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China competitive sports international competitiveness evaluation and development research

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ABSTRACT

The paper applies documents literature to research on Chinese competitive sports competitiveness evaluation. National competitive sports competitiveness evaluation has gone through origin, developing and maturing three stages, now is gradually moving toward perfection. National competitive sports competitiveness evaluation includes national sports competitive ability evaluation and national sports competitive strength evaluation, national competitive sports competitiveness evaluation generally is reflected by explicit, direct sports events competitiveness evaluation, athletes' competitiveness evaluation and referees competitiveness evaluation and so on. National competitiveness evaluation indicator is a comprehensive system, is a multiple-indicator comprehensive evaluation system that is composed of sports events, athletes, referees, management level and competitive environment and other indicators. National competitiveness evaluation method generally can divide into subjective evaluation method, objective evaluation method and comprehensive evaluation method three types. Research on national competitive sports competitiveness evaluation has important significances in promoting Chinese national competitive sports competitiveness level and guiding national competitive sports development.

KEYWORDS

Competitive sports; Competitiveness evaluation; Evaluation indicator; International competitiveness; Influence factor.



INTRODUCTION

National competitive sports competitiveness refers to nation such competition subject presented comprehensive competitive ability in international sports competition. Presently, all kinds of international sports competitive activities occur every day at home and abroad, though it also has all kinds of sports competitiveness evaluation system and methods, such as ranking of gold number, competition points ranking and competition sessions ranking and else, while these international sports competitiveness evaluation systems are not perfect, they cannot make scientific, correct, objective, just evaluation on every country sports competitiveness, therefore also cannot effective guide nation to give its own sports competition advantages into play, and then promote itself sports competitive ability. Therefore, demand of starting from practice to carry out systematic research on national competitive sports competitiveness and its evaluation becomes more urgent.

Now that competition exists, then it cannot do without evaluation, evaluation plays crucial roles in contemporary China society that is full of competitions, and also is one indispensable part of the society. Competition exists and also the differences between winning and losing, good and bad also exist. How to objective and just evaluate winning or losing, good or bad? It needs to construct a set of scientific competition rules, evaluation indicators and judgment criterions to make scientific, correct judgment. Of course, sports competition as competitive competition, it also needs such evaluation criterion. Since sports competition emerged, it generated corresponding competition rules, evaluation indicators and evaluation criterions to judge sports games winning or losing. In sports competition especially in international sports competition, establish a set of fair and reasonable evaluation system is always the common basic target of every kind of sports competition pursuing for a long time. How to construct a set of perfect and suitable international sports competition criterion evaluation system, scientific reflect Chinese sports competitive ability, ensure domestic every kind of sports competitions fairness, rationality and justice, and use it to guide domestic every kind of sports games sound development, promote the nation sports competitiveness and core competitiveness, establish Chinese own sports competition advantages, such problem arouses Chinese sports circles and Chinese government general concern and high recognition.

Domestic and overseas correlation research, regarding sports competitiveness and its evaluation such problem, it has aroused domestic and overseas sports circles and scholars concern at a very early age, only their focused key points and expressed forms are different in different periods. Sports competitiveness evaluation research such activity is originated from designing on sports competition rules and evaluation on sports competition result, and some countries concerns and researches on competitive sports competitiveness and its evaluation are form international sports games rules and researches. With the development and evolution of international sports competitions, all kinds of sports activities have developed widely in the world, which leads to more and more people to participate in, such international sports games rules designing and competition result evaluation, as well as sports games reflected representative one country core ability and comprehensive ability in sports competition has gradually attracted people's attentions. But how to judge different nationals sports delegations individual and comprehensive competitive abilities in international sports competitions is the focus of everyone concerns, and meanwhile is a very sensitive problem that to be urgently solved.

