan

Name of Wuhan administrative Region and its corresponding number	To compete with its peers	The ability to withstand the threat of potential entrants	Bargaining power with its suppliers	Bargaining power with the buyers	Wuhan district leisure sports enterprise comprehensive competitiveness	Comprehensive competitiveness ranking
Hongshan district1	0.1876	0.1871	0.0927	0.1995	0.6669	2
Wuchang district2	0.1354	0.2368	0.0864	0.2190	0.6776	1
Jiang'an District3	0.1547	0.1902	0.1109	0.1962	0.6520	3
Qingshan district4	0.1794	0.1473	0.0806	0.1843	0.5916	5
Qiaokou district5	0.1175	0.1458	0.0739	0.1527	0.4899	9
Jianghan district6	0.1238	0.2249	0.1031	0.1658	0.6176	4
Hanyang district7	0.1183	0.1741	0.0630	0.1604	0.5158	7
Jiangxia district8	0.1492	0.1936	0.0716	0.1709	0.5853	6
Dongxihu District9	0.0941	0.1850	0.0662	0.1502	0.4955	8

Source: own research

In order to better understand the size and strength of each type of competitiveness, and to allow enterprises to understand their competitive environment and make more accurate strategic adjustments and deployments, Figures 3.1 to 3.5 were created. In these figures, district 1 represents Hongshan District, district 2 represents Wuchang District, district 3 represents Jiang'an District, district 4 represents Qingshan District, district 5 represents Qiaokou District, district 6 represents Jiangnan District, district 7 represents Hanyang District, district 8 represents Jiangxia District, and district 9 represents Dongxihu District. The vertical axis represents the leisure and sports enterprises in each district of Wuhan, and the horizontal axis represents the evaluation scores of their respective competitive strengths.

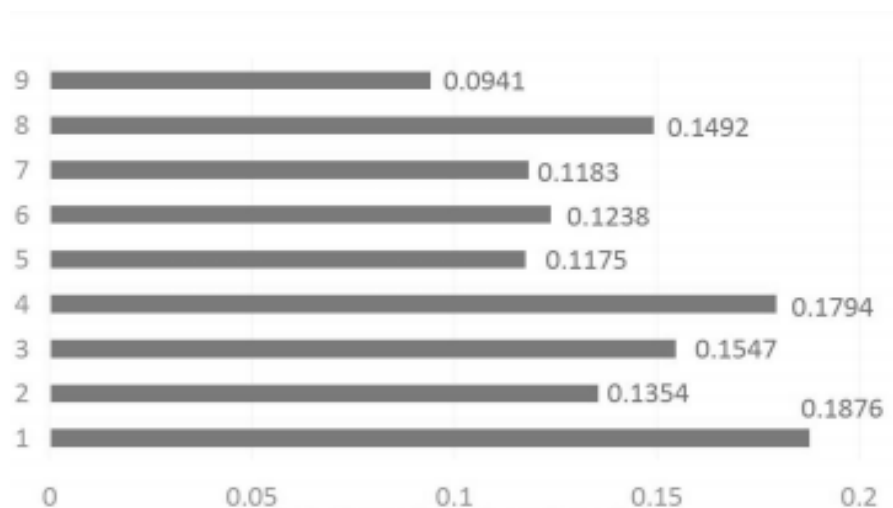


Figure 3.1 - Competitiveness between leisure sports enterprises and peers in each district of Wuhan

Source: own research

Figure 3.1 shows that leisure and sports businesses in Hongshan District have high scores in their ability to compete with peers, indicating the strongest competitiveness, followed by Qingshan District, and then Jiang'an District and Jiangxia District. Next are Wuchang District and Jiangnan District, followed by Hanyang District, Qiaokou District, and Dongxihu District with the lowest scores. The "central

urban areas" such as Hongshan District and Jiang'an District have relatively strong competitiveness in their leisure and sports businesses compared to their surrounding areas.

