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## Research and evaluation on intangible cultural heritage protection to tourism game win-win

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### ABSTRACT

For contradiction and unification between intangible cultural heritage protection and income-generating exploitation, it is drawn deeply attention by mass scholars and relative departments, in order to pursuit intangible cultural heritage protective values improvement way, this paper makes status analysis, problems analysis and game analysis of it, and carries out analytic hierarchy processing and comprehensive evaluation on intangible cultural heritage tourism value system, in the hope of providing theoretical basis for more scientific intangible cultural heritage protection mode and its correlated industries values exploitation and indicator system evaluation. In research, firstly, it targeted China intangible cultural heritage protection status, and makes comparison with other countries in the world, it gets China current status five big issues, and analyzes the five issues causes, makes game analysis from heritage protection and income-generating exploitation two aspects, and gets way to make both win-win benefit.

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### KEYWORDS

Intangible cultural heritage;  
Game analysis;  
Tourism;  
Indicator evaluation system.

### INTRODUCTION

China has introduced many documents on intangible cultural heritage protection with an aim to provide reference for human race historical retrospection and human race opening up the future, but protection and exploitation have contradictions to certain degree, in order to eliminate the contradictions between the two and pursuit their unified point, the paper proceeds with analysis of intangible cultural heritage protection process problems, in the hope of providing well schemes for heritage protection.

For intangible cultural heritage protection measures researching and its correlated industries values evaluation system researching, lots of people have made efforts, just by their efforts China intangible protection has been constantly improved, from which Cao Xin-Ming (2009) analyzed intangible cultural heritage protection administrative protection and legal protection two modes, he proposed right mode-setting intangible cultural marks right, and connected intangible cultural heritage with intellectual property<sup>[1]</sup>; Sun Ke-Qin(2013) on the basis of summarizing China intangible cultural heritage protection status and progress, divided China in-

tangible cultural heritage development into three phases, to achieve sustainable development, he proposed six protective suggestions<sup>[2]</sup>; Jiang Li-Qin(2014) Applied Delphi method and analytic hierarchy process combined principle, she established intangible cultural heritage tourism value evaluation indicator system, and made evaluation on intangible cultural heritage, which provided references for intangible cultural heritage value and tourism exploitation<sup>[3]</sup>.

This paper on the basis of previous research, it takes intangible cultural heritage protection and income-generating exploitation features as research objects, and makes research respectively, in the hope of exploring the method to realize the two win-win, which provides theoretical basis for Chinese intangible cultural heritage sustainable protection and provides method basis as applying theoretical method for its correlated industry value system establishment and evaluation.

### CHINA INTANGIBLE CULTURAL HERITAGE PROTECTION STATUS AND PROBLEMS ANALYSIS

#### China intangible cultural heritage protection status analysis

“Convention Concerning the Protection of the World Cultural and Natural Heritage” is passed by United Nations educational scientific and cultural organization on November, 1972, from first batch 12 items world heritage in 1978 to United Nations educational scientific and cultural organizations approved world heritage amounts in 2012 it arrives at 962 items, the 962 items world heritage includes 745 items cultural

heritage, 188 items natural heritage and 29 items mixed heritage, while China totally has 43 items heritage listed into “the World Heritage List”.

From year 2001 to 2012, Chinese intangible cultural heritage protection and management have achieved relative remarkable progress; whole world intangible cultural heritage quantity aspect ranking top ten nations and the nation distribution are as Table 1 show.

From TABLE 1 data, it is clear that ranked the world top ten, Asian intangible cultural heritage representative works quantities are totally 108 items, European ones are 42 items, America ones are 20 items, that is to say, Asia is the largest from the aspect of quantity and largely goes beyond European and American quantity; since China joined the parties in United States “Convention for the Safeguarding of Intangible Cultural Heritage” in 2004, it was elected as a member of first safeguarding of intangible cultural heritage inter-governmental committee in 2006, as Figure 1 showed China every year intangible cultural heritage representative works quantity growth status from 2001 to 2011 process.