MODEL ESTABLISHMENT

By correlation research and event progress, we can get that foreign countries relative focus on application and practice, they mainly base on participation in sports circles, and scholars intervention on them are very little, they mainly make huge contributions to international sports competitiveness and its evaluation in international sports competition rules, evaluation method, evaluation criterion and others, and meanwhile also accumulate plentiful experiences. Though national competitive sports competitiveness and its evaluation system are not perfect, present all international sports competitions are ordered going ahead bases on such evaluation system. Widespread and general way in the world is using number of gold medals, number of medals, number of participants, number of participation times, number of winning times and others as evaluation methods and systems to measure sports competitiveness of all countries in the world, these play important roles in national sports competitiveness evaluation, as Figure1 evaluation flow chart.

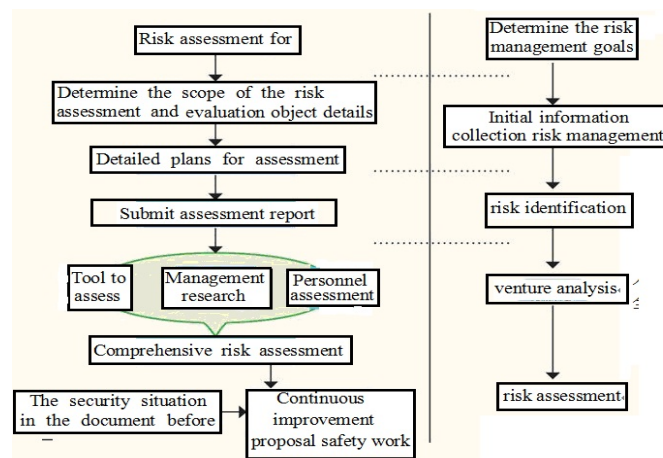


Figure 1 : Assessment flowchart

And Chinese sports circles base on introducing foreign experiences and methods, and meanwhile scholars also positive organize theoretical researches, and then provide guidance for application and practice. In China, relative early one was Huang Zhuo; he made preliminary design on competitive sports core competitiveness evaluation indicator system, and applied a series of evaluation indicators to measure core competitiveness strong or weak as well as ranking. And Bi Jin-Jie and others referenced world economic forum and Switzerland Lausanne management development institute established national competitiveness evaluation method and domestics and overseas scholars established industrial competitiveness indicator evaluation system, they carried out preliminary exploration on Chinese sports industry competitiveness basic definitions, evaluation indicators and evaluation criterion system.

Among them, Yang Shu-An made preliminary analysis of Chinese competitive sports strength. Zhang Jia-Xi and others carried on preliminary exploration on sports industrial international competitiveness evaluation indicator system and evaluation method. Guo Quan and Bai Hai-Bo made comparative research on China and Olympic powers competitive sports strengths. Bi Jin-Jie and others made theoretical researches on Chinese sports products industrial international competitiveness indicator evaluation system. Xing Shuang-Tao and others carried on prediction and analysis on China's competitive sports competitive trend in 2008 Olympic Games. Zhang Chun-Ping took Chinese metropolis sports competitiveness as research objects, preliminarily explored and discussed city sports competitiveness evaluation problems. Yu Jun and others analyzed China competitive sports efforts orientation in 2008 Olympic Games from China the tenth National Game competitive sports strength status. Liu Ying analyzed China competitive sports advantageous events core competitiveness. Xia Chong-De, Yin Ying and others constructed indicator system and comprehensive evaluation system that used to evaluation China competitive sports sustainable development ability. Liang Jian-Ping etc. researched on competitive sports core competitiveness problems. Chen Jian-Shu described China competitive sports layout and trend after 2008 Olympic Games. Luo Zhi successively utilized theory of comparative advantage to carry out theoretical, methodical and empirical research on world all countries all grades sports events existing relative advantages, which had important reference significances in national competitive sports competitiveness evaluation. Zhang Heng-Min and Zhang Tie-Ling explored and discussed competitive sports social evaluation system construction problem. Tian Mai-Jiu stated China competitive sports development targets after Beijing Olympic Games. Tian Ying-Lian firstly discussed on China competitive techniques evaluation system construction problem from nation level. In addition, there are scholars that research from sports competitive advantages, sports competition strategies and sports competitive intelligence and other aspects, all of these have made huge contributions to national competitive sports competitiveness evaluation research.