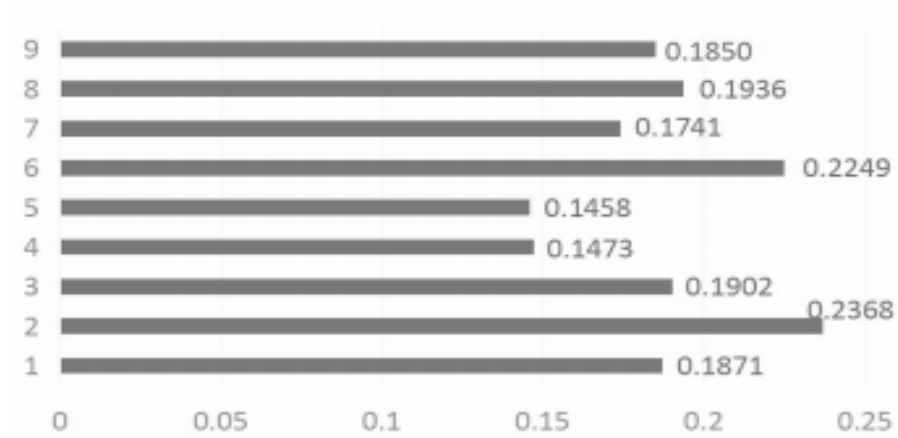


Figure 3.2 - The ability of leisure sports enterprises in different regions of Wuhan to resist potential entrants

Source: own research

According to Figure 3.2, in terms of the ability to resist potential entrants, the leisure and sports enterprises in Wuhan's Wuchang district and Jiangnan district have higher evaluation scores and stronger capabilities. Next are the leisure and sports enterprises in areas such as Jiangxia district, Jiang'an district, Hongshan district, Dongxihu district, and Hanyang district, whose strength in competition with potential entrants is relatively comparable. Finally, the leisure and sports enterprises in Qingshan district and Qiaokou district have a small gap in their ability to resist potential entrants, indicating that Qingshan district and Qiaokou district have similar capabilities in resisting potential entrants.

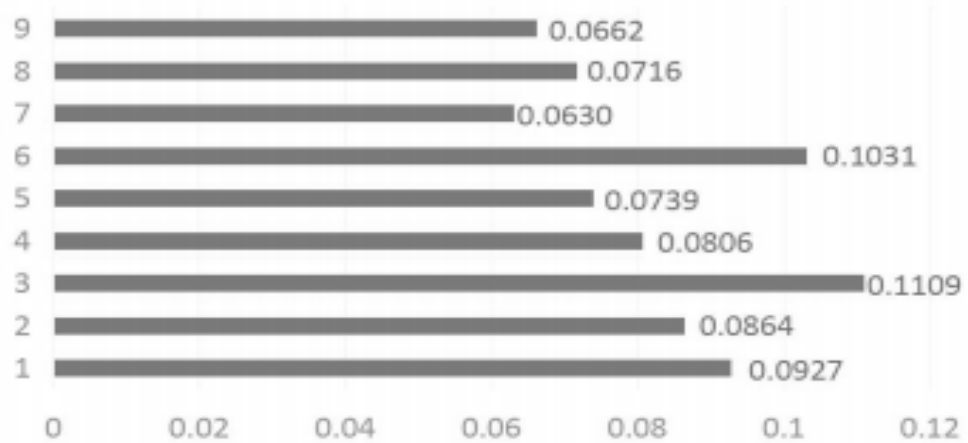


Figure 3.3 - Bargaining power of leisure sports enterprises and suppliers in various regions of Wuhan

Source: own research

From Figure 3.3, it can be seen that the leisure and sports enterprises in Jiang'an District have a much higher bargaining power with suppliers compared to other regions, followed by Jiangnan District, and then by leisure and sports enterprises in Hongshan District, Wuchang District, and Qingshan District, whose bargaining power with suppliers decreases in turn. The leisure and sports enterprises in Xinhua District, Jiangxia District, Dongxihu District, and Hanyang District have poorer bargaining power with suppliers. The overall bargaining power of leisure and sports enterprises in the nine districts of Wuhan with suppliers is not high, because in addition to their peers, there are other related enterprises that will also compete for supplier resources. For example, peers of leisure and sports enterprises in a certain region will compete for resources such as coaches and location advantages, which directly affects the quality of their services. In order to ensure both service quality and cost reduction, while competing with other competitors, the bargaining power of suppliers increases relatively when facing multiple demanders, and the bargaining power of leisure and sports enterprises in a certain region with suppliers will correspondingly decrease.

