

FACTORS AFFECTING THE DEVELOPMENT OF PROFESSIONAL TENNIS EVENTS IN CHINA

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Abstract

Since entering the 21st century, under the influence of the world's professional tennis trends, Chinese tennis has developed rapidly, and professional reforms have made many historic breakthroughs. However, there is still a huge gap in organization and operations compared to developed countries in the world. In order to provide more constructive theories and data for the development of professional tennis projects in China, this study adopts a combination of quantitative and qualitative research methods. The researchers created a questionnaire on factors affecting the development of China's professional tennis events through current situation surveys and literature review, studied the factors affecting the development of China's professional tennis events, explored the development direction of China's professional tennis events, and put forward more targeted development suggestions. This study aims to analyze the factors affecting the development of professional tennis projects in China. In the quantitative research, the China Online Questionnaire Platform was used to collect questionnaire data from 500 Chinese professional tennis event stakeholders. SmartPLS4 was used to analyze the collected questionnaire data, establish a structural equation model, and verify four hypotheses. This paper discusses the macro environment, industry environment, event operating companies, the relationship between tennis events and the development of Chinese professional tennis events, and builds a model for the development of Chinese professional tennis events. Qualitative interviews were used in the qualitative research, and the collected interview data related to the development of professional tennis events in China were coded. The data were analyzed using qualitative analysis methods through Nvivo12.0 software. By extracting its influencing factors from the bottom-up interview data, its influencing mechanism can be deduced. The research results show that industry environmental factors, macro-environmental factors, operating company factors and tennis event factors have a significant positive impact on the development of professional tennis events in China. Among them, tennis event factors have a greater impact on the development of China's professional tennis events, while industry environmental factors, macro-environmental factors and operating company factors have less impact on China's professional tennis events; the successful development of China's professional tennis events requires comprehensive consideration of government support, economic growth, industry competition and cooperation, the role of operating companies, project characteristics and international cooperation and other factors. This includes improving player levels, optimizing event organization, cultivating talents, utilizing technology, and emphasizing athlete protection and fair competition. This study establishes a model for the development of professional tennis events in my country; enriches the theoretical literature and empirical research on this professional tennis event; and can help tennis management departments formulate targeted event development policies.

Keywords: Professional Tennis Events in China, Macro Environment, Industry Environment, Event Operating Companies, Tennis Events.

1. INTRODUCTION

Judging from the development trends of world professional tennis, internationalization, professionalization and commercialization have promoted the vigorous development of tennis in various countries around the world, attracting more and more people to join professional tennis, and the level of competition has also improved. Under the influence of the world's professional tennis trends, Chinese tennis events have developed rapidly and many historic breakthroughs have been achieved through professional reforms.

The rise of professional tennis in China is inseparable from many influencing factors, including the macro environment, industry environment, event operating companies, tennis events, etc. These factors are intertwined and jointly construct the development pattern of China's professional tennis events. Understanding these factors is crucial to a deep understanding of the future direction of professional tennis in China.

China is in a period of rapid social and economic development and a booming sports industry. The Chinese government's high attention and support for sports has provided huge opportunities for professional tennis (Lu, 2017). The rise of the sports economy, the active promotion of sports industry policies, and the increase in national income have all provided a good macro-development environment for professional tennis in China (Shi & Zhou, 2019).

As the sports industry gradually matures, the commercialization of competitive sports continues to increase, and professional tennis, as a part of it, is constantly adjusting its positioning and operating strategies to adapt to market changes (Feng, He, & Yi, 2018). Professional tennis events are not only part of the sports industry, but also an important part of the sports entertainment market. As the sports industry matures, professional tennis events need to adapt to industry changes in market competition and continuously innovate business models and operating strategies to ensure their competitiveness (Feng, He, & Yi, 2018).

Event operating companies play a key role in the success of professional tennis events. The professionalism level, business cooperation strategies and marketing capabilities of these companies directly affect the influence and profitability of the event. Event operating companies need to cooperate with governments, sponsors, players and other parties while conducting commercial operations to form a joint effort to promote the development of professional tennis events (Zhang & Zhou, 2016).

