Analysis of the Comprehensive Evaluation Model of Economic Development Pattern in China's Sports Market

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Abstract

With the constant development of China's social economy, the most basic problem of food and clothing has been solved, people's living standards have been gradually improved, and their demands for quality of life have become higher and higher. As an important way to promote the all-around development of people's physical and mental health, sports have been widely appreciated by people in recent years, which have greatly promoted the formation and development of sports market in China. However, due to the late development of sports market in China, it has not yet formed a complete scale. Therefore, compared with the developed countries, there is still a big gap in the development speed and development level. But China has a large population and a huge potential market for sports economy. Under the background of the new normal economy, sports market will inevitably become a new growth point for stimulating China's economic development. Therefore, this paper analyzes the development situation of economy of sports market in China, puts forward the comprehensive evaluation model for economic development capability of sports market, and describes the development path for economic development of sports market in China in a targeted manner, which has played a reference role in improving the economic development level of sports market in China.

Keywords: Sports Markets, Economic Development, Comprehensive Evaluation Model.

1. RESEARCH OVERVIEW

1.1 Research background

With the constant development of national sports, China's sports industry has entered a critical period of reform and development. As an important carrier for development of sports industry, sports market needs to have perfect market circulation channels, and follow the general law of the market economic development to carry on rational allocation of resources of sports market, so as to build a perfect sports market environment, which is of great practical significance to promote the development of sports industry. However, since sports industry in China is still a sunrise industry, and it is also a weak industry, there are still serious structural contradictions in the development of sports industry. Both the government and the society need to focus on and vigorously support the sports industry, so as to build a unified and open, reasonably competitive and well-regulated sports market environment by intensifying policy supports and financial incentives, which not only promote the development level of sports industry in China, but also makes an important contribution to the optimization and perfection of China's market economic system and operation mechanism in the new normal economy.

1.2 Literature review

The sports industry was first studied in the 1930s by British economist Alan Fisher. He believes that the sports industry refers to the industry which provides various sports services to the society by means of labor. The sports industry is commonly known as sports service industry, which includes fitness, sports performance, sports competition, sports spinach, sports tourism and sports information, etc. However, at present, the concept of sports industry has been greatly expanded, and it mainly refers to the production of relevant sports products to meet the needs of the society, such as apparatus, equipment, teaching materials, etc. Its products mainly include public products, quasi-public goods and private products (Feng, 2013). The sports industry mainly consists of three parts: The first is the consumption produced by participation in sports activities; the second is the consumption produced by sports maintenance organizations, such as lawyers and marketing organizations. Under
the background of high-speed development of economic level, vigorously developing the sports market is a necessary way for social development and transformation. At the same time, it is also an important economic growth point to promote the transition of economic development from medium speed to high speed under the background of the new normal economy (Miao, 2013). Industrial policy is an important impetus to promote the development of sports industry. The academic circles have carried out in-depth research on the policy of sports industry, mainly including the following aspects: First, the sports industry policy is the sum of the government’s policies on sports and related industries. Second, the sports industry policy is the related plan developed by the government for development of the sports industry, which has an important influence on the future development of the sports industry. Third, the sports industry policy can give targeted supplements and solutions to some bugs and problems existing in the current development of sports industry, which is of great significance to promote the healthy and sustainable development of sports industry. Fourth, the sports industry policy can help countries with lower development level of sports industry develop faster, thus reducing the difference between countries. Fifth, the sports industry policy can effectively strengthen the competitiveness of the national sports industry (Zhang and Qiu, 2017).

2. DEVELOPMENT STATUS OF CHINA'S SPORTS MARKET ECONOMY

2.1 Basic model of foreign sports market development

The basic model framework of foreign sports market development is shown in Figure 1:

![Figure 1. The Basic Model Framework of Foreign Sports Market Development](image-url)

The foreign sports market development mainly has two models:

The first type is market-oriented, which is to promote the development and improvement of the sports market through the pursuit of profits. This way is mainly embodied in the United States, the United Kingdom and other countries, which has the following characteristics: Firstly, the market-oriented type generally has a perfect alliance or professional club system, and its right of management and ownership are separated, with a high-quality sports manager team. Secondly, the government plays a regulating role in the development of sports market, and the development direction of sports market is decided by the market itself. Thirdly, the country that uses this way has basically formed a perfect sports market, with the perfect sports industry chain. Next, for the country that uses this way, its sports consumption must exist as daily consumption, and the sports consumption
has become a kind of tradition. Finally, the country that uses this way generally has a perfect sports intermediary system. For example, the United States has the world's largest sports brokerage industry, playing an important role in sports stars, alliances, news media, professional teams, and enterprises (Chen et al, 2015).

The second type is government participation, which is the way the government promotes the construction and development of sports market through intervention and macro-control. This way is mainly embodied in Japan, South Korea, France and other countries, and its main characteristics are as follows: Firstly, the government will carry out the macro-control of development of sports industry and market through policies, laws, financial support, etc. Secondly, to use this method, the strategy of gradient development is generally adopted. Thirdly, the development level of intermediary institutions is relatively limited because of the leading role of the government in this model. Finally, in this model, the sports industry exists as a public service industry, but it still develops from non-profit to profit organization on the whole (Liu and Ren, 2015).