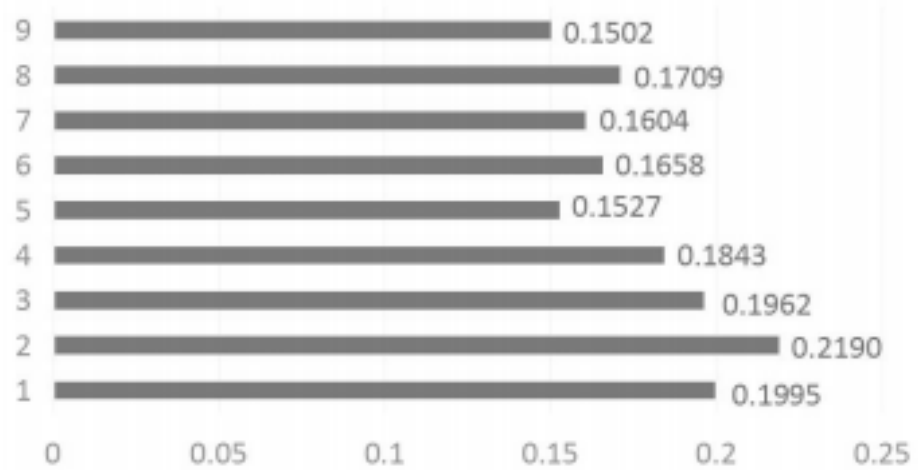


Figure 3.4 - Bargaining power of leisure sports enterprises and buyers in various regions of Wuhan

Source: own research

According to Figure 3.4, the ranking of the bargaining power of leisure sports enterprises in the 9 administrative districts of Wuhan is as follows: Wuhan, Hongshan, Jiang'an, Qingshan, Jiangxia, Jianghan, Hanyang, Qiaokou, and Dongxihu. The leisure sports enterprises in the districts at the forefront of the ranking are mostly located in the central urban areas, where the level of economic development is relatively high, residents have leisure time and economic ability, and many universities are located there, providing more customer resources and better geographical advantages for the development of leisure sports. When there are more buyers, leisure sports enterprises can relatively increase prices, add business types or improve service quality to enhance their bargaining power with buyers.

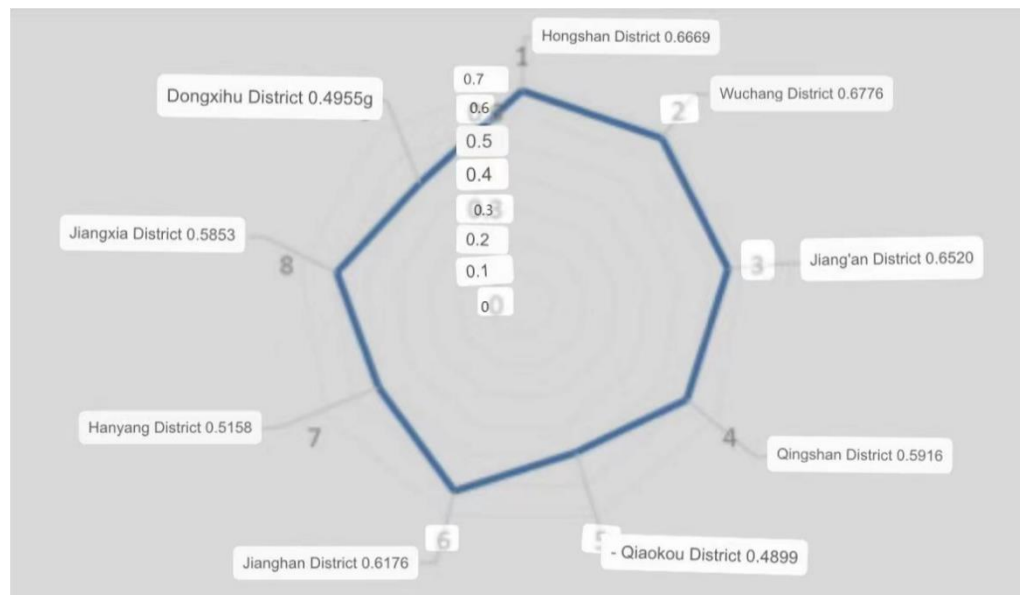


Figure 3.5 - Comprehensive competitiveness of leisure sports enterprises in 9 districts of Wuhan

Source: own research

According to Figure 3.5, the comprehensive competitiveness of leisure sports enterprises in the 9 administrative districts of Wuhan from strong to weak is as follows: Wuchang District, Hongshan District, Jiang'an District, Jiangnan District, Qingshan District, Jiangxia District, Hanyang District, Dongxihu District, and Qiaokou District. The data from the figure shows that the overall competitiveness of all leisure sports enterprises in Wuhan is relatively average.