“People’s Republic of China Intangible Cultural Heritage Law” has been come in 2011, the law’s publishing plays propelling roles in national intangible cultural heritage protection work processes in full swing, the law also mentions that intangible cultural heritage contents have following six types:

- 1) Traditional oral literature and its carrier language;
- 2) Tradition, art, calligraphy, music, dance, drama, Chinese folk art forms and acrobatics;
- 3) Traditional skill, medicine and calendar;
- 4) Traditional rituals, festival and other folk customs;

TABLE 1 : Whole world intangible cultural heritage quantity top 10 nations

World rank	Nation name	Located continent	Heritage quantity	World rank	Nation name	Located continent	Heritage quantity
1	China	Asia	29	7	India	Asia	9
2	Japan	Asia	21	8	Iran	Asia	8
3	South Korea	Asia	16	8	Columbia	America	8
4	Croatia	Europe	12	9	Mexico	America	7
5	Spain	Europe	11	10	Peru	America	5
6	France	Europe	10	10	Azerbaijan	Asia	5
6	Turkey	Asia	10	10	Mongolia	Asia	5
7	Belgium	Europe	9	10	Vietnam	Asia	5

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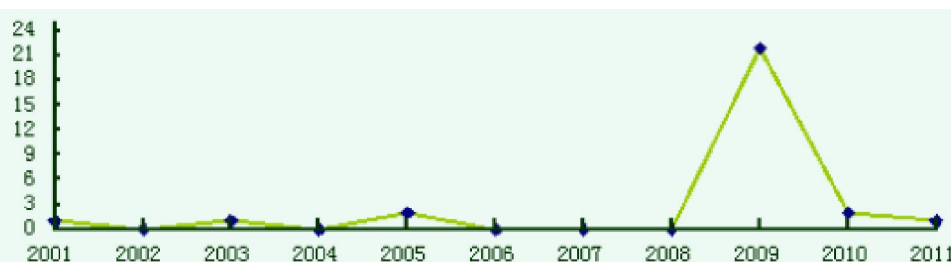


Figure 1 : China intangible cultural heritage quantity annual increment statistical graph

- 5) Traditional sports and recreation;
- 6) Other intangible cultural heritage.

Recently ten years Chinese intangible cultural heritage protection process can be divided into preliminary phase, development phase and prosperity phase, from which preliminary phase is from 2001 to 2005, development phase is from 2006 to 2010, prosperity phase is from 2011 to now, as Figure 1 show, preliminary phase China intangible cultural heritage representative works have one item in first batch, one item in second batch, two items in the third batch, totally four items, development phase has 22 items in 2009 from the fourth batch, two items in 2010 from the fifth batch, during development phase correlation intangible cultural heritage protection law has been come in successive, intangible cultural heritage protection, education and academic exchange are gradually developing, prosperity phase China intangible cultural heritage quantity in 2011, its total amount has arrived at as high as 29 items that ranks the first in the world, corresponding regulations publishing propels to intangible cultural heritage protection diversification, scientific and comprehensive development.

### Status problems analysis

With globalization tendency and modernization process speeding up, it confronts increasing serious risks in the aspect of intangible cultural heritage protection, some traditional cultures that cannot fit for globalization, informatization and commercialization economic environment changes are gradually dying, China intangible cultural heritage protection confronts five problems as following:

China intangible cultural heritage typical inheritors ages are quite old, and subsequent heirs have not grown up, which causes phenomenon of lacking the heirs, lets some traditional cultures, folk customs, oral literature and traditional skills inheriting cannot get completely suc-

cession, so that let it short of developing soils, therefore problems one is short of heirs;

China intangible cultural heritage management departments have multi-levels, it appears duty overlapped, unclear duty and lack of statistics centralizing management status, and therefore the problem two is imperfect protection mechanism.

Intangible cultural heritage rises since 1980s, it has 20 years history until now, the discipline educational system is not sound, so that it will affect intangible cultural heritage protective effects, therefore the problem three is discipline system not sound;

China has the phenomenon that puts emphasis on declaration and exploitation while ignore protection and management in the aspect of intangible cultural heritage, which indicates people diminished protective consciousness on the heritage, which will also affect intangible cultural heritage protection, therefore problem four is weak protective consciousness.

