

Research on Rural Tourism Development Mechanism Based on SWOT-QSPM Model: Yangshuo County, Guangxi as an Example

Shadan Sun^{1a}, Jiacheng Yang^{1b*}, Yuhan Bao^{1c}, Xiaofang Chen^{1d}

2122310346@st.gxu.edu.cn ^a, 2122310308@st.gxu.edu.cn ^b, 2222310248@st.gxu.edu.cn ^c,
2222310217@st.gxu.edu.cn ^d

School of Public Administration, Guangxi University, Nanning, Guangxi, China ¹

Abstract. At present, the strategy of rural revitalization is fully implemented, and rural tourism, as an important path to boost rural revitalization and promote the high-quality development of the rural economy, is in urgent need of research related to it. This paper applies the combined SWOT-QSPM approach to quantify the impact of rural tourism industry in Yangshuo County by constructing a quantitative strategic planning matrix of driving factors and cross-analysis, and quantifies each factor in terms of the importance of different influencing factors and the intensity of their activities, as well as quantitatively evaluating the proposed development strategies. Among the six development strategies, "making full use of tourism resources through the rural revitalization strategy" scored the highest, at 4.65. Based on the theory of regional development path dependence, this paper constructs a theoretical framework for rural tourism development and adopts the multivariate logistic regression model to determine the most representative influencing factors, which enriches the mechanism of rural tourism development and analyses the interrelationships between the rural economy, society, and natural environment and its tourism industry from a multidimensional perspective, thus expanding a new way of thinking in the direction of rural tourism research.

Keywords: Rural revitalisation; Rural tourism; Influence factors; SWOT; QSPM

1 Introduction

The tourism industry originated in the 19th century and has grown by leaps and bounds in the 20th century. As an important branch of tourism, rural tourism has received extensive attention and research worldwide in recent years, mainly focusing on the following two aspects: on the one hand, scholars have discussed the connotation of rural tourism in terms of economy and society, natural environment and participants. Sharpley defines rural tourism as the involvement of tourists in activities in rural areas, focusing on experiences rooted in nature and local culture [1]. However, existing academic research has not provided a unified explanation of the definition of rural tourism, and most scholars have defined it according to specific research focus directions. On the other hand, the development of rural tourism is mainly studied at home and abroad from the direction of operation mode and expansion prospect. Scholars focus on exploring the relationship between rural revitalization policies and rural tourism, including the policy background, the impact of policy content on rural tourism, and the future development prospects of rural tourism [2]. However, the above studies are less concerned with the internal

and external factors affecting the development of rural tourism. Therefore, there is a need to further deepen the research on the factors affecting the development of rural tourism in the context of rural revitalization[3]. This paper chooses to adopt the SWOT-QSPM model, combining qualitative and quantitative analysis methods, and at the same time selects the Logistic regression model to assist in identifying scientific and significant internal and external driving factors, to make a comprehensive assessment of the strengths, weaknesses, opportunities and threats of rural tourism in County Yangshuo, to take into full consideration of the interactions between the various factors and to carry out a cross-tabulation analysis[4], with the aim of providing effective strategies and targeted recommendations for regions trying to develop or in the process of developing rural tourism, and thus to provide a reference for the development of China's rural tourism in the future, both theoretically and practically.

2 Methodology

Multivariate Logistic regression model (Multivariate Logistic regression model) as a statistical analysis method, used to study the effect of multiple independent variables on a binary dependent variable[5], this paper adopts the multivariate Logistic regression model to select the driving factors affecting the rural tourism, in order to assist the QSPM matrix method and SWOT analysis to conduct scientific research.

2.1 Multiple logistic regression models

In order to verify the influence of each driver on the development of rural tourism and to determine the strengths (S) and weaknesses (W) of the internal drivers and the opportunities (O) and challenges (T) of the external drivers, the multivariate logistic regression model constructed in this paper is:

$$\ln \left(\frac{p(y \leq j | x)}{1 - p(y \leq j | x)} \right) = \varepsilon_j - (\alpha + \sum_{i=1}^k \beta_i x_i) \quad (1)$$

$$p(y \leq j | x) = \frac{e^{\varepsilon_j - (\alpha + \sum_{i=1}^k \beta_i x_i)}}{1 + e^{\varepsilon_j - (\alpha + \sum_{i=1}^k \beta_i x_i)}} \quad (2)$$

Where y is the dependent variable denoting the impact on tourism in Yangshuo County, x is the independent variable denoting each driver, $P(y \leq j | x)$ denotes the cumulative probability of categorization j and the following categorizations, $j=1,2,3,4,5$ (impact from smallest to largest), x_i denotes the i th factor affecting tourism in Yangshuo County, α is the intercept, β is the bias regression coefficient, and ε is the cut-off point.

