

Based on Entropy Right TOPSIS Method—Taking Guangxi Province As an Example

Zixu Huo

Guangxi University, Nanning 530004, China.

Abstract: This paper chooses Guangxi as a case study area in ethnic areas, and measures tourism brands in ethnic areas by the method of entropy weight TOPSIS. The study found that among the scores of tourism brands in Guangxi, Guilin ranked first, followed by Nanning ranked second, and the scores of Wuzhou, Qinzhou, Fangchenggang, Guigang and guests were all below 10 points. Brand elements, brand investment elements, brand condition elements and brand development conditions are all driving factors of tourism brand development, and they are also the core of achieving high-quality tourism brand development. This paper not only enriches the theoretical system of tourism brand in ethnic regions, but also has guiding significance for local governments to improve the service supply level of destinations.

Keywords: Entropy Weight Method; Ethnic Regions; Tourism

1. Introduction

Tourism brand is the core competitiveness of tourism destination to occupy a dominant position in the tourism market, drive tourism consumption and promote the growth of tourism economy. For the increasingly fierce competition of tourism enterprises, only by constantly strengthening the shaping of brand competitiveness, can we realize the sustainability of enterprise development force[1]. In China, the core of all kinds of brands is basically that the government organizes the implementation, and the government's attention, leadership and policies objectively affect the regional branding[2]. In recent years, under the joint efforts of the government and tourism enterprises, tourism brands have shown explosive growth in tourist destinations, such as national A-level tourist attractions, star-rated hotels, all-region tourism demonstration zones, national tourist resorts, etc. In the era of more and more attention to tourism experience, tourists yearn for destinations with spiritual enjoyment, self-growth and get rid of the pressure of modern society, and the role of tourism destination brand is particularly important[3]. The integrated development of traditional culture and tourism industry in ethnic areas is not only the integration and innovation of cultural industry and tourism industry, but also can form a unique tourism brand in ethnic areas. Guangxi has 24 ethnic groups, including Zhuang, Han, Yao, Miao, Beijing and Mongolia[4]. The cultural heterogeneity determines that the ethnic areas can build a differentiated tourism brand image based on culture[5]. In terms of cultural and tourism integration, in recent years, Guangxi is committed to turning tourism brands into a good carrier to promote the dissemination of national culture, convey national cultural confidence, and enhance the strength of national spirit. Therefore, it is necessary to study how tourism brands are measured in ethnic regions.

2. The entropy value method calculates the index

Tourism brand is a comprehensive tourism attraction based on tourism resources and building tourism attraction as the core. At present, there is no unified standard and conclusion on the comprehensive evaluation method of tourism brands, and the evaluation indicators are also different. At present, there is no unified standard and conclusion on the comprehensive evaluation method of tourism brands, and the evaluation indicators are also different. Referring to the previous literature, this paper selects the four elements of brand composition, brand investment, brand conditions and brand development, and constructs an evaluation index system of 19 indicators in four dimensions to comprehensively measure the Guangxi tourism brand. According to the original data, set the n -item objects and the m -item evaluation index, and the original value of the i -item- j -item evaluation index of the u -th object is expressed. The specific formula is as follows: the entropy method is used to analyze and measure each index to obtain the comprehensive index of tourism brand. The data is calculated by the following formula, and the data is normalized first: z_{uj}

$$x_{uj} = \frac{z_{uj} - \min(z_j)}{\max(z_j) - \min(z_j)} \quad (u = 1, 2, \dots, n) \quad (1)$$

$$P_{uj} = \frac{x_{uj}}{\sum_{u=1}^n x_{uj}} \quad (j = 1, 2, \dots, m) \quad (2)$$

$$E_j = -\ln(n)^{-1} \sum_{u=1}^n (p_{uj} \ln p_{uj}) \quad (3)$$

Determine the weight of each index:

$$W_j = \frac{1 - E_j}{\sum_{j=1}^m 1 - E_j} \quad (4)$$

Therefore, the comprehensive scores of each are:

$$H_u = \sum_{j=1}^m x_{uj} W_j \quad (5)$$

The weight of each index in the Guangxi tourism brand evaluation index system (Table 1) and the Guangxi tourism brand comprehensive index of Guangxi tourism brand (Table 2) can be calculated.