(2) Results Analysis

A. The scores of four types of competitive capabilities of leisure and sports enterprises in 9 districts of Wuhan.

According to the analysis of Figure 3.6, each district in Wuhan has its own advantages and disadvantages in the competitive capabilities of leisure and sports enterprises. Among them, the competitive advantage of leisure and sports enterprises in the main urban area is more obvious than that in the peripheral areas.

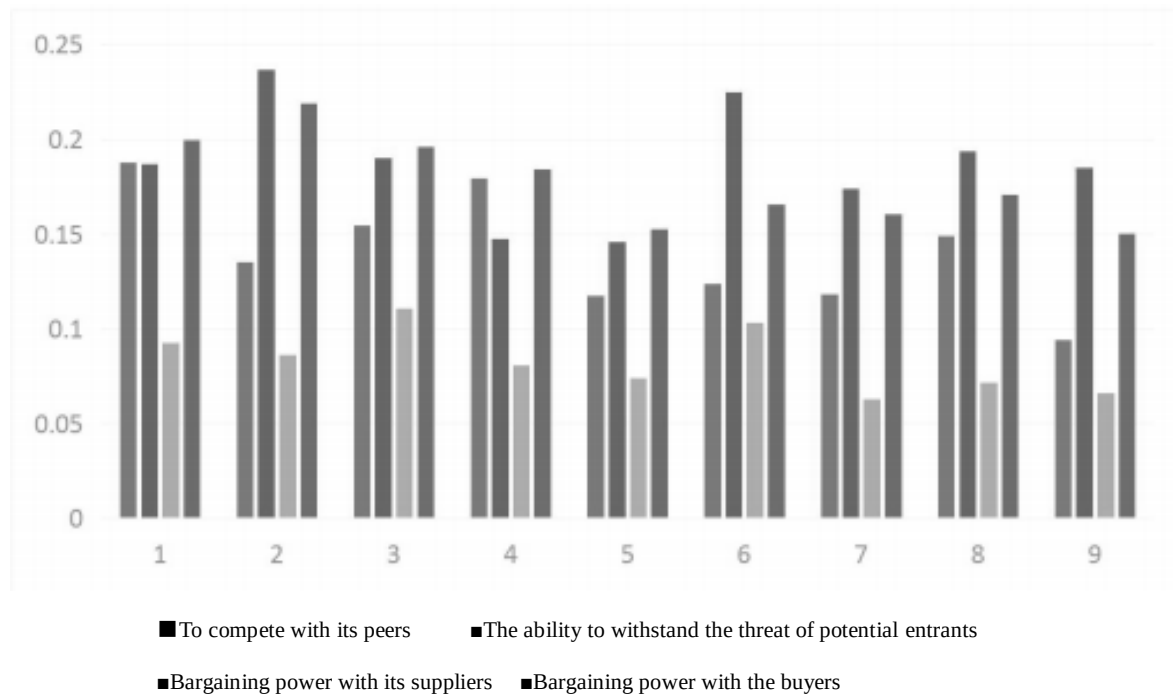


Figure 3.6 - Comparative analysis of four kinds of competitiveness of leisure sports enterprises in 9 districts of Wuhan

Source: own research

B. The competitive capability scores of leisure and sports enterprises in Wuchang District are relatively high in resisting potential entrants' threats and bargaining power with buyers, which fully demonstrates the strong competitiveness of leisure and sports enterprises in Wuchang District. The competitive capability of leisure and sports enterprises in Hongshan District is relatively high in the four types of competitive capabilities, including competition with peers, resisting potential entrants' threats, and bargaining power with buyers. The competitive capability scores of leisure and sports enterprises in Qingshan District are relatively high in bargaining power with suppliers and competition with peers. Among the four types of competitive capabilities, the strongest competitive capability of leisure and sports enterprises in Jiang'an District is bargaining power with buyers, and relative to other districts, the bargaining power with suppliers of leisure and sports enterprises in Jiang'an District is the highest, and all four types of competitive capabilities are strong, with obvious competitive advantages. The competitive capabilities of leisure and sports enterprises in Jiang'an District and Qingshan District are at a moderate level compared to other districts, and