Factors such as the event's own organizational structure, event quality, player lineup, and viewing experience also directly affect the event's popularity and long-term development. By improving the professionalism and fairness of the game and attracting the participation of international players, professional tennis events can attract the attention of more viewers and sponsors and increase their commercial value (Du & Shi, 2019). Event management theory covers a wide range of concepts and principles that are used to plan, organize, execute and evaluate events of all sizes and types. This theory holds that events go through different stages, including planning, launch, operation, and closure. Each stage has specific tasks and challenges, and event managers need to adopt corresponding strategies and measures based on the needs of different stages. (Getz, 2008)

At present, domestic and foreign researchers' research on China's professional tennis events mainly focuses on qualitative research on the current situation and development strategies, while ignoring quantitative research on factors affecting its development. Therefore, based on event management theory, this study studied the relationship between the macro environment, industry environment, event operating companies, tennis events and the development of Chinese professional tennis events, and established a model for the development of Chinese professional tennis events.

2. LITERATURE REVIEW

2.1 Event Management Theory

The study of event management theory provides a key theoretical foundation for understanding and promoting the planning, operation and successful implementation of various events. First of all, Getz's (2008) "Event management and event tourism" explains the event life cycle theory, highlights the development process of events from planning, launch, operation to closure, and provides a systematic thinking framework for event management. Gibson et al. (2003) emphasized the event experience theory in "Sport tourism: A critical analysis of research", emphasizing that the perceptual and emotional experiences of participants and spectators are crucial to the success of the event.

The application of social exchange theory in event management was discussed in detail by Wang and Li (2019) in "An analysis of the current situation and countermeasures of Chinese sports internationalization", which highlighted the key role of events as a social communication platform. In addition, Mullin et al. (2014) discussed event marketing theory in "Sport Marketing", including applications in brand building, digital marketing and social media strategies. Crompton (2004) proposed the service quality theory in "Journal of Sport Management", emphasizing the necessity of high-level service to improve participant and audience satisfaction.

Risk management theory is discussed in detail by Hall (2012) in "Tourism Management" and emphasizes the identification and management of potential risks when planning and executing events. Horne et al. (2012) explained the theory of sports industrialization in "Understanding the Olympics" and believed that events are a complex industrial system. Gardiner and Slack (2020) paid attention to the social responsibility theory in "Sport Management Review" and emphasized the positive impact of events on society and the environment. These theories together constitute the event management theoretical system and provide a broad theoretical basis for research in the event field.

As the theoretical basis for the development of professional tennis events in China, event management theory provides a comprehensive and systematic perspective and provides profound theoretical guidance for studying the factors influencing the development of professional tennis events.

2.2 The development of professional tennis events in China and macro-environmental factors

There is a close relationship between the development of professional tennis events in China and macro-environmental factors, including policies, tennis atmosphere, household consumption expenditure and other dimensions. Policy factors play a key role in the development of professional tennis events in China.

Government support policies and institutional arrangements directly affect the scale, financial status and sustainability of the event (Shu, 2017). Tennis atmosphere refers to society's attention and participation in tennis, which not only includes the training and popularization of professional athletes, but also involves the recognition and love of tennis in society and culture (Zhang & Pei, 2016). Household consumption expenditure examines the expenditure of individuals and families in the field of tennis. This dimension is directly related to the commercial operation and audience participation of the event (Li & Zhang, 2019).

Research shows that government policy support has played a positive role in promoting the development of professional tennis events. Government investment and policy guidance not only enhance the influence of the event, but also accelerate the development of related industrial chains (Shu, 2017).

In terms of tennis atmosphere, the degree of social attention and participation in tennis is directly related to the fan base and audience experience. Research by Zhang and Pei (2016) pointed out that building a better tennis atmosphere can improve the audience's identification with the event, thereby promoting the development of professional tennis. In addition, the increase in household consumer spending has also provided more business opportunities for professional tennis events, including ticket sales, sponsorship cooperation, and promotion of peripheral products (Li & Zhang, 2019).