Above are Chinese scholars researches on competitive sports competitiveness and its evaluation from different perspectives and levels, these mainly concentrate on sports industrial competitiveness evaluation, sports core competitiveness evaluation, sports strength evaluation, city sports competitiveness evaluation and sports competition advantages evaluation and other aspects. But research on sports competitiveness development evaluation from nation and comprehensive level is very little, so only partial gets involved in sports evaluation. Thereupon, we can see that present national competitive sports competitiveness and its evaluation aspects research should be gone deeper, which not only needs to carry out comprehensive system research on national competitive sports competitiveness and its evaluation from theoretical research, indicator system construction levels but also from application and demonstration as well as methods comparison and selection and other levels. Though presently domestic and overseas partial scholars and experts have made preliminary researches on sports competitiveness evaluation, they still have many deficiency and problems as system is not complete, and researches on national competitive sports competitiveness evaluation are very little. So, presently evaluation on national competitive sports competitiveness evaluation is still a new field that is urgently to be researched.

National competitive sports competitiveness evaluation refers to a country presented comprehensive competitive ability in international sports competition. How should we effective compare and evaluate on every country's comprehensive ability in international sports competition is national competitive sports competitiveness evaluation. Therefore, what we need to do is constructing a set of scientific and reasonable evaluation system, from which it includes evaluation methods and evaluation indicators, and then uses them to compare and judge a country comprehensive sports competitive ability. National competitive sports competitiveness evaluation connotation and features include following aspects :

National competitive sports competitiveness connotation

National competitive sports competitiveness evaluation is overall comprehensive evaluation on a country comprehensive sports competitive ability, is an important part in national competitive ability and comprehensive national strength. It is used for comprehensive measuring and judging country sports delegation competitiveness in participating in international competitions, is the country presented resultant force of competitive abilities in all international sports competitive events.

National competitive sports competitiveness evaluation is comprehensive evaluation on multiple factors. Because sports competition is a organic unified entity that composed of multiple factors and each different link, then evaluation on national competitive sports competitiveness also should be comprehensive evaluation on each factor and link that constitutes sports competition, from which it includes every country staff that participates in competition's evaluation, participative competition events evaluation, medals amount evaluation and so on.

National competitive sports competitiveness evaluation is comparative evaluation on competition participation parties. It is not only just measurement and evaluation on results, but also has strong directivity. A country, only when it can fully master, understand and apply international sports competition's competition rules, evaluation criterions and evaluation

methods, then can get good results and give best level into play when applying. Only in mutual comparison, every country's sports competitiveness strong or weak will emerge, understand their relative competition advantages and then let their core competitive ability into play.

National competitive sports evaluation is judgment targeted at every country sports possessed comparative advantage and its core competitiveness, the purpose is to further define and develop its own comparative advantage and core competitiveness, and then promote self national competitive sports competitiveness. Any country cannot possess stronger international competitiveness in all sports competition events and links, while select such events that can reflect native sports competition advantages and own core competitiveness as key cultivation objects, as Figure 2 shows.

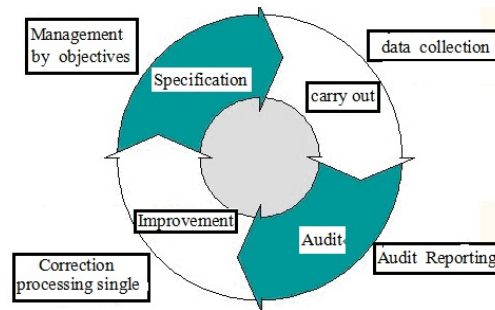


Figure 2 : Project as the core competitiveness of key cultivation object

National competitive sports competitiveness evaluation development

Since sports competition emerged, sports competitiveness evaluation also came forth, which was because that in sports competitions, everyone participated in competitions, now it needed a series of competition rules and judgment criterions to distinguish merits, and competitiveness evaluation result on the contrary could guide subsequent sports competitions, and then let Chinese sports to boom develop. Chinese competitive sports competitiveness evaluation development has gone through a long-term development process, in view of international Olympic Games development, a country competitive sports competitiveness evaluation development can roughly divide into three stages: national competitiveness evaluation origins, developing and maturing.