their advantages are not obvious. Among the four types of competitive capabilities of leisure and sports enterprises in Jiangnan District, the ability to resist potential entrants' threats is the strongest, which is second only to Wuchang District, and the ability to compete with peers is relatively weak and needs to be strengthened. The four types of competitive capabilities of leisure and sports enterprises in Hanyang District are relatively weak, and in terms of its own four types of competitive capabilities, the ability to resist potential entrants' threats is the strongest. Compared with other districts, leisure and sports enterprises in Qiaokou District rank relatively low in both comprehensive competitive capability and individual competitive capability. Leisure and sports enterprises in Dongxihu District and Jiangxia District are both stronger in resisting potential entrants' threats in the competitive capability level than in the other three types of competitive capabilities, and leisure and sports enterprises in Dongxihu District have the weakest competitive capability in competing with peers. Score results of comprehensive competitiveness evaluation of leisure and sports enterprises in 9 districts of Wuhan. Based on the score results of comprehensive competitiveness evaluation of leisure and sports enterprises in 9 districts of Wuhan, and combined with the analysis in Figure 2.1 of Chapter 2, there are regional advantages in the competitiveness of leisure and sports enterprises in Wuhan. The top 5 administrative districts in terms of comprehensive competitiveness ranking of leisure and sports enterprises are Wuchang District, Hongshan District, Jiang'an District, Jiangnan District, and Qingshan District. On the map, these 5 areas are adjacent and located in the central urban area of Wuhan. The economic, technological, and social civilization development are relatively good in these areas. In this favorable development environment, the development of leisure and sports enterprises is increasingly thriving, and the development of leisure and sports enterprises in each district is both competitive and mutually promoting. The remaining 4 districts are located in the western and southwestern parts of the central urban area, with a slightly weaker population concentration and overall economic development compared to the central urban area.

C. Calculation results of the weight of each indicator. The weight is used to

measure the contribution of each indicator to the competitiveness of leisure and sports enterprises. The weight of each district's leisure and sports enterprise competitiveness is shown in Table 3.4.

Table 3.4 - Weight scores of the four kinds of competitiveness of leisure sports enterprises

	To compete with its peers	Ability to resist threats from potential entrants	Bargaining power with its suppliers	The bargaining power of the buyer
weight	0.2534	0.3362	0.1428	0.2676

Source: own research

D. According to Table 3.4, the contribution of the four types of competitive forces to the overall competitive strength of leisure and sports enterprises in the 9 districts of Wuhan city is ranked as follows: the ability to resist potential entrants, bargaining power with buyers, competition with peers, and bargaining power with suppliers. The evaluation results of the downward indicators of the four forces reflect the market share, financial level, business capabilities, and service quality of leisure and sports enterprises. Each region's leisure and sports enterprises can refer to the scores of each indicator and weight to identify their own strengths and weaknesses, and make targeted strategic adjustments for the enterprise.

CONCLUSIONS

1. The main distribution areas of leisure and sports enterprises in Wuhan are Hongshan District, Wuchang District, Jiang'an District, Jianghan District, Qingshan District, Hanyang District, Qiaokou District, Dongxihu District, and Jiangxia District. The number of leisure and sports enterprises in Caidian District, Huangpi District, Xinzhou District, and Hannan District is relatively small.

2. Leisure and fitness service enterprises account for 73.93% of leisure and sports enterprises in the 9 districts of Wuhan, enterprises engaged in sports training account for 22.33%, and enterprises engaged in sports tourism account for the smallest proportion of 3.74%. However, the annual revenue of enterprises specializing in sports tourism in each district accounts for 14.20% of the total revenue of leisure and sports enterprises in Wuhan, which is more than four times that of enterprises engaged in sports training. Leisure and fitness service enterprises are the main source of revenue for leisure and sports enterprises in Wuhan.

3. The leisure and sports enterprises in Wuhan are functionally differentiated by region. The surrounding areas of Jiangxia District, Dongxihu District, and other areas mainly develop sports tourism, and their threats mainly come from competition among peers. Other central urban areas mainly focus on leisure and fitness services and sports training, and their threats come from competition among peers and potential entrants.

4. The comprehensive competitiveness of leisure and sports enterprises in the 9 districts of Wuhan is mainly divided into three levels. The first level is the competitiveness of leisure and sports enterprises in Wuchang District, Hongshan District, and Jiang'an District. Among them, the comprehensive competitiveness score of leisure and sports enterprises in Wuchang District is the highest and the competitiveness is the strongest. The second level is the competitiveness of leisure and sports enterprises in Jianghan District, Qingshan District, and Jiangxia District. The third level is Hanyang District, Dongxihu District, and Qiaokou District. The central urban areas have a competitive advantage that the surrounding urban areas cannot reach in the short term.