2.3 The development of professional tennis events in China and industry environmental factors

The development of professional tennis events in China is inseparable from industry environmental factors, including tennis management departments, other sports events, media promotions, audiences, and venues. The effective functioning of tennis sport management is vital to the planning and execution of professional tennis events. The management level and sports policies of this department directly affect the organizational structure, operating model and athlete training system of the event (Hou, 2016). Competition and partnerships with other sporting events are also important factors in the industry environment. The co-organization, complementary development, and mutual influence of competitive levels with other sports events will all affect the status and attractiveness of professional tennis events (Gong & Zhang, 2018). Media promotion plays a vital role in increasing the visibility and audience appeal of professional tennis events. Media reports, broadcasts and the use of social media can directly affect the exposure and fan interaction of the event, thereby promoting the commercial value of the event (Xu & Hou, 2019).

As the main audience for professional tennis events, the number and participation of spectators directly determines the success of the event. The attraction and interactivity of events are not only related to ticket sales, but also have a profound impact on sponsors and advertising cooperation (Zhang, 2015). The selection and management of hosting venues are also key factors in determining the success or failure of professional tennis events. Suitable venue facilities, city image, and transportation convenience will all affect spectator participation and the overall experience of the event (Huang, 2018).

2.4 The relationship between the development of professional tennis events in China and operating company factors

the significance of operating companies in the development of sports events is not only reflected in the operational level of organizing events, but also in creating business opportunities and social value for events, and promoting the development and upgrading of the sports industry. Their professional operations provide a stable foundation for sports events, making them a more comprehensive and influential cultural and commercial event.

The design and execution of a company's business model is critical to the sustainable development of professional tennis events. Different business models directly affect the revenue sources, profitability levels and long-term competitiveness of events (Zheng & Li, 2017). As an important financing method, investment promotion is directly related to the financial strength of the event and the selection of business partners. Successful investment promotion not only helps to increase the scale of the event, but also injects more commercial elements into the event (Huang & Meng, 2015).

The development and sales of event derivatives are one of the important sources of income for the operating company. This covers the design, manufacturing and sales of event-related products and has a positive effect on improving the brand value and audience participation of the event (Li & Zhang, 2018). At the same time, the quality of venue organization and services directly affects the spectators' event experience and satisfaction. The good organization and attentive service of the venue not only increase the loyalty of the audience, but also establish a good image for the event (Wang & Lin, 2018).

2.5 The relationship between the development of professional tennis events in China and tennis event factors

The development of China's professional tennis events is affected by tennis events' own factors, including event level, event fees, event participants, event packaging, event continuity, event culture and brand influence.

The level of an event is directly related to the popularity and attractiveness of the event. High-level events can usually attract more top players and spectators, thereby improving the overall level of the event (Cao, 2015).

Event fees refer to the costs of participating in the event, including player entry fees, event operating costs, etc. Reasonably controlling event expenses can help attract more players to participate and maintain the financial health of the event (Zhang & Zhang, 2019).

As the core element of the event, event participants directly affect the competitive level and enjoyment of the event. Encouraging the participation of outstanding domestic and foreign players can help improve the level and international influence of the event (Wu & Zhou, 2018). Event packaging includes the promotion, marketing, and brand building of the event. Well-designed packaging can help increase the visibility and commercial value of the event (Li & Liu, 2016). Event continuity refers to the continued holding of events. A stable event cycle helps accumulate audiences and fans and improves the sustainability of the event (Wang, 2019).

Event culture and brand influence emphasize the cultural connotation and brand value carried by the event. Through the inheritance of event culture and brand building, events can leave a deep impression on the audience, strengthen the emotional connection with fans, and form a lasting influence (Li & Zhang, 2017).

H1: Macro-environmental factors affect the development of professional tennis events in China.

H2: Industry environment factors affect the development of professional tennis events in China.

H3: Operating company factors affect the development of professional tennis events in China.

H4: Tennis events factors affect the development of professional tennis events in China.