Chinese competitive sports competitiveness evaluation origin stage

Chinese competitive sports competitiveness evaluation generates followed by international sports competitions, and fuses with it then gets jointly development. With rapidly development of society and constantly promotion of human civilization extent, it develops from previous fierce confrontation that exists in military, politics and other fields to present social each field gentle competitions, accompanying competition forms also change, it changes from original tangible competition to present intangible competition, has a variety of forms. Sports competition as an important field in international competitions, society pays special attention to what kind of a fair, just, reasonable and objective evaluation system it will form.

Chinese sports competition is originated from international Olympic Games. Since global hosted first world newly modern Olympic Games in 1896, international sports competition has become fiercer, forms are accordingly continuous enriching. Through nearly one hundred years development, Olympic Games has already become current world sports competitions most influential and representative sports competition activity, Olympic torch nearly burns in every corner of the world, it not only represents international sports competition highest level, and meanwhile also becomes stage that every country shows comprehensive national strength, reflect its competitiveness, therefore it also becomes national competitive sports competitiveness focus and core. Most important content of Olympic Games is evaluating sports competitiveness that participated countries and their national players. In 2008, Beijing Olympic Games hosting would more propel to sports competitiveness development in China, promote Chinese sports competition competitiveness, show Chinese sports competitive level "higher, faster, stronger" Olympic spirit to be better interpreted in China, it also leads international sports competition sound development, reflects sports competition charms.

Chinese competitive sports competitiveness developing stage

In view of international Olympic Games development, in the early period of international Olympic Games, every country takes number of events, number of participants, number of medals, and number of gold medals as basic criterions to evaluate and measure a nation's international sports competitiveness. And China also affirm evaluation criterion so. Some countries even take number of participant and number of achieved gold medals as criterion to measure and evaluate national sports competitiveness, obviously it is not scientific. Due to China lacks of a kind of normalized, scientific and fair evaluation system and evaluation system to control sports competition participation events, number of people, specification, referees and so on, and then in some sports events hosting, it causes some disputes that let China competitive sports competitiveness evaluation system to be constantly perfected and matured.

Chinese competitive sports competitiveness maturing stage

Chinese competitive sports evaluation system establishment is a systematic project, it needs to make comprehensive consideration on its involved numerous factors, and then tries to correct reflect national sports competitive comprehensive ability, when we regard Chinese competitive sports competitiveness evaluation from system theory and system engineering perspectives, Chinese sports competitiveness evaluation starts to enter into maturing stage.

Though number of participation events, number of medals, and number of gold medals are important criterions to measure and evaluate a nation sports competitive ability, they are not unique criterion. In China, we should consider Chinese sports competitiveness suffers multiple factors influences and restriction. Competition rules, field quality, referees levels, and sports facilities and others are indispensable parts of sports competitiveness evaluation. Therefore, it needs us comprehensive evaluation and comprehensive consideration. With scientification of international competitive sports competition development and evaluation, some new countries competitive sports competitiveness evaluation methods and indicators also gradually generate, all of these constantly propel to national competitive sports competitiveness constantly scientification and China also constantly references and absorbs experiences in international, and then combines with self status, and forms into competitive sports competitiveness evaluation system that adapts to itself as TABLE 1.