5. In the four types of competitiveness evaluations, each district has advantages and disadvantages in the four types of competitiveness. Among them, Hongshan District's leisure and sports enterprises have the strongest competitiveness against peers, Wuchang District's leisure and sports enterprises have the strongest ability to resist potential entrants' competition and negotiate with buyers, and Jiang'an District's leisure and sports enterprises have the strongest ability to negotiate with suppliers.

6. The overall ability of leisure and sports enterprises in Wuhan to resist potential entrants is the strongest, and their ability to negotiate with suppliers is the weakest. Their ability to negotiate with buyers and compete with peers is relatively average. Overall, the comprehensive score of the competitiveness of leisure and sports enterprises is not high, and their overall competitiveness is not very strong.

7. The overall competitiveness of leisure and sports enterprises in Wuhan has regional advantages. The location of enterprises, the level of economic development, and the density of target customers in their regions are important factors affecting their development. The central urban areas are located in regions with better economic development and higher population density, which are more conducive to the development of leisure and sports enterprises, and their competitive advantages are greater, making their competitiveness stronger. The leisure and sports enterprises in the central urban areas are stronger than those in their surrounding areas in terms of competitiveness on all levels and comprehensive competitiveness.

8. In terms of overall competitiveness, the leisure and sports enterprises in the 9 districts of Wuhan are relatively weak in negotiating with suppliers and buyers and competing with peers, but are strong in resisting potential entrants.

Suggestions on enhancing the competitiveness of leisure sports enterprises in Wuhan.

1. The government has introduced policies to support the development of leisure and sports.

Following the National Government's No. 46 document in 2014 ("Several Opinions on Accelerating the Development of Sports Industry and Promoting Sports Consumption"), a series of policies closely related to the development of leisure and

sports enterprises were formulated in 2016, such as "The 13th Five-Year Plan for the Development of Sports Industry," "Guiding Opinions on Accelerating the Development of Fitness and Leisure Industry," "Development Plan for Mountain Outdoor Sports Industry," and "Guiding Opinions on Vigorously Developing Sports Tourism." These policies have indicated the direction for the development of leisure and sports enterprises and played a significant role in promoting their development. Compared with developed countries and regions abroad, the related policies supporting the development of leisure and sports enterprises in Wuhan and even in major first-tier cities such as Beijing, Shanghai, Guangzhou, and Shenzhen are relatively inadequate. To further support the development of leisure and sports enterprises, the government can increase financing channels for private leisure and sports enterprises, introduce a large amount of funding support for enterprise development, and cultivate leisure and sports enterprises. To reduce enterprise costs and improve the quality of enterprise products and services, it is necessary to establish a standardized system for leisure and sports enterprises and support their growth. In addition to policy formulation, laws and regulations related to sports economy also need to be improved to protect the rights and interests of sports consumers and leisure and sports enterprises. Moreover, the government should increase investment in leisure and sports and integrate social capital to promote the development of leisure and sports enterprises.

2. Improve the service quality of leisure and sports enterprises in Wuhan.

Based on the score situation at the bargaining power level of leisure and sports enterprises and suppliers in the nine districts, it can be seen that the service quality level of leisure and sports enterprises in Wuhan's nine districts needs to be further improved. The business of leisure and sports enterprises belongs to the service industry, and efforts to improve customer satisfaction and reduce the annual complaint rate are the entry point for the benign and sustainable development of leisure and sports enterprises. Therefore, in order to better serve customers, leisure and sports enterprises must provide corresponding value-added services to customers based on their basic service business. For example, by creating an elegant sports environment, improving the quality and professional level of coaches, upgrading basic infrastructure equipment,

improving information technology, and providing more humane basic materials to increase customer satisfaction, leisure and sports enterprises can directly contact market customers, and if they want to provide customers with more and better services, they must have a better understanding of customers, quickly understand their needs, formulate targeted service plans, and improve customer satisfaction.