China some areas appears intangible cultural heritage save and protection hardware conditions not satisfied status, which is also caused by government fiscal control and financial resources investment not strong enough, therefore problem five is lacking of intangible cultural heritage protection funding.

To sum up, intangible cultural heritage protective works have appeared a series of problems, in order to reasonable solve the problems, it should make concrete analysis of concrete problems, government departments should strengthen focus on the aspect, intangible cultural heritage regions relative departments should also take their corresponding measures, to solve above analysis five kinds of problems, the paper analyzes from the perspective of intangible cultural heritage to tourism income-generating, in the hope of achieving protection and income-generating game win-win effects.

### INTANGIBLE CULTURAL HERITAGE PRO-

### TECTION AND INCOME-GENERATING EXPLOITATION TWO GAME WIN-WIN MEASURES ANALYSIS

Intangible cultural heritage is a product of history and natural development, China is a vast agricultural country in the world in the past and now, but before the Republic of China, China is major in farming and nomadic, present remained intangible cultural heritage is also basically all the product under the civilization, together with today China and world industrialization and informatization development tendency, it causes people's value orientation changes in intangible cultural heritage, the dilemma status between protection and exploitation has been appeared, the two surely exists contradictions in certain ranges, but whether there is mutual unified linkage or not is social and peoples' concern, therefore it also has protection and income generation game status, the writer by consulting correlation researches documents and their analysis, it gets unified points between the two, the chapter applies quick lane and slow lane game ways into analyzing whether it should protect intangible cultural heritage or exploit it, and makes research on scientific extracting intangible cultural heritage value points and value quantity, in the hope of making contributions to the two win-win measures adoption.

#### Intangible cultural heritage protection and income-generating exploitation game analysis

During intangible cultural heritage protection pro-

cess, we expect to find win-win measures between protection and income-generating exploitation, which needs to on one hand objective treat intangible heritage project fluidity without partial rejecting innovative development, in the hope of realizing some elements connotation and extension economic values, the chapter according to quick and slow lane parallel and divided theory proposed in 2008, it carries game analysis of intangible cultural heritage corresponding implementation subject, basic requirements and working mechanism, takes two lanes mutual promotion and parallel development fac-

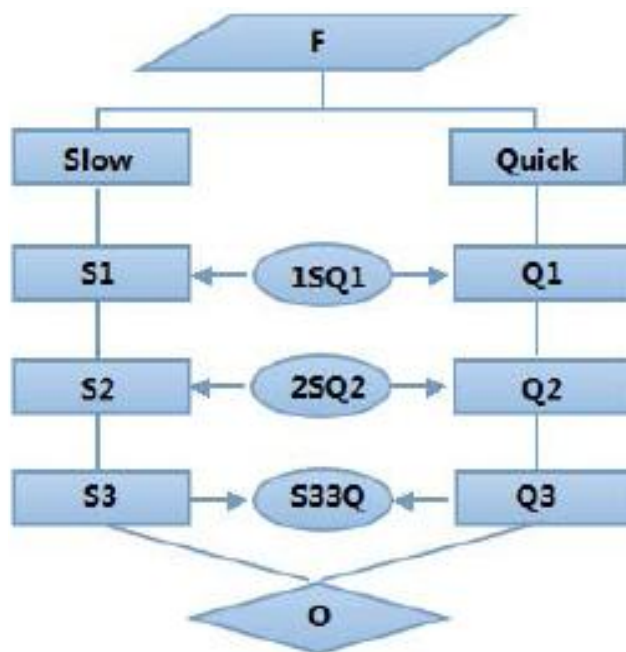


Figure 2 : Intangible cultural heritage protection and income-generating exploitation split lanes game schematic graph

