TOURISM INVESTMENT ATTRACTIVENESS EVALUATION SYTEM IN BELARUS (BASED ON ANALYTIC HIERARCHY PROCESS METHOD)

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The article is devoted to a method for assessing the investment attractiveness of the tourism industry of the Republic of Belarus. The main problem is the need for an integrated approach to assessing investment attractiveness. Thus, the aim of the study was to select the most important economic indicators and indices from the point of view of investment attractiveness, as well as their integration into the assessment system. As a result, an evaluation system is proposed that combines the indicators and indexes of the most important sectors in terms of investment attractiveness, built using the analytic hierarchy process method.

Key words: tourism investment attractiveness; tourism evaluation system; tourism industry development.

THE IMPACT OF TOURISM ON ECONOMICS

Taking 2018 as an example, the total revenue of Belarus's tourism industry is 1221 million US dollars, accounting for 2.0466% of the annual GDP. The development of tourism is necessary for local governments, especially those in developing countries, but because local finances cannot take care of multiple projects in different regions, foreign investment is particularly important for the development of the industry. Investors will analyze the attractiveness of environmental investment in the region or country in different dimensions, and determine the scale of investment and future development trends based on the results. At this time, building an effective tourism investment evaluation system is extremely important for the development of regional tourism

THE PROCESS OF AHP

In the perspective of selecting indicators and building the hierarchy of evaluation system, the study select single indicators that can reflect the status of various aspects of the evaluation phenomenon for synthesis. A commonly used single indicator synthesis method is to convert each indicator into an indicator that can be directly compared, and use a certain synthesis method to calculate a comprehensive indicator. Comparison of comprehensive evaluation of size, this method is a multi-index comprehensive evaluation method. For instance, tourism includes two parts: international tourism and domestic tourism. The two are different due to different reception objects, but their nature and function are basically the same. Tourism in economically developed

countries generally starts from domestic tourism and gradually develops towards international tourism. Some developing countries, due to economic backwardness, need foreign exchange for economic construction, and most of them started to develop from the international tourism industry. The development of tourism is based on and restricted by the development level of the entire national economy, and at the same time directly and indirectly promotes the development of relevant sectors of the national economy. A judgment matrix reflecting the relationship among the influencing factors is established for the total objective and sub-objectives (as well as the criteria and constraints, etc.) in the decision tree. The aij value of the matrix element is usually 1, 3, 5, 7, 9 or 1/3, 1/5, 1/7, 1/9, etc. to represent the comparison of the importance degree of a certain objective factor i and j respectively. According to the information of the judgment matrix, the judgment test is carried out on whether A meets A certain degree of consistency. Although the above method of constructing a comparison judgment matrix can reduce the interference of other factors, it objectively reflects the difference in the influence of a pair of factors. However, when synthesizing all the comparison results, it is inevitable that a certain degree of inconsistency is included. If the comparison results are completely consistent before and after, the elements of matrix A should also meet the following requirements:

$$a_{ij}a_{jk} = a_{ik}, \forall i, j, k = 1, 2, 3 \ \ldots, n)$$

Suppose that for a target μ, the each element Pi (i =l, 2..., n) has the importance of W_i (set Wi >0, ΣW_i=1), then, the$\mu = \sum_{i=1}^{n} W_i P_i$. Through this method, we can obtain the matrix. And the mean random consistency (RI), consistency index and the random consistency ratio (RI) of the total ordering would check the consistency of the matrix, the standard is that if the CR is smaller than 0.1.

Tab. 1

Mean random consistency index of 1-order to 8-order

Order	1	2	3	4	5	6	7	8
RI	0	0	0.52	0.89	1.12	1.36	1.41	1.46

$$CI = \frac{\lambda max - n}{n-1} \qquad CR = \frac{\sum_{j=1}^{m} CI(j)a_j}{\sum_{j=1}^{m} RI(j)a_j}$$

We first obtain basic information on the contribution of each component of the investment environment to the tourism investment environment through the Delphi method. In order to obtain the weight of each indicator, in the first step we will use the Delphi method to obtain the comparison matrix of the first-level indicators. And calculate its the largest eigenvalue λ_{max}, which is 5.238499461. And the standard matrix is w= (0.385067489, 0.182622888, 0.264204747, 0.088795882, 0.079308994) ^{T}.

$$A = \begin{bmatrix} 1 & 3 & 2 & 3 & 4 \\ 1/3 & 1 & 1/2 & 4 & 2 \\ 1/2 & 2 & 1 & 3 & 4 \\ 1/5 & 1/4 & 1/3 & 1 & 2 \\ 1/3 & 1/2 & 1/4 & 1/2 & 1 \end{bmatrix}$$