Table 1 Guangxi Tourism Brand Evaluation Index System

Target layer	The standard layer	Index layer	weight
Tourism brand	Brand composition elements	Grade A scenic spots (3A, 4A, 5A)	0.0542
		Rural tourism area	0.0528
		Star-rated farmhouse	0.0529
		Tourist resort	0.0505
		Regional tourism demonstration area	0.0437
		Guangxi characteristic tourism famous county	0.0497
		3 Star hotels	0.0549
		intangible cultural heritage	0.0536
		travel agency	0.0526
	Brand input elements	Expenditure on science and technology	0.0524
		Culture, sports, sports and media expenditure	0.0528
		Transportation expenditure	0.0534
		Expenditure on energy conservation and environmental protection	0.0521
	Brand condition elements	per capita gross domestic product	0.0547
		Per capita disposable income of urban residents	0.0555
		Per capita disposable income of rural residents	0.0554
	Brand development conditions	The number of visitors	0.0540
		The number of domestic tourists received	0.0540
The number of inbound tourists received		0.0508	

Table 2 Comprehensive Index of Guangxi Tourism Brand

	2013	2014	2015	2016	2017	2018	2019	Comprehensive score
Nanning	21.0695	24.2236	27.6111	31.8792	35.3208	41.6848	44.8319	32.3744
Liuzhou	11.8932	13.3973	14.7298	17.8446	18.6535	22.1995	24.9957	17.6734
Guilin	24.1965	27.0682	28.9648	32.1882	37.7392	46.2710	52.5573	35.5693
Wuzhou	5.9783	7.1815	7.3108	8.0666	10.0371	11.3179	12.7990	8.9559
Beihai	7.6281	8.3600	9.2901	10.8464	12.8764	15.0551	17.1377	11.5991
Fangchenggang	6.8376	7.2362	7.9873	8.2380	8.6031	9.5058	11.1199	8.5040
Qinzhou	5.2450	5.3928	6.4778	8.6275	11.1386	10.4110	12.0711	8.4805
Guigang	4.5795	5.1555	5.3376	5.7526	6.6315	8.0786	10.8216	6.6224
Yulin	5.4623	6.4825	7.3680	9.3449	12.1151	15.3426	17.5098	10.5179

Baise	9.8469	11.5822	12.5445	15.4662	16.8731	20.1653	22.2683	15.5352
Hezhou	5.2253	5.5351	6.4906	7.6230	8.8412	11.0359	13.0530	8.2577
Hechi	9.1400	10.1978	11.1282	12.9197	14.0201	16.1250	17.6429	13.0248
Laibin	4.3209	6.0570	6.2617	7.0147	8.0467	9.4070	11.8515	7.5656
Chongzuo	5.2989	5.9278	7.0655	9.9894	12.1654	15.7756	14.8096	10.1475

As can be seen from Table 2, with the growth of time, the score of tourism brands in all cities shows an growth state. On the list of comprehensive scores, Guilin ranked first, followed by Nanning and second, with Wuzhou, Qinzhou, Fangchenggang, Guigang and Laibin all scoring below 10 points.

3. The conclusion

In this paper through the TOPSIS entropy method of the measurement of ethnic region tourism brand and the spatial distribution of Guangxi tourism brand, ethnic region tourism resources, tourism employment, tourism investment capital investment tourism brand, for the local development of the tourism and related industry development has an important role. To better promote the development of national areas of high quality tourism brand, need brand elements, brand input elements, brand conditions, brand development conditions measured around the index, explore tourism and culture, sports, transportation, energy conservation and environmental protection and other fields of fusion development path, the implementation of cultural tourism, health tourism, safe tourism, green tourism to create policy, not only promote the local economic development, more to highlight tourism and industry development go hand in hand.

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