TABLE 1 : Competitive sports obtained achievement

	Athleti cs	Swimmi ng	Parachute jumping	Weight lifting	Fin swimming	Shooti ng	Aviation model	Navigation model	Archer y	Tot al
The 1 st session	0	1	1	0	0	1	1	0	0	4
The 2 nd session	0	0	4	3	0	3	0	0	2	12
The 3 rd session	0	0	0	0	0	6	0	0	0	6
The 4 th session	0	0	0	0	0	0	16	0	0	16
The 5 th session	2	0	0	1	0	0	0	0	0	3
The 6 th session	1	0	0	3	4	1	0	8	0	17
The 7 th session	10	0	0	25	0	0	0	6	0	41
The 8 th session	0	2	0	0	0	0	0	0	0	2
Total	13	3	5	32	4	11	17	14	2	101

(Data source: The people's Republic of China sports development history (comprehensive volume), 1949~1998, 1999, 9)

Correspond to above data; it draws two axes bar figure, as Figure 3.

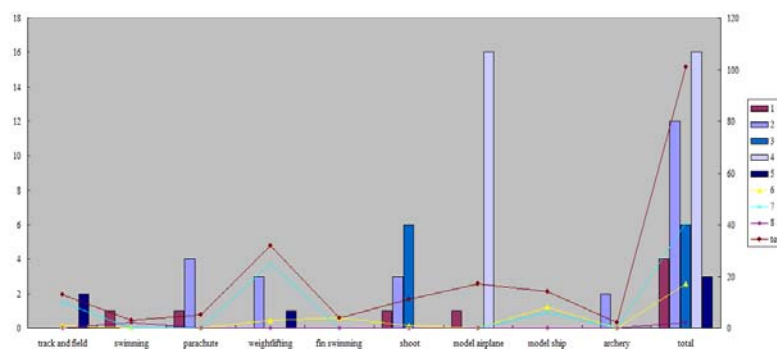


Figure 3 : The obtained achievements of competitive sports

RESEARCH RESULT AND ANALYSIS

Chinese competitive sports competitiveness evaluation content

National competitive sports competitiveness evaluation system is a scientific, systematic, comprehensive evaluation system, designed fields are very extensive, it includes sports human resources, fields' equipment, scientific and technological resources, economic resources and other factors. According to national competitive sports competitiveness evaluation

connotation, Chinese sports competitiveness roughly can divide into two aspects: sports competitive ability (explicit, direct competitive ability) and sports competitive strength (potential, hidden, indirect competitive ability).

Among them, sports competitive ability also contains national sports games competitive ability, coaches' competitive ability, athletes' competitive ability, referees competitive abilities and other sports reserve talents competitive ability and so on; and sports competitive strength includes national economic technological development level, sports investment, sports competition strategy and sports management system and so on. In concrete sports competitions, a nation competitive sports competitiveness mainly reflects in explicit competitiveness, its concrete expression is achieved medals amount and achieved excellent results, all of these are its comprehensive advantages and core ability external expressions, and can effective evaluate and measure a country competitive ability, all of these can be used as evaluation criterions and indicators to carry out scientific comparison and evaluation.

Chinese competitive sports competitiveness evaluation indicator is accord to international criterion, it is core element of national competitive sports competitiveness evaluation, a country has effective evaluation indicators then it has guarantee of success. How to scientific, correct, reasonable evaluate a country sports competitiveness is a comprehensive topic. According to national competitive sports competitiveness evaluation practice, takes national competitive sports competitiveness evaluation theories as bases, on the basis of number of gold medals, number of medals, total score and other indicators, we are trying to construct a multiple-indicator that can scientific, correct, reasonable measure Chinese competitive sports relative competitiveness. The system includes multiple indicators; details can refer to TABLE 1. The indicator system has strong operability, therefore it is very effective. According to the system criterion, national competitive sports competitiveness evaluation can carry on relative comprehensive evaluation from following aspects, on the obtained data basis, it can more correct, objective, scientific reflect China sports competitive ability, as TABLE 2.