We can also obtain that the CI = (λ_{max}-n) / (n-1) = 0.059624865, which means the consistency of the matrix performs well while it closes to value of 0. And since the λ is 5, the mean random consistency index of fifth-order is shown as RI = 1.12. Hence the CR = CI / RI = 0.053236487. With the low value of CR, which is smaller than 0.1, it represents total hierarchical ranking results are more consistent and accept the analysis results. Through the method, we can obtain that the coefficients of first-level indicators are 0.3851 for Time series (A1), 0.1826 for Infrastructure (A2), 0.2642 for Social elements (A3), 0.0888 for Tourism resource (A4) and 0.0793 for Environment (A5). The study obtained the final evaluation system which is shown in Table 2 through this method. Data standardization is also an essential part of the model since the different indicators have its range. For negative indicators such as carbon emission, we need use equation: $C = (X_{max} - X) / (X_{max} - X_{min})$; for positive indicators, the process is $C = (X - X_{min}) / (X_{max} - X_{min})$.

THE SUGGESTIONS BASED ON EVALUATION SYSTEM

Through the evaluation system, we can see that in the first-level indicators, the proportion of economic and social factors is extremely important. From an empirical point of view, investors first consider the safety and benefits of investment. In socially unstable areas, investment will be disrupted and cost losses. To avoid such losses, investors will give priority to socially stable areas, Followed by consideration of tourism resources and other issues.

Tab. 2

The hierarchy of evaluation system

First-level indicators (A)	Second-level indicators (B)	Third-level indicators (C)
A1 Economic 0.3851	B1 Economic development 0.9000	C1 GDP per head 0.4905
		C2 International trade 0.3119
		C3 Tertiary industry 0.1976
	B2 Condition development 0.1000	C4 Civilian vehicle 0.1000
A2 Infrastructure 0.1826	B3 Transport condition 0.2500	C5 Highway density 0.5000
		C6 Annual passenger traffic 0.5000
	B4 Facilities 0.7500	C7 Dining conditions 0.4066
		C8 Accommodation conditions 0.3126
		C9 Shopping condition 0.1679
		C10 Entertainment conditions 0.1129

Continuation of table 1

A3 Social elements 0.2642	B5 Cultural 0.5000	C11 Number of universities 0.0865
		C12 Number of people have college enrollment in ten thousand 0.2854
		C13 Custom characteristics 0.3375
		C14 Tourism image building 0.1642
		C15 Hospitality quality 0.1264
	B6 Political 0.5000	C16 Social stability 0.3431
		C17 Tourism preferential policies 0.1752
		C18 Legal perfection and law enforcement 0.1716
		C19 Tourism industry positioning 0.1694
		C20 Regional comprehensive economic status 0.1408
A4 Tourism resource 0.0888	B7 Subjective resource 0.7500	C21 Number of single tourism resources 0.5000
		C22 Tourism resource reputation 0.5000
	B8 Tourism service 0.2500	C23 Tourism service quality 0.7500
		C24 Total number of travel agencies 0.2500
A5 Environment 0.0793	B9 Natural environment 0.7500	C25 Geographic location 0.2500
		C26 Climate suitability 0.7500
	B10 Environment protection 0.2500	C27 Carbon emission 0.7500
		C28 Urban green area 0.2500

On the other hand, infrastructure is also an important indicator that determines the attractiveness of tourism investment, in which accommodation and dining conditions are particularly important. Local governments can refer to this option to improve the quality of catering and accommodation services, and combine local characteristics to provide irreplaceable services, thereby enhancing investment attractiveness.

References

1. *Vengesayi, Sebastian.* A conceptual model of tourism destination competitiveness and attractiveness. Proceedings of the 2003 ANZMAC Conference. editor / R Kennedy. Adelaide SA Australia: ANZMAC, 2003. pp. 637 – 647.
2. *Armstrong, H W; Taylor, J.* Regional Economics and Policy. 3rd ed. Oxford Blackwell, 2000. 448 p.
3. 兰肇华，邓志维.基于层次分析法的房地产投资环境比较分析[f}1.统计与决策，2006(15):27-28.
4. *Damodaran A.* Investment valuation: Tools and techniques for determining the value of any asset [M].John Wiley&Sons,2014.-992 p.
5. 刘晓燕.近10年新疆旅游业投资环境的动态评价分析[[J].资源与产业，2009,11(02):102-107.
6. 郭敏.旅游投资环境评价研究〔D]华中师范大学，2005.