TABLE 2 : Figure 2 each frame symbol definition

Symbol	Definition	Symbol	Definition
F	Intangible cultural heritage protection and income-generating exploitation	Q3	Propel to all sectors of society invest and correlated industries development
S1	Insist on original ecological environment protection inheriting	Slow	Slow lane
S2	Give government entities and heirs functions into play	Quick	Quick lane
S3	Provide exploitation and utilization cultural resources	1SQ1	Basic requirements
Q1	Use modern science and technology into exploiting and utilizing	2SQ2	Working mechanism
Q2	Arouse enthusiasm of society and public	S33Q	Mutual promotion

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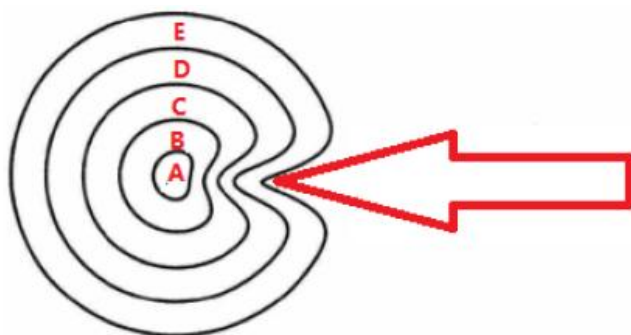


Figure 3 : Intangible cultural heritage protective value point research schematic diagram

tors, eliminates contradictory factors, achieves not mutual negative as well as mutual benefit and win-win objective, as Figure 2 show the quick slow lanes analyzing flow chart, slow lane represents insisting on original ecological environment protection and inheriting, quick lane represents innovation, exploitation, each frame symbols' definitions are as TABLE 2 show.

In diamonds from Figure 2, 0 represents productive protection.

From Figure 2 and TABLE 2 indications, it is clear that slow lane mainly highlight intangible cultural heri-

TABLE 3 : Intangible cultural heritage tourism value each evaluation indicator score criterion

Indicator symbol	10-8 (score)	8-6 (score)	6-4 (score)	4-2 (score)	2-0 (score)
P1	Very	Beautiful	Normal	Worse	Bad
P2	Very	Have	Normal	Worse	Bad
P3	Very	Have	Normal	Worse	Bad
P4	Very complete	Complete	Normal	Not complete	Incomplete
P5	Very big	Big scale	Normal	Not big	Small scale
P6	Very high extent	High extent	Normal	Low extent	Very low extent
P7	Very good load bearing	Good load bearing	Normal load bearing	Worse load bearing	Bad load bearing
F1	Full of publicity	Have publicity	Normal	Low publicity	Extreme low publicity
F2	Very long tourism period	Long tourism period	Moderate tourism period	Short tourism period	Extreme short tourism period
M21	Very well locational conditions	Good locational conditions	Normal	Worse	Bad
M22	Very high understand level	High understand level	Normal	Worse	Bad
M23	A great many quantity	Many quantity	Moderate quantity	Less quantity	Extreme little quantity
M24	Very big market	Big market	Normal market	Smaller market	Extreme little market
M31	Very high level	High level	Normal	Worse	Bad
M32	Very strong consciousness	Stronger consciousness	Normal consciousness	Weaker consciousness	No consciousness
M33	Quite in place	In place	Normal	Worse	Bad
M34	Quite in place	In place	Normal	Worse	Bad

tage natural flow law, it strives for making authentic, preventing modern thoughts and industrialization techniques excessive intervene, in such road it needs government play leading roles, while quick lane mainly highlight intangible cultural heritage values utilization, which kinds of cultural values the values own in each aspect of society; in the road it needs to propel to all sectors of society cognition degree on intangible cultural heritage, meanwhile it promotes their investments on intangible cultural heritage protection.

Due to some traditional cultural techniques focus on economic efficiency and social efficiency, in this way it can let slow lane and quick lane unified, it can carry

out productive protection on traditional art, traditional skills and traditional medicine processing items, let them on one hand can keep original nature, while on the other hand it can fit for social and market demands.