2.2 SWOT-QSPM model

Based on the two parameters of drivers and effective scores and weights identified by the multivariate logistic regression model, this paper quantitatively assesses the degree of influence of each driver and constructs the QSPM matrix[6]. On this basis, this paper uses SWOT cross-tabulation analysis to perform strengths and opportunities cross-tabulation, weaknesses and opportunities cross-tabulation, strengths and threats cross-tabulation and weaknesses and threats cross-tabulation to derive feasible strategies and their quantitative scores.

3 Empirical analysis

3.1 Multiple logistic regression analysis

In order to determine the representativeness and scientific of the selected driving factors, this paper carries out a preliminary calculation of the mean value of the scores of each driving factor, and a multivariate logistic regression analysis of the internal and external driving factors affecting the development of rural tourism in Yangshuo County, as shown in Table 1.

Table 1. Analysis of Multiple Ordered Logistic Regression Models for Internal and External Factors.

	Independent variable	Bias regression coefficient	Significance	Comparison of advantages
Inside	Accessibility	4.51	0.01	0.12
	Status of tourism resources	3.49	0.02	0.13
	Characteristic Folk Culture	2.87	0.03	0.04
	Level of tourism services	-4.63	0.01	0.15
	Structure of investment entities	-4.21	0.02	0.12
Outside	Relevant national and local policy environment	4.65	0.01	0.16
	The state of the business environment	4.06	0.02	0.11
	Strategic vision and entrepreneurial attitude of managers	3.01	0.04	0.06
	Sustainability	-4.89	0.02	0.15
	The problem of homogeneous competition	-4.72	0.01	0.12
	Overall planning level	-2.78	0.03	0.04

The significance of all drivers covered in the questionnaire is less than 0.05, which means that all drivers have an impact on the development of rural tourism in Yangshuo County. Regarding the internal influencing factors, through the positive and negative partial regression coefficients, the partial regression coefficients of "transportation accessibility", "tourism resources" and "characteristic folk culture" are all positive, so they are Yangshuo County's own advantageous factors. Combined with the Advantage Ratio $\text{Exp}(\beta)$, it can be seen that the Advantage Ratio $\text{Exp}(\beta)$ of "Transportation Accessibility" and "Status of Tourism Resources" are above 0.1, which is an obvious advantage. From this, it can be determined that convenient transportation conditions and diversified tourism resources are significant advantageous factors for the development of rural tourism in Yangshuo County. Similarly, the internal disadvantages of Yangshuo County's rural tourism development are the tourism service level to be improved and the unreasonable structure of the investment body, the external opportunities are the national and local policy environment and the business environment, and the external challenges are the poor sustainability and homogenization of the competition.

3.2 Yangshuo county rural tourism development SWOT individual analysis

Based on the questionnaire survey and statistical yearbook data, this paper comprehensively assesses the internal and external factors affecting the development of rural tourism in Yangshuo County. And by examining the importance and reality of each factor, weighting and scoring, t

he estimation matrix of internal and external factors of QSPM model was established, as shown in Table 2.

Table 2. Estimation matrix of internal and external factors.

Internal and external factors	Weights	Effective score	Total score
S ₁ Easy accessibility	0.35	4.00	1.40
S ₂ Diversified tourism resources	0.25	4.00	1.00
Strength score	0.60	8.00	2.40
W ₁ Tourism services to be upgraded	0.20	3.00	0.65
W ₂ Unreasonable structure of investment bodies	0.20	2.00	0.40
Weakness score	0.40	5.00	1.05
O ₁ Relevant national and local policy environment	0.35	4.00	1.40
O ₂ The state of the business environment	0.30	3.00	0.90
Opportunity score	0.65	7.00	2.30
T ₁ Less sustainable	0.20	4.00	0.80
T ₂ The problem of homogeneous competition	0.15	3.00	0.45
Threat score	0.35	7.00	1.25

3.2.1 Strengths analysis

Taken together, Yangshuo County's advantages are mainly reflected in two aspects: geographical location and diversification of tourism resources. Both of them have obvious influence on the development of rural tourism. In the matrix, the weight of the county's superior geographic environment is 0.35. Transportation conditions, as the key to connecting sources and destinations, once the lack of good transportation conditions will lead to the inability to connect sources and destinations, resulting in the inability to form the tourism flow, and at the same time will make the tourism resources lose their practical significance. The effective score of this factor is 4.