3. Market segmentation and specialized operation.

Leisure and sports enterprises have always been engaged in price wars with each other because of their relatively single products or services, and the long-term homogenization of their operations has led to a lack of differentiation in the market competition, and there is not much difference in the degree of specialized operation among enterprises, which inevitably leads to price competition. The leisure and sports enterprises in various districts of Wuhan should identify their own positioning, segment the market targets in their respective regions according to their own strengths, and use corresponding marketing methods for different customer groups. The market can be segmented according to the sensitivity of customers to price, divided into three levels of high, medium, and low customers, or according to the volume of customer business needs, divided into three levels of large, medium, and small.

In addition to differentiated management, leisure sports companies should also provide value-added services to their customers. Based on the original leisure sports business, they should develop diversified and high value-added products or services centered and oriented around customers. For example, offering free text message reminders for course schedules, after-sales services for products, arranging one-on-one course schedules and locations according to customer needs, and providing child care services for working-class customers. Faced with competition from peers, rising labor and operating costs, and competition pressure from foreign leisure sports companies entering the leisure sports industry market in Wuhan, providing value-added services to customers is one of the wise choices for leisure sports companies.

4. Merge and integrate resources

Integrating resources of leisure and sports enterprises through mergers and acquisitions can reduce the number of such enterprises to some extent, increase the

concentration of the leisure and sports market, and greatly enhance their competitiveness against potential entrants. In addition, as the competition in the leisure and sports market in Wuhan is becoming increasingly fierce, many small enterprises are struggling to survive, and some are even facing a life-or-death crisis. Mergers and acquisitions can effectively integrate the advantageous resources of various leisure and sports enterprises, helping them quickly expand in terms of market, capital, and human resources, and drive their leapfrog development by eliminating the gradual development model of individual enterprises.

5. Strengthen cooperation among leisure and sports enterprises

Apart from a few enterprises with abundant capital, 95% of leisure and sports enterprises in Wuhan have limited capital and find it difficult to raise funds. Facing fierce competition, they can unite through cooperation by street or community and integrate resources within the industry to fully leverage their regional advantages and resource strengths. The enterprises can both compete and cooperate with each other, giving each other advantages and enhancing their competitiveness.

6. "Internet of Things" + leisure and sports enterprises

The Internet of Things is a product of the Internet age, describing the relationship between objects, and it is based on the Internet. Objects are connected to each other through the Internet to establish a relationship. This association also generates a large amount of data, which, with the help of cloud computing, is analyzed and mined to discover the values of concern. In order to better utilize the Internet of Things in leisure and sports, enterprises can use wearable devices or sports equipment to obtain information about sports activities, and then analyze the data to provide customized services, such as recommending relevant sports activities that customers may like or that may benefit their health based on their basic information (gender, occupation, age, health status, etc.) and exercise habits. This can improve the efficiency of leisure and sports enterprises.

7. Integrate the development of tourism, entertainment, experiential interaction, and other projects to increase the degree of differentiation in enterprise management.

Wuhan has abundant leisure and sports tourism resources, such as mountains and

water bodies, which can be utilized to develop sports tourism such as wilderness survival, rock climbing, exploration, and mountaineering using mountain resources, and boating, swimming, diving, and rafting using water resources. Sports tourism in Wuhan is relatively mature, especially leisure and sports projects such as golf, horse racing, and outdoor sports. In recent years, the sports industry in Wuhan has lost its development momentum due to the implementation of various sports industry management policies issued by the General Administration of Sport of China and a series of local policies supporting the sports industry. Various government departments should also issue a series of preferential policies to encourage and guide the flow of social capital and attract foreign investment through various forms of cooperation.

Leisure sports companies can optimize the structure of their employees, strengthen human resource management, ensure their professional operation, and increase the entertainment and interactive experience of leisure sports projects, develop new leisure sports projects, and improve the level of differentiated management of leisure sports companies. In addition, they can also increase the operation of sports equipment, sports information, sports advertising, and other related businesses to meet the needs of different customers and enhance the competitiveness of leisure sports companies.