**Intangible cultural heritage value point and value quantity extracting analysis**

For intangible cultural heritage protection major linkages that is to keep its original appearance, in the appearance composing process, makes analysis of its each composite element, and intangible cultural heritage some unique elements are its important protected objects, which is also the protective value point that discusses in the chapter, then according to these value points weights



make sequence on them, carries out marginalization exploitation from backward ranking elements.

From the perspective of ensuring intangible cultural heritage projects original nature, core element is the most important one, secondary core element is secondary important, while modern science and contemporary aesthetic can properly get involved in these secondary elements, the chapter according to value core point distances and important levels, it divides protective levels, it can be divided from strong to weak as A level, B level, C level, D level and E level, as Figure 3 show the value point researches schematic diagram.

As Figure 3 shows, red big arrow represents modern science and technology as well as contemporary aesthetics intervention, outermost layer intervention content is the most, walks towards the higher levels, their intervention content would become less, therefore value point research significance can be understood from following three aspects:

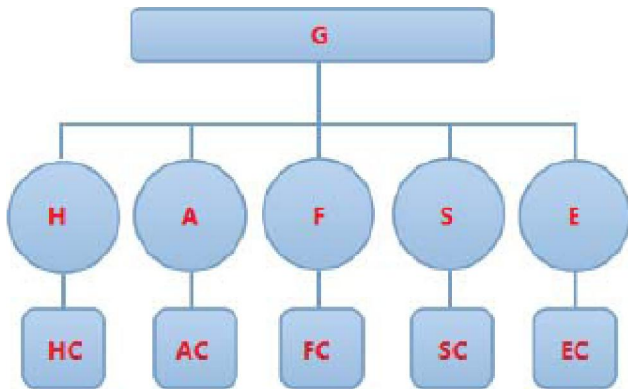


Figure 4 : Intangible cultural heritage value quantity estimation schematic diagram

- (1) It can define intangible cultural heritage project protection emphasis;
- (2) It can control modern science and technology as well as contemporary aesthetics intervention degree, so as to prevent subversive innovation;
- (3) It can maintain intangible cultural heritage project itself development “natural flow” state.

The purpose of above analysis value points researching is to analyze single intangible cultural heritage project, and the purpose of value quantity researching is to measure different projects horizontal values, we know that same level protection directory’s projects, their value quantities have also differences, for projects carrying out support protection decisive methods and

strength, it should also has distinguishes; for intangible cultural heritage projects values, it can make comprehensive value estimation on intangible cultural heritage projects from H- historical value0A-artistic value0F- impact0S- peculiarity and E- exploitation and utilization values to carry out analysis, G- value quantity after comprehensive measurement above five values, as Figure 4 showed value quantity estimation schematic diagram.

HC represents contemporary people understand ancestor one field historical development cause and effect; AC represents realm of art promotion, leading and marking effects; FC represents length in time and region influence size; SC represents human race cultural ecological diversity aspect unique effects; EC represents actual available exploitation and use commercial value and market value.

Researching significance in value quantity estimation has following three aspects values:

- 1) It possesses distinguish same kind project value quantities value;
- 2) It possesses clarifying intangible cultural heritage protection all-round purpose value;
- 3) It possesses defining protection work investment strength and preventing exploitation and utilization excess highlighting one aspect protective value.

### INTANGIBLE CULTURAL HERITAGE TOURISM VALUE ESTIMATION

#### Intangible cultural heritage tourism indicator system establishment and analysis

For intangible cultural heritage tourism value estimation system construction, it should make comprehensive evaluation from M1- ontology condition0M2- market condition and M3- social economy three aspects, from which intangible cultural heritage M1- ontology condition’s M11- heritage element value can make evaluation from P1- aesthetic appreciation value0P2- historical cultural value0P3- scientific and artistic value0P4- heritage integrity0P5- heritage scale0P6- heritage rare degree and P7- heritage available load bearing these seven aspects, and M12- heritage impact can make evaluation from its F1- publicity and F2- available tourism period two aspects; for M2-