3. RESEARCH METHODOLOGY

The research design followed a sequential explanatory mixed methods research design process, and a Chinese online questionnaire platform was used for data collection in the quantitative study. Then, SmartPLS4 was used to analyze the collected questionnaire data, establish a structural equation model, and verify the four hypotheses.

The results of the quantitative analysis provided themes for the semi-structured interviews conducted during the qualitative analysis phase. This approach aims to explore the factors that influence the development of professional tennis events and potential directions for development. Finally, quantitative and qualitative results are compared to provide relevant discussion and research contributions.

The sample data of this study come from Guangxi, Hubei and surrounding areas. The samples were people related to professional tennis events in China and were selected as the survey objects. It is generally recommended that the sample size be at least 20 times the number of observable variables used in the procedure to define the sample (Lindeman et al., 1980).

The number of observable variables is 20, so the minimum sample size required is $(22 \times 20) = 440$ samples. Therefore, 520 questionnaires were actually distributed in this study. After completing the questionnaire collection, this study screened out outliers based on the response time and logic of the screening questions. After eliminating invalid samples, a total of 500 valid questionnaires were harvested, and the questionnaire effectiveness rate reached 96.15%.

4. RESULTS AND FINDINGS

4.1. Structural Equation Model

4.1.1 study variables

Table 4.2 variables and dimensions

Variable	Dimension	Abbreviation
Macro-environmental factors	National professional sports policy	NP
	Tennis atmosphere	TA
	Household consumption expenditure	HE
Industry environmental factors	Tennis sport management department	TS
	Competing in other sporting events	CI
	Media publicity	MP
	Audience	AU
	Host city	HC
Operating company factors	Company business model	CB
	Investment attraction	IA
	Development of event derivatives	DE
	Arena organization and services	AO
Tennis event factors	Event level	EL
	Event cost	EC
	Event participants	EP
	Event packaging	EM
	Event continuity	ET
	Event culture and brand influence	EB
Development of professional tennis events in China	International exchange and cooperation	IE
	Personnel training system	TC
	Player welfare guarantee	PW
	Event adaptation guarantee	EA
	Data analysis and scientific training	DS

4.1.4.2 Reflective Model Measurement

This study uses SmartPLS4 to establish a path model and imports the collected 500 sample data into it. The path model estimation diagram is shown in Figure 4.1.