2.2 Development status of China's sports market

2.2.1 Expansion of sports product market

At present, China has formed a group of well-known sports product enterprises with brand effect; at the same time, the export of sports products in China is increasing, and the quality of products is higher and higher, which has become the world's largest sports product production and processing base (Xu et al, 2017).

2.2.2 Sports market presenting a trend of large-scale development

Under the background of rapid economic development in China, people's demands for quality of life are getting higher and higher, which has laid a solid foundation for the development of sports industry. At present, sports body-building consumption has become an indispensable part of people's consumption, and various fitness enterprises and clubs have sprung up, meeting the diversified demands of sports. Especially for the cities with higher development level, a group of high turnover backbone sports enterprises have been formed.

2.2.3 Presenting the development trend of professionalization

Nowadays, with the constant improvement in development level of sports undertakings in China, dozens of sports management centers have been established, and sports management has been developed from extensive to intensive. At the same time, the sports competition also presents the development trend of professionalization and semi-professionalization.

2.2.4 Development of sports lottery market

China's sports lottery market develops from nothing, which not only presents the development trend of informatization, but also has more and more categories. Especially in recent years, the development level of league football match is increasingly growing, which has contributed to the increase of the number of lottery buyers in China, and the lottery sales have also presented increasing on the whole.

2.2.5 Sports intermediaries beginning to take shape

Under the background of commercial and professional development of sports undertakings in China, a large number of sports intermediary institutions of monopolar partial engagement have formed, and the sports athletes business development and intermediary agent activities have produced, forming a certain scale.

2.2.6 Rapid development of sports training market

National sports have become an important direction for development of sports undertakings in China. In the process, a lot of sports instructors are needed, and these instructors play an important role in the training of sports knowledge and skills. At the same time, in the process of education system reforming, the importance of physical education has received extensive attention. More and more sports programs have entered the school physical education class, which has promoted the development of sports training market to some extent (Xu, 2017).
3. COMPREHENSIVE EVALUATION OF THE ECONOMIC DEVELOPMENT CAPABILITY OF SPORTS MARKET

The economic development capability of sports market may be influenced by a variety of factors, and many of these factors are difficult to calculate through quantification methods. It is difficult to accurately estimate the level of economic development capability of sports market by using traditional evaluation methods due to certain defects. Therefore, the analytic hierarchy process may be used to compare every two influence factors of economic development capability of sports market, thus to obtain more influential indexes. These more influential indexes will have become the key items that need to be paid attention to in the economic development of sports market (Lv et al, 2012).

3.1 Weight determination

In the influence indexes for economic development capability of sports market, each index will have its corresponding weight, and there are some differences in the influence effect of economic development capability of sports market. As these indexes generally cannot be treated in a quantitative manner, determining weight of these indexes becomes the most important difficulty in analyzing the economic development capability of sports market. This study mainly selects the method of analytic hierarchy process and expert experience method for evaluation (Yang and Zhang, 2012).

3.2 Analytic hierarchy process

Analytic hierarchy process is a way of comparing every two influence factors of a certain thing by structure matrix, the results obtained, namely the degree of importance of one item against another item, and quantizing the comparison results in the way of 1-9 by scale process, then to obtain the final weight by calculation. Among them, the large weight item, which is the most influential factor, after it is sorted out, the final influence index can be obtained. Its influence index relative importance rating scale is shown in Table 1:

<table>
<thead>
<tr>
<th>Scaling</th>
<th>Meaning</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Indicates that two indicators, I, are of equal importance compared to indicator J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>indicates that an indicator is a little more important than another in comparison to the two indicators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>compared to the two indicators, one indicator is obviously more important than the other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>compared to two indicators, an indicator is much more important than the other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>indicates that compared to the two indicators, one index is more important than the other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2, 4, 6, 8</td>
<td>The median value of two adjacent degrees</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

According to the rating scale, the evaluation results mainly include 1-9 grades. Among them, 1 represents that the two indexes are equally important, 3 represents that one index is slightly more important than another, 5 represents that one index is obviously more important than another, 7 represents that one index is significantly more important than another, and 9 represents that one index is extremely more important than another, while 2, 4, 6 and 8 represent the level between the two grades. The influence indexes for economic development capability of sports market is shown in Figure 2:
Figure 2. Sports Market, Economic Development Ability, Influence Index

After setting up the index, assume the judgment matrix is A and its judgment matrix is shown as follows:

\[
A = \begin{bmatrix}
B_{11} & B_{12} & \cdots & B_{1n} \\
B_{21} & B_{22} & \cdots & B_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
B_{n1} & B_{n2} & \cdots & B_{nn}
\end{bmatrix}
\] (1)

Then, according to the judgment matrix, the index weight is obtained by comparing every two influence indexes. Among them, eigenvalue of maximum is \(\lambda_{\text{max}}\) and eigenvector is \(W=(w_1, w_2, w_3, \ldots, w_n)^T\). Based on the formula of \(AW=\lambda_{\text{max}}W\), the final eigenvector of the judgment matrix can be obtained (Sun, 2010).