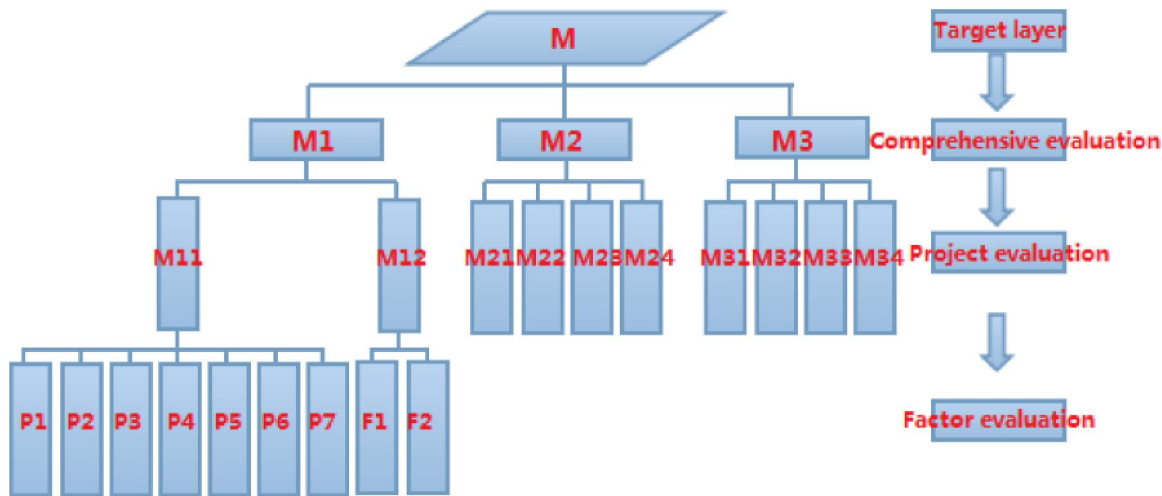


Figure 5 : Intangible cultural heritage tourism value evaluation hierarchical diagram

TABLE 4 : 1-9 order matrix average random consistency indicator<sup>[4]</sup>

1	2	3	4	5	6	7	8	9
0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.45

market evaluation, it can proceed from M21- locational conditions, M22- understand level, M23- adjacent regions scenic spots quantity and M24 customer market these four aspects; for M3 social economic conditions evaluation, it can carry out from M31- regional development overall level, M32- exploitation and opening consciousness, M33- infrastructure and M34- tourist facilities four aspects, in this way it can establish four indicator hierarchical evaluation structural system including objective layer on intangible cultural heritage tourism value, indicator hierarchical evaluation diagram structure is as Figure 5 show, Figure 5 each diagram symbol corresponding definitions as above each indicator symbols.

In Figure 5, M is objective layer that intangible cultural heritage tourism value comprehensive score.

**Each indicator score rule**

Analytic hierarchy process is a kind of quantitative criteria that decomposes decision-making total amount correlated elements as objective, criterion and project as well as other layers, in order to make quantitative analysis of each indicator, it needs to make quantization of each indicator, for every criterion final layer indicator, making quantization can make multiple objective decision-making so as to arrive at converting qualitative problems into quantitative problems, it needs to

appoint indicators before analyzing intangible cultural industry tourism value estimation system, the paper adopts 10-point scale, it divides every indicator levels into five kinds, step length of scores is 2, references national standard(GB/T 18971-2003) criterion, it makes score quantization on Table 3 every indicator remarks.

For above 18 indicators, it makes expert interview scores, then makes use of scores to define every indicator corresponding paired comparison judgment matrix, it gets every indicator weight by calculating judgment matrix, to get each indicator corresponding criterion weight, at first, calculates initialized judgment matrix each indicator paired comparison value according to geometric mean calculation method, and converts it into final matrix, after that, it can get comprehensive judgment matrix according to formula (1) showed calculation method:

$$\begin{cases} A(S) = [a(S)_{ij}]_{n \times n} \\ a_{ij} = k^* \sqrt[k^*]{\prod_{s=1}^k a(S)_{ij}}, S = 1, 2, \dots, k; i, j = 1, 2, \dots, n \end{cases} \quad (1)$$

Calculate comprehensive judgment matrix maximum feature root corresponding feature vector, and then make normalize treatment with the vector that is every indicator corresponding weight.