3.2.2 Weakness analysis

Despite a series of achievements in the economic development of rural tourism in Yangshuo County, a series of problems have arisen with the development and changes in the economic environment. The service quality and level of different scenic spots, farmhouses and other tourism service providers are not uniform, and there are more problems such as poor service and communication difficulties, and such problems will not only affect the sense of experience of tourists' travel, but also the spread of a good reputation for tourism. In addition, in terms of the level of tourism services, Yangshuo County still has much to improve. Firstly, the county needs to strengthen its infrastructure in terms of tourism services. This includes public toilets, rubbish disposal, etc., which are necessary infrastructure for providing good services. Currently, tourism infrastructure in some areas is still inadequate, which has a great impact on tourists' experience. Secondly, the county needs to strengthen the training of tourism service personnel in order to enhance their service attitude and ability. In the process of receiving tourists and providing services, tourism service personnel need to have a warm and friendly attitude,

professional knowledge and efficient working ability, and be able to provide tourists with accurate and convenient information and assistance. From the field research, 66% of the people rated Yangshuo County's tourism service level as "medium" or below, and the service attitude and professionalism of its tourism service personnel need to be further improved. Therefore, how to further improve the level of tourism service in the county is the second major problem it faces, so its effective score is 2 points.

3.2.3 Opportunity analysis

Opportunities for Yangshuo County's tourism development come from two main sources: the business environment on the one hand, and the national policy environment on the other. The combination of national policies is the key to the development of rural tourism, and national policies can provide strategic guidance and policy support for the countryside, promote resource integration and industrial upgrading, but relatively speaking, even if a good business environment is created, if there is a lack of clear policy guidance, the high-quality development of rural tourism will be difficult to achieve. Therefore, the weights of "national and local policy environment" and "business environment" are 0.35 and 0.30 respectively, from the aspect of "national and local policy environment" to "business environment". From the aspect of "national and local related policy environment", in 2020, the Ministry of Agriculture and Rural Development issued the "National Rural Industry Development Plan (2020-2025)", which mainly mentions that, in the context of comprehensive rural revitalisation, the development of rural culture and tourism is a new type of industry based on the countryside, serving the city, and ultimately achieving the goal of increasing farmers' production and income. In 2021, the National Tourism Administration issued a document, taking rural tourism development as an important part of the national rural revitalisation strategy, all of which provide policy environment opportunities for rural tourism development and rural revitalisation in Yangshuo County, so its effective score is 4 points. In addition to the national policy environment, creating a good business environment is another important opportunity for rural tourism development in the county. A good business environment can attract more enterprises and investors to participate in the development of rural tourism and help to improve service quality and provide more service options for tourists. In addition, the improvement of the business environment can also promote the standardised development of rural tourism by optimising the approval process, simplifying the procedures and strengthening the supervision and management of rural tourism practitioners, so its effective score is 3.

3.2.4 Threat analysis

Rural tourism development in Yangshuo County faces two major threats, namely homogenised competition and sustainability issues. Others found that although tourists have a high degree of acceptance of homogenisation of natural scenery as well as cultural and spiritual connotations, they have a low degree of acceptance of homogenised tourism activity projects and homogenisation of commercial activities and services[7]. In addition, due to the high requirements of sustainable development on carbon emissions, some traditional tourism experience projects are difficult to meet their standards and requirements, and are also prone to face higher costs in the process of industrial transformation. David et al. argued that protecting the ecological environment of tourism areas and improving the environmental awareness of local residents and tourists is the key to the sustainable development of rural tourism[8], which not only promotes the h

ealthy development of rural tourism as well, but also further enhances the endogenous dynamics of the economic development of rural areas. To sum up, this paper believes that the problem of "poor sustainable development" is more prominent in the process of rural tourism development, so its weight is set to 0.20, and the "homogeneous competition problem" is 0.15.

3.3 Yangshuo county rural tourism development SWOT cross analysis

The development of rural tourism in Yangshuo County is the product of the joint action of multiple internal and external factors. Based on the SWOT analysis, this paper will conduct SWOT cross-analysis on each factor to examine the development status and real conditions of rural tourism under the influence of different compound factors and refine the corresponding feasible strategies.