When the analytic hierarchy process is used to carry out comprehensive evaluation on the economic development capability of sports market, certain complex operation is required, but its accuracy is relatively high, and its calculation procedure is as follows:

First, carry out the operations in judgment matrix \(A\), and its formula is:

\[
\prod_{j=1}^{n} a_{ij} (i = 1, 2, 3L)
\] (2)

Then, after the extraction operation of the results, bring into the formula, and the formula is as follows:

\[
\overline{w}_i = \sqrt[n]{\prod_{j=1}^{n} a_{ij}}
\] (3)

Next, the calculated results are normalized and the results are as follows:
Among them, $W=\left[w_1, w_2, w_3, \ldots, w_n\right]$ is the vector to be obtained, namely the influence index of economic development capability of sports market (Chen and Liu, 2013). After the conclusion is reached, the consistency check must be conducted to determine whether the results are accurate. To carry out the consistency check, first, it is necessary to determine the consistency index calculation method in the consistency check as follows:

$$CI = \frac{\lambda_{\text{max}} - n}{n - 1}$$

Among them, $CI$ represents the consistency index, and $n$ represents the order of judgment matrix. After the calculation results are obtained, the obtained results are brought into the consistency ratio formula, and its formula is as follows:

$$CR = \frac{CI}{RI}$$

Among them, $RI$'s value range is shown in Table 2:

**Table 2 Consistency Index RI**

<table>
<thead>
<tr>
<th>Order number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI</td>
<td>0</td>
<td>0</td>
<td>0.58</td>
<td>0.90</td>
<td>1.12</td>
<td>1.24</td>
<td>1.32</td>
<td>1.41</td>
<td>1.45</td>
</tr>
</tbody>
</table>

In the results, if $CR \leq 0.1$, it can prove that the error of results obtained is small, and this can well reflect the indexes that influence ideological and political education in colleges and universities. But if $CR > 0.1$, it proves that the error is big, and it is necessary to recalibrate the matrix and calculate it until the calculation results $CR \leq 0.1$.

### 3.2.1 Expert experience method

With relatively few researches on the economic development pattern of sports market, although using the analytic hierarchy process is able to accurately obtain the economic development capability level of sports market, its calculation is relatively difficult, and it is easy to produce certain problems in the selection of influence indexes (Yang, 2013). Once the deviation occurs in the selection of influence indexes, the overall calculation effect will be greatly reduced (Quan, 2011). Therefore, the expert experience method may be adopted in the selection of influence indexes for economic development capability of sports market. Expert experience method, that is a method of making a survey or interview on experts and scholars about the issues, making the experts and scholars tell their theoretical achievements and working experience in this field, and analyzing every influence factors given, so as to analyze the effectiveness and weight of influence factors. The specific procedures are as follows:

Firstly, a consultation table for weight coefficient should be established and the questionnaire should be distributed to m experts, so that the experts can fill in according to their own opinions. The table is shown in Table 3:
Table 3: Consultation Table for Determining Weights

<table>
<thead>
<tr>
<th>Serial number</th>
<th>The evaluation index (tentative)</th>
<th>Weight coefficient (location)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>x_1</td>
<td>a_{1j}</td>
</tr>
<tr>
<td>2</td>
<td>x_2</td>
<td>a_{2j}</td>
</tr>
<tr>
<td>3</td>
<td>x_3</td>
<td>a_{3j}</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>N</td>
<td>x_n</td>
<td>a_{nj}</td>
</tr>
</tbody>
</table>

Secondly, the information obtained from the questionnaire should be collected and the average value should be calculated for each item. The formula is as follows:

$$
\bar{\alpha}_i = \frac{1}{m} \sum_{j=1}^{m} \alpha_{ij}, (i = 1, 2, 3, \ldots, n)
$$

(7)

Finally, the normalized operation is required to check the effectiveness of the results obtained. If \( \sum_{i=1}^{n} \bar{\alpha}_i = D \), then the weight coefficient can be obtained as follows:

$$
\alpha_i = \frac{\bar{\alpha}_i}{D}, (i = 1, 2, 3, \ldots, n)
$$

(8)

Weight sets of its weight coefficient is \( \alpha = (\alpha_2, \alpha_3, \ldots, \alpha_n) \), and different weight coefficients are 1 after added together, namely \( \sum_{i}^{n} \alpha_i = 1 \).

A major advantage of the expert experience method is that it does not need too much research and calculation, with relatively simple operations, and it can be used in most areas. In the economic development pattern of sports market, taking this approach does have a certain effect (Xu, 2016). However, the expert experience method still has a big problem, which is that the dependence of experience is higher, and the evaluation results are susceptible to subjective factors, leading to the possibility of error (Chen and Li, 2011).

REFERENCES