Consistency indicator CI calculation method is as formula (2) show:

$$CI = \frac{\lambda_{max} - n}{n - 1} \quad (2)$$

When comprehensive judgment matrix has fully con-

sistency,  $CI = 0$ , when  $CI$  gets bigger, it represents consistency becomes worse, in order to make satisfaction degree belongs defining of  $CI$ , this paper introduces 1-9 order matrix average random consistency indicator  $RI$ , as TABLE 4 show.

When comprehensive judgment matrix orders are above 2, judgment matrix consistency indicator  $CI$  and same order average random consistency indicator  $RI$  ratio is called judgment matrix random consistency proportion  $CR$ , when  $CR < 0.10$ , judgment matrix has satisfied consistency, otherwise it needs to make adjustment on judgment matrix.

**Evaluation result and analysis**

The case first class indicator has 3 pieces, second class indicator has 10 pieces, third class indicator has 9 pieces, according to TABLE 4 scores defined way, it classified indicator evaluation levels into five, evaluation set  $V$  is as formula (3) show:

$$V = \{v_1, v_2, v_3, v_4, v_5\} \tag{3}$$

In order to apply vector and matrix multiplication

cross to solve evaluation system total score, therefore it needs to set up evaluation set  $V$  into fixed form, thereupon adopts every level range maximum as the level score, which also changes into the form as formula (4) show:

$$V = \{v_1, v_2, v_3, v_4, v_5\} = \{10, 8, 6, 4, 2\} \tag{4}$$

After completing questionnaire survey table statistics, it can get single factor evaluation matrix  $R$ , apply Table 3 data calculating every indicator corresponding weight matrix  $A = (\alpha_1 \ \alpha_2 \ \alpha_3 \ \alpha_4)$ , total score  $G$  calculation is as formula (5) show:

$$G = A \circ R \cdot (10 \ 8 \ 6 \ 4 \ 2)^T \tag{5}$$

If  $AR = (\beta_1 \ \beta_2 \ \beta_3 \ \beta_4 \ \beta_5)$ , then  $A \circ R$  meet formula (6):

$$A \circ R = \frac{1}{\sum_{i=1}^5 \beta_i} AR \tag{6}$$

Finally by Wuxi intangible cultural heritage tourism value evaluation, it gets result as TABLE 5 show.

**TABLE 5 : Intangible cultural heritage tourism value evaluation result**

Heritage name	M1	M2	M3	M	Rank	Star Level	Level
Ceramic products skill	5.78	1.96	1.32	9.06	1	★★★★★	First class
Huishan clay figure	5.56	2.05	1.41	9.02	2	★★★★★	First class
Wuxi drama	4.60	2.02	1.66	8.28	3	★★★★☆	Second class
Legend of butterfly lovers	4.64	1.81	1.10	7.54	4	★★★★☆	Second class
Wuxi micro embroidery	4.30	1.54	1.02	6.86	5	★★★☆☆	Third class
Taoist music	4.35	1.02	1.01	6.38	6	★★★☆☆	Third class
Bamboo carving	4.14	1.13	1.02	6.29	7	★★★☆☆	Third class
Medicine producing technique	3.95	1.21	0.92	6.08	8	★★★☆☆	Third class
Wu Ballad	3.89	1.14	0.99	6.02	9	★★★☆☆	Third class

**CONCLUSIONS**

This paper firstly targeted China intangible cultural heritage protection status, and makes comparison with other countries in the world, it gets China current status five big issues, and analyzes the five issues causes. In order to solve China intangible cultural heritage protection status five problems, it makes game analysis from heritage protection and income-generating exploitation two aspects, and gets way to make both win-wins ben-

efit. Finally, the paper carries out hierarchical analysis of Wuxi intangible cultural heritage tourism value system, and applies expert interview and questionnaire survey gained data to make empirical research; finally it provided Wuxi intangible cultural heritage tourism value comprehensive evaluation result.

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