TABLE 2 : Medals amount changes]

Session	City	Gold medal	Silver medal	Bronze medal	Gold medal amount ranking	Total ranking
The 7 th session	Teheran	33	46	27	3	
The 8 th session	Bangkok	51	54	46	2	
The 9 th session	New Delhi	61	51	41	1	1
The 10 th session	Seoul	94	82	46	1	1
The 11 th session	Beijing	183	107	51	1	1
The 12 th session	Hiroshima	126	83	57	1	1
The 13 th session	Bangkok	129	77	68	1	1

Correspond to above data, it draws smooth curve graph, as Figure 4.

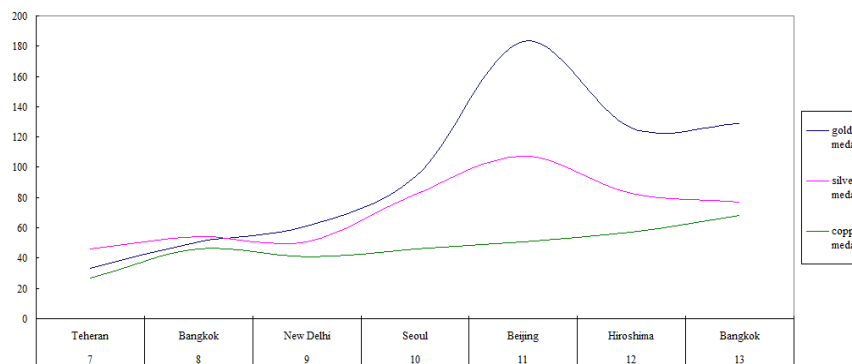


Figure 4 : The change of the MEDALS

Chinese competitive sports competitiveness evaluation indicators and methods

Evaluation indicators and evaluation method is reliable foundation to ensure national competitive sports competitiveness evaluation result accuracy. In Chinese sports competition, present common used competitive sports competitiveness evaluation method roughly includes two levels: the first level is systemizing evaluation method, it adopts accumulative competition sessions winning or losing and accumulates competition scores to make overall evaluation and ranking on participation teams competitiveness, the second level is individual item evaluation method, which is making ranking and evaluation on individual every competition results by gold medals, medals, scores accumulation and competition sessions accumulation and so on, and finally adding them so that gets comprehensive competitiveness. Objective evaluation method basically adopts objective data to direct carry out evaluation comparison, and subjective evaluation method mainly adopts grading classification and subjective scoring ways, and then processes and makes evaluation comparison, such as we

utilize weighted sum solving and weighted average. Comprehensive evaluation method is organic combining objective evaluation method and subjective evaluation method to implement. As TABLE 3, China current national competitive sports competitiveness evaluation indicator system.

TABLE 3 : National competitive sports competitiveness evaluation indicator system

Evaluation content	Evaluation indicator
Sports events	X1 Gold medals amount
	X2 Medals amount
	X3 Top three gross points
	X4 Top eight medals ranking
	X5 Top eight gross points
	X6 Each event competition record
Athlete	X7 Gross number of athletes
	X8 International grade athletes amount
	X9 National grade athletes amount
Referee	X10 First grade sportsmen amount
	X11 Total number of referees
	X12 International grade referees amount
	X13 National grade referees amount
	X14 First grade referees amount
Management level	X15 Sports investment
	X16 Sports workers amount (sports talents, coaches, administrative staff)
	X17 Sports popularity
	X18 Sports facilities

No matter which kind of evaluation method we adopt, finally it will implement in every competition event. Every team's sports events competitiveness evaluation mainly is up to sports events referees' judgment, competition rules memory scoring methods, all of these can effective and real reflect participants competitiveness. Integrate current each kind of sports competitions competition rules and scoring methods, roughly it can divide into three kinds: 1) Subjective evaluation method, 2) objective evaluation method, 3) comprehensive evaluation method. It can refer to TABLE 4.