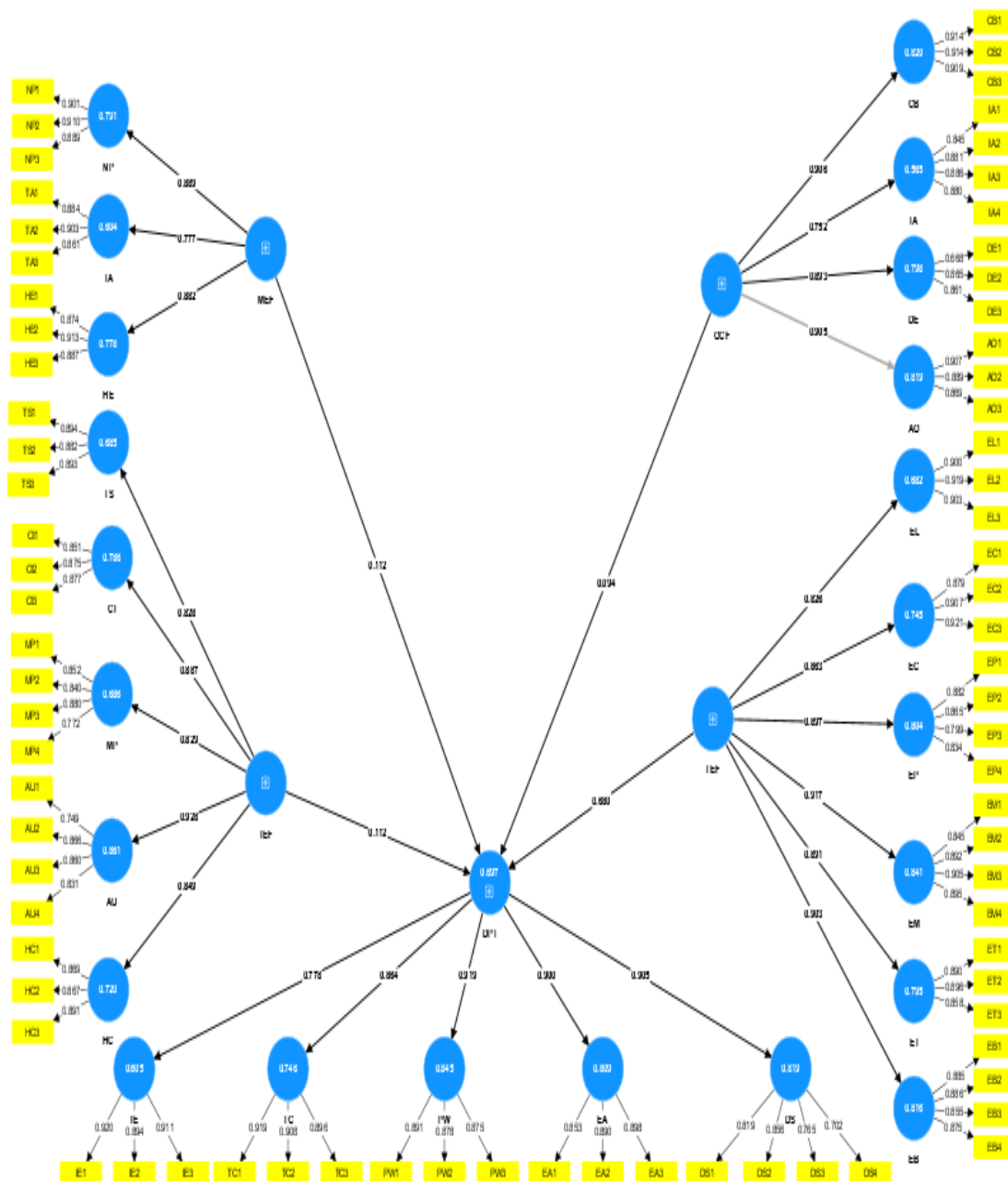


Figure 4.1: This research path model diagram

(1) Internal Consistency (CR)

After research, the minimum combined reliability value of all variables is 0.867, all greater than 0.70, and the minimum Cronbach's Alpha value is 0.832, all greater than 0.70. Therefore, the variables in this study have internal consistency reliability.

(2) Convergent Validity (AVE)

The requirement of convergent validity is that the average variance extracted value (AVE value) is greater than 0.5. This study mainly used AVE to observe convergent validity. It can be found that the minimum AVE value of each variable in this study is 0.575, and all are above 0.50. Therefore, it can be considered that each variable in this study has convergent validity.

(3) Discriminant Validity

After research, the HTMT ratio is less than 1. According to the HTMT criterion, the average correlation between different latent variables is much lower than the average correlation between the same latent variables. Therefore, it shows that each latent variable is a different latent variable and has discriminant validity.

4.1.4.3 Formative Measurement Model

(1) Convergent Validity

Through the calculation results, it can be found that the lowest factor loading value of each indicator variable in this article is 0.736, which is greater than 0.70. Therefore, each indicator variable in this study can be retained. At the same time, the lowest AVE value of all variables in this study is 0.558, all above 0.50. It can be considered that each variable in this study has convergent validity.

(2) Collinearity among indicators

An assessment of collinearity can be obtained by looking at the variance inflation factor (VIF). The calculation report of SmartPLS4 provides the internal VIF value of each latent variable. From the calculation results, it can be seen that the internal VIF value of all latent variables in this study is less than 5. Therefore, it can be considered that there is no significant multiplexing among the latent variables in this study. Collinearity, passed the collinearity assessment.