3.3.1 Strengths-opportunities cross-tabulation analysis

YANGSHUO County, with its geographic and transport conditions and diversified tourism resources, is highly compatible with the current rural revitalisation strategy advocated by the state. By cross-analysing the advantages and opportunities of rural tourism development in the county, this paper proposes two strategies, namely, "making full use of tourism resources through the rural revitalization strategy" and "expanding transport advantages and improving the business environment". Since 2017, in response to the national rural revitalisation strategy, the county has fully explored its rich natural resources and unique local culture, and launched diversified rural tourism products and activities, attracting a large number of tourists and showing a diversified development trend of rural tourism. At present, the total mileage of the county's roads is 922.20 km, and the county has realised that all townships are connected to highways of Grade III or above, and 99 administrative villages have 100% access to hardened roads, so that the transport conditions have been further improved. Relying on transport advantages, the county's tourism development is a steady growth trend. According to the single analysis of opportunities, in addition to the national policy environment, whether Yangshuo County has a good business environment is another important opportunity for its development. At present, the county to promote the "cross-provincial pass, one-stop service" mode[9], grass-roots approval process reform comprehensively, the realization of the full electronic registration, a window can be accepted to complete the business proportion of 99.41%, the fourth in the Guangxi County Business Environment Evaluation Report. Therefore, we should focus on the status of the business environment, to create better conditions for the development of tourism, as shown in Table 3.

Table 3. S-O Quantitative Strategic Plan Matrix.

Factor	SO ₁ Leveraging the rural revitalization strategy and making full use of tourism resources			SO ₂ Expanding transport advantages and improving the business environment		
	Weights	Effective score	Total score	Weights	Effective score	Total score
S ₁ Diversified tourism resources	0.35	4.00	1.40	0.20	4.00	0.80
S ₂ Easy accessibility	0.25	3.00	0.75	0.25	2.00	0.55
Strength score			2.15			1.35

O ₁ The state of the business environment	0.35	4.00	1.40	0.35	4.00	1.40
O ₂ The state of the business environment	0.30	3.00	0.90	0.30	2.00	0.60
Opportunity score			2.50			2.00
Total score			4.65			3.35

3.3.2 Weakness-Opportunity cross analysis

According to the disadvantages of the single analysis can be obtained, Yangshuo County tourism industry mainly exists in two aspects of internal and external deficiencies, namely, internal investment in the main structure of the irrational problem and the level of tourism reception needs to be improved. This can be found through a comprehensive assessment of disadvantages and opportunities: (1) When the main body of investment is mainly concentrated in the village collectives and the government accounted for a high proportion of the village collectives and the government plays an important role in guiding and planning the economic development, at this time, the guidance of the national policy can provide a clear direction for the investment, to provide the appropriate support and incentives, which will lead to the rapid growth of the economy. (2) When the level of service and hospitality in a tourist destination is not high, actively improving the business environment is the key to raising the level of service and hospitality. A favorable business environment helps to promote technological innovation and management improvement, and encourages tourism service operators to adopt advanced technology and management experience, thereby improving the efficiency and quality of service reception. Therefore, in order to enhance the competitiveness and attractiveness of tourist destinations, it is necessary to focus on upgrading the level of tourism services and hospitality[10], as shown in Table 4.

Table 4. W-O Quantitative Strategic Plan Matrix.

Factor	WO ₁ Responding to national policies and stimulating new investment dynamics			WO ₂ Improving the business environment and upgrading the level of hospitality		
	Weights	Effective score	Total score	Weights	Effective score	Total score
W ₁ Unreasonable structure of investment bodies	0.20	3.00	0.60	0.20	4.00	0.80
W ₂ Tourism services to be upgraded	0.20	2.00	0.40	0.20	2.00	0.40
Weakness score			1.00			1.20
O ₁ Relevant national and local policies	0.35	4.00	1.40	0.35	4.00	1.40
O ₂ The state of the business environment	0.30	3.00	0.60	0.30	3.00	0.90
Opportunity score			2.30			2.30
Total score			3.30			3.50

3.3.3 Strengths-Threats crossover analysis and Weaknesses-Threats crossover analysis.

Threats to rural tourism in Yangshuo County come from two main sources: homogenized competition and environmental problems brought about by the rapid development of tourism. When the rural tourism industry faces homogenized competition, it should tap into its core competitiveness, actively exert its resource advantages, and make use of the unique cultural, scenic, historical and other resource advantages of the tourist areas to provide unique tourism products and experiences to attract tourists[11]. At the same time, it is also necessary to focus on innovation and differentiation to create a unique brand image in order to occupy an advantageous position in the competitive market, as shown in Table 5.