TABLE 4 : Sports events evaluation methods classification

Evaluation method	Evaluation criterion	Sports event
Objective evaluation method	Timing	Track events, as running
	By distance	Field events, as javelin throw, high jumping
	Scoring	Ball kind of competitions, as football, basketball
	Weighting	Weight lifting
Subjective evaluation method	Counting	Shooting, archery
	Pure subjective	Judo, wrestling
Comprehensive evaluation method	Subjective scoring	Gymnastics, diving
	Subjectivity and objectivity	Have objective evaluation with subject factors and subjective evaluation with objective factors

CONCLUSION

Chinese competitive sports competitiveness is a comprehensive topic, it designs numerous factors and very complicated, which needs to carry out intensive research and investigation from multiple aspects. The paper just carries out preliminary exploration from national competitive sports competitiveness evaluation connotation, development process, evaluation contents, evaluation indicators and evaluation methods and other aspects. It only reflects the topic research necessity and important significances. By far, it only is a initial trial on international competitive sports competitiveness evaluation exploration and research, regarding more China sports competition evaluation theoretical research, evaluation

indicator construction, evaluation system scientification, evaluation system perfection, empirical analysis and applied research as well as other problems are to be further deepened and explored.

Of course, sports competition as a competitive game, it also needs such an evaluation criterion. Since sports competition emerged, it generated corresponding competition rules, evaluation indicators and evaluation criteria to judge sports games winning or losing. In sports competition especially in international sports competition, establish a set of fair and reasonable evaluation system is always the common basic target of every kind of sports competition pursuing for a long time. How to construct a set of perfect and suitable international sports competition criterion evaluation system, scientific reflect Chinese sports competitive ability, ensure domestic every kind of sports competitions fairness, rationality and justice, and use it to guide domestic every kind of sports games sound development, promote the nation sports competitiveness and core competitiveness, establish Chinese own sports competition advantages, such a problem arouses Chinese sports circles and Chinese government general concern and high recognition.

REFERENCES

- [1] Huang Xiao-Mao, Zeng Wan-Zhou; Research on the commercialized operation of Chinese large physical games with the public welfare, *Sci.Tech Information Development & Economy*, **17(21)**, 137-138 (2007).
- [2] Zhou Liang-Jun, Chen Xiao-Ying and Zhou Xi-Kuan; Status and role of government in sport event exhibition industry taking Shanghai as an example, *Sports Science Research*, **28(4)**, 48-51 (2007).
- [3] Cai Li-Bin, Jia Jun-Gang; The role of local government in MICE, *Journal of Huazhong University of Science and Technology (Social Science Edition)*, **21(5)**, 67-70 (2007).
- [4] Huang Lu, Fu Xiao-Chun; On the connotation of sports events, *Journal of Capital College of Physical Education*, **17(6)**, 12-13 (2005).
- [5] Guo Hong-Bo, Zhu Yong; Analysis and strategic research on China's current sports industry development. *Fujian Sports Science and Technology*, **3**, 3-5 (2013).
- [6] Ren Chun, Xiang, Zgang Jie; The research on macro-environment of China's sports competition exhibition match industry market, *Sports & Science*, **25(3)**, 14-17 (2004).
- [7] Ye Chao, Zhong; On the development of sports brokerage in Zhejiang province, *Journal of Anhui Sports Science*, **23(2)**, 30-32 (2002).
- [8] Lu Geng-Hua, Liu Xin-Min; Study on the choice of policy of sports industry development during construction of well-off society in Shaanxi province, *Journal of Xi'an Institute of Physical Education*, **23(5)**, 44-46 (2006).
- [9] Zhou Liang-Jun, Zhou Xi-Uan; Study on the theory and method of international competitiveness of Shanghai sport event industry, *Journal of Guangzhou Physical Education Institute*, **26(5)**, 13-16 (2006).
- [10] Huang Hai-Yan, Zhang Lin, Li Nan-Zhu; Study on the role of Shanghai government in the operation of major sports competition events, *China Sport Science*, **27(2)**, 17-25 (2007).
- [11] Dong Jie; Existing main problems, Reasons and countermeasures about China host mega sport events, *Sports & Science*, **33(3)**, 42-51 (2012).