4.1.4.4 Evaluation of the Structural Model

(1) Coefficient of determination (R^2)

After calculation, the R^2 value of the endogenous latent variable in the path model of this study is obtained. The R^2 value of most variables is greater than 0.75, and only the R^2 value of the development of professional tennis events in China is 0.697. The R^2 value of EC is 0.745, the R^2 value of EL is 0.682, the R^2 value of HC is 0.720, the R^2 value of IA is 0.565, the R^2 value of IE is 0.605, the R^2 value of MP is 0.686, the R^2 value of TA is 0.604, TC The R^2 value of TS is 0.746 and that of TS is 0.685. The degree of explanation of variables is medium, indicating that the model explains the latent variables well.

(2) Effect Size

The f^2 value of Industry environmental factors on Development of professional tennis events in China is 0.039, which is greater than 0.02 and less than 0.15, indicating that Industry environmental factors have a small impact on Development of professional tennis events in China;

The f^2 value of Macro-environmental factors on Development of professional tennis events in China is 0.025, which is greater than 0.02 and less than 0.15, indicating that Macro-environmental factors have a small impact on Development of professional tennis events in China;

The f^2 value of Operating company factors on Development of professional tennis events in China is 0.02, which is less than 0.15, indicating that Operating company factors have a small impact on Development of professional tennis events in China;

The f^2 value of Tennis event factors on Development of professional tennis events in China is 0.945, which is greater than 0.35, indicating that Tennis event factors have a greater impact on Development of professional tennis events in China;

(3) The size of the path coefficient

Table 4.3: Path coefficient size result table

	Path coefficients
Industry environmental factors -> Development of professional tennis events in China	0.112
Macro-environmental factors -> Development of professional tennis events in China	0.112
Operating company factors -> Development of professional tennis events in China	0.094
Tennis event factors -> Development of professional tennis events in China	0.680

As can be seen from the table, the impact of each path is positive. Industry environmental factors, Macro-environmental factors and Operating company factors have a small impact on the Development of professional tennis events in China, while Tennis event factors have a greater impact on the Development of professional tennis events in China.

(4) significance of path coefficients

Table 4.4: The results of the significance test of the path coefficient of the structural equation model in this study

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics ((O-STDEV)/V)	Significant level	P values
Industry environmental factors -> Development of professional tennis events in China	0.113	0.112	0.027	4.109	***	0.000
Macro-environmental factors -> Development of professional tennis events in China	0.108	0.107	0.042	2.543	***	0.011
Operating company factors -> Development of professional tennis events in China	0.087	0.088	0.040	2.198	***	0.028
Tennis event factors -> Development of professional tennis events in China	0.712	0.712	0.036	19.719	***	0.000

Note: NS=not significant, that is, not significant

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

It can be seen from table:

- 1) Since the t value is 4.109, which is greater than 3.29, and the P value is 0.000, Industry environmental factors have a significant impact on the Development of professional tennis events in China, and its estimated value is 0.452;
- 2) Since the t value is 2.543, which is greater than 1.96, less than 3.29, and the P value is 0.011, Macro-environmental factors have a significant impact on the Development of professional tennis events in China, and its estimated value is 0.216;
- 3) Since the t value is 2.198, which is greater than 1.96 and less than 3.29, the P value is 0.028, operating company factors have a significant impact on the Development of professional tennis events in China, and its estimated value is 0.843;
- 4) Since the t value is 19.719, which is greater than 3.29, and the P value is 0.000, Tennis event factors have a significant impact on the Development of professional tennis events in China, and its estimated value is 0.768;

Therefore, all path coefficients in the structural equation model are significant and all hypotheses are supported.

4.1.4.5 Summary of research results

The above empirical research has proven that the measurement model of this study has validity and reliability, and the structural equation model is suitable for explaining the influencing factors of the development of Chinese tennis events. The main findings of this study are summarized as follows:

- 1) The research model factor path diagram is shown in Figure. The graph contains the relationships between the variables.