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Appendix

Dimensionless Processing of Data

$$D_1 = \begin{bmatrix} 0.6214, 0.5220, 0.4278 \\ 0.3201, 0.4121, 0.9921 \\ 0.3352, 0.4087, 0.7861 \\ 0.7355, 0.6218, 0.8855 \\ 0.4229, 0.3031, 0.6777 \\ 0.5833, 0.2851, 0.3312 \\ 0.4620, 0.3522, 0.5661 \\ 0.0788, 0.5210, 0.0629 \\ 0.2103, 0.5210, 0.3361 \end{bmatrix}$$

$$D_2 = \begin{bmatrix} 0.5213, 0.7536, 0.5216, 0.1191, 0.1899 \\ 0.5599, 0.5214, 0.0000, 0.0018, 0.2100 \\ 1.0000, 0.5712, 0.2612, 0.1324, 0.0295 \\ 0.4709, 0.8118, 0.7866, 0.1358, 0.1027 \\ 0.4852, 0.6830, 0.5221, 0.0000, 0.0629 \\ 0.4891, 0.5121, 0.6209, 0.0988, 0.0588 \\ 1.0000, 0.8522, 0.8859, 0.2143, 0.0809 \\ 0.0236, 0.1429, 0.3438, 0.2804, 0.0147 \\ 0.0588, 0.0000, 0.2500, 0.1359, 0.0569 \end{bmatrix}$$

$$D_3 = \begin{bmatrix} 0.6612, 0.7120, 0.2208 \\ 0.4124, 0.9186, 0.1163 \\ 0.4724, 0.8333, 0.0921 \\ 0.5714, 0.9165, 0.2132 \\ 0.1429, 0.9869, 0.5122 \\ 0.8231, 0.7868, 0.3516 \\ 0.7210, 0.7502, 0.3329 \\ 0.9828, 0.8333, 0.0989 \\ 0.1987, 0.8776, 0.7324 \end{bmatrix}$$

$$D_4 = \begin{bmatrix} 0.3829, 0.3715, 0.5555 \\ 0.8762, 0.7251, 0.1111 \\ 0.8287, 0.9872, 0.0000 \\ 0.7105, 0.8751, 0.2222 \\ 0.4615, 0.5162, 0.4444 \\ 0.0049, 0.0004, 0.8889 \\ 0.4921, 0.5931, 0.3333 \\ 0.2916, 0.0000, 0.6667 \\ 0.0000, 0.0052, 0.7778 \end{bmatrix}$$

Correlation Matrix

$$G_1 = \begin{bmatrix} 0.5311, 0.6282, 0.9466 \\ 0.4301, 0.7500, 0.4027 \\ 0.6564, 0.8112, 0.3923 \\ 0.5454, 0.6665, 0.8651 \\ 0.4541, 0.3765, 0.5586 \\ 0.4433, 0.4898, 0.5300 \\ 0.6534, 0.5322, 0.2814 \\ 0.5887, 0.5760, 0.9540 \\ 0.3103, 0.4765, 0.3159 \end{bmatrix}$$

$$G_2 = \begin{bmatrix} 0.4600, 0.4804, 0.5117, 0.6653, 0.4721 \\ 0.8443, 0.6235, 1.0000, 0.3618, 0.6244 \\ 0.5500, 0.5723, 0.6233, 0.3214, 0.8985 \\ 0.4679, 0.5028, 0.3811, 0.3687, 0.5178 \\ 0.5042, 0.4232, 0.3423, 0.4010, 0.6246 \\ 0.7875, 1.0000, 0.4782, 0.6258, 0.3553 \\ 0.6120, 0.6522, 0.5076, 0.4213, 0.3376 \\ 0.5225, 0.3423, 0.6438, 0.7197, 0.4239 \\ 0.4677, 1.0000, 0.5110, 0.4369, 0.3020 \end{bmatrix}$$

$$G_3 = \begin{bmatrix} 1.0000, 0.5553, 0.5095 \\ 0.5112, 0.7011, 0.3429 \\ 0.8878, 0.8333, 0.3619 \\ 0.6414, 0.5765, 0.3952 \\ 0.4429, 0.5269, 0.5905 \\ 1.0000, 0.6768, 0.4904 \\ 0.3410, 0.3902, 0.8143 \\ 0.6528, 0.4233, 0.6000 \\ 0.2888, 0.5176, 0.5048 \end{bmatrix}$$

$$G_4 = \begin{bmatrix} 0.8700, 0.8555, 0.4213 \\ 0.8755, 0.8653, 0.6756 \\ 0.6897, 0.8873, 0.5815 \\ 0.6565, 0.6434, 0.7963 \\ 0.5615, 0.6112, 0.5267 \\ 0.5050, 0.5233, 0.8989 \\ 0.5431, 0.6431, 0.6180 \\ 0.6856, 0.5000, 0.7640 \\ 0.4521, 0.5039, 0.7903 \end{bmatrix}$$