Table 5. S-T Quantitative Strategic Plan Matrix.

Factor	ST ₁ Improving infrastructure and focusing on sustainable development			ST ₂ Taking advantage of the location and creating a special tourism brand		
	Weights	Effective score	Total score	Weights	Effective score	Total score
S ₁ Diversified tourism resources	0.35	4.00	1.40	0.35	3.00	1.05
S ₂ Easy accessibility	0.25	4.00	1.00	0.25	4.00	1.00
Strength score			2.45			2.05
T ₁ Less sustainable	0.20	4.00	0.80	0.20	3.00	0.60
T ₂ The problem of homogeneous competition	0.15	3.00	0.45	0.15	4.00	0.60
Threat score			1.25			1.20
Total score			3.70			3.25

As shown in Table 6, it can be seen that whether the tourism industry in Yangshuo County is facing the problem of irrational internal investment structure or external homogenized competition, these are essentially caused by the managers' unclear grasp of the core values of rural tourism and the bias in policy formulation and implementation.[12].Therefore, it is crucial to always make full use of tourism resources with the help of rural revitalization strategy. The rural revitalization strategy can promote the economic transformation of tourist places and inject new development power into the place[13]. At the same time, making full use of tourism resources can break homogenized competition and create unique tourism value and attraction. As a result, it can realize the sustainable development of tourist places, enhance competitiveness and provide tourists with differentiated tourism experiences.

Table 6. W-T Quantitative Strategic Plan Matrix.

Factor	WT ₁ Leveraging the rural revitalization strategy and making full use of tourism resources		
	Weights	Effective score	Total score
W ₁ Tourism services to be upgraded	0.20	4.00	0.80
W ₂ Unreasonable structure of investment bodies	0.20	3.00	0.60
Weakness score			1.40

T ₁ Less sustainable	0.20	4.00	0.80
T ₂ The problem of homogeneous competition	0.15	3.00	0.45
Threat score			1.25
Total score			2.65

4 Conclusions and suggestions

4.1 Conclusions

This paper attempts to combine the SWOT analysis with the QSPM matrix to provide a qualitative and quantitative assessment of rural tourism in Yangshuo County, taking into account all factors of regional development, and by summarizing the rural tourism development strategy of the county as determined by the study, it proposes reasonable opinions and suggestions for other regions in the country that are developing rural tourism. This paper analyses the influencing factors of rural tourism development in Yangshuo County from the four dimensions of strengths(S), weaknesses(W), opportunities (O), and threats (T) by adopting the posture analysis and quantitative strategic planning matrix model and combining it with the multivariate Logistic regression model, and draws the following three research conclusions. (1) Overall, the development of rural tourism in Yangshuo County is influenced by internal and external factors, the total score of external factors is 3.55, the total score of internal factors is 3.45, and the influence of external factors is more significant than that of internal factors. And the advantage score is 2.40, the disadvantage score is 1.05, the advantage is much larger than the disadvantage, the opportunity score is 2.30, the threat score is 1.25, the opportunity is much more than the threat. (2) This paper quantitatively analyses and evaluates the relevant data based on the situational analysis and quantitative strategic planning matrix model, and proposes six strategies. Based on the quantitative analysis, it can be seen that "making full use of tourism resources through the rural revitalization strategy" has the highest score of 4.65, and is identified as the most effective strategy. (3) Of the six strategies, the lowest score is 3.25 for "capitalizing on location and creating a distinctive tourism brand", which indicates that Yangshuo County is facing a less prominent problem of homogenized competition, and that its location advantage is not very significant. This strategy can be placed at the back of the list when formulating and implementing relevant policies, but its impact cannot be completely ignored.

4.2 Suggestions

This paper shows that national policies play an important role in guiding and promoting the development of rural tourism. It is hoped that this study will provide lessons, references and suggestions for other regions of the country that are trying to develop or are developing rural tourism. (1) Drawing on the national rural revitalisation strategy, formulate development plans tailored to local conditions and make full use of the diversified rural tourism resources in various regions. The implementation of the National Rural Revitalisation Strategy has provided strong support for rural tourism in terms of policies and resources, creating a favourable external environment. (