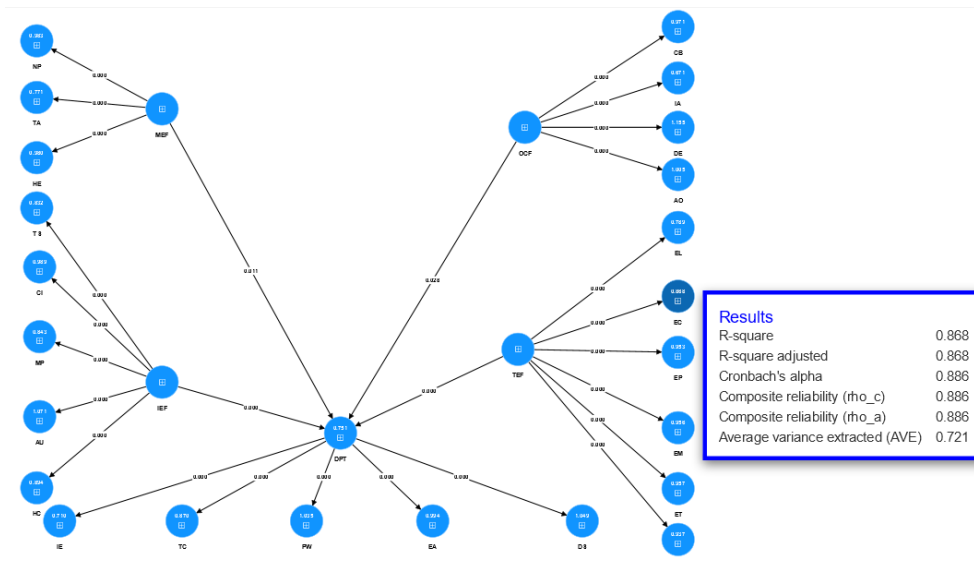


Figure 4.2: Path model diagram verified in this study

- 2) The research hypothesis verification results are shown in Table ##. The table summarizes the hypotheses and test results in this study. This study supports hypotheses H1, H2, H3, H4.

Hypothetical content	outcome
H1:Macro-environmental factors have a significant positive impact on Development of professional tennis events in China	support
H2:Industry environmental factors have a significant positive impact on Development of professional tennis events in China	support
H3:Operating company factors have a significant positive impact on Development of professional tennis events in China	support
H4:Tennis event factors have a significant positive impact on Development of professional tennis events in China	support

- 3) In the development of professional tennis events in China, Industrial environmental factors have a significant impact on the Development of professional tennis events in China; Macro-environmental factors have a significant impact on the Development of professional tennis events in China; Operating company factors have a significant impact on the Development of professional tennis events in China Impact; Tennis event factors have a significant impact on the Development of professional tennis events in China.

5. CONCLUSION

The factors that influence the development of tennis events in China in this study are divided into Industry environmental factors, Macro-environmental factors, Operating company factors and Tennis event factors. The study takes Industry environmental factors, Macro-environmental factors, operating company factors and Tennis event factors as self- Variables, a variety of statistical method models are used for empirical testing. The main research results are as follows:

There are significant differences between genders in audience consumption awareness and frequency of watching games. Comparisons show that male audiences have higher consumption awareness, loyalty and frequency of watching games than female audiences in tennis events; there is no significant difference in audience loyalty between genders... Different ages and different educational backgrounds. There are no significant differences in tennis consumption awareness, loyalty and frequency of watching matches among viewers with different monthly incomes and different regions. In the development of professional tennis events in China, Industry environmental factors, Macro-environmental factors, operating company factors and Tennis event factors all have a significant positive impact on the Development of professional tennis events in China. Among them, Tennis event factors have a greater impact on the Development of professional tennis events in China, while Industry environmental factors, Macro-environmental factors and Operating company factors have a smaller impact on the Development of professional tennis events in China. The results of this study confirm that the proposed Chinese tennis tournament development model and its four components maintain a close relationship. Therefore, this study contributes to the use of structural equation modeling in various ways to measure tennis event development factors in

China. Among the factors that affect the development of Chinese tennis events, the better ones can promote the Development of professional tennis events in China, have a greater impact on the development of Chinese tennis events, and thereby enhance the development of Chinese tennis events. This finding is of great significance to the development of tennis events in China and can provide guidance for them to develop more effective strategies and methods to improve the development of tennis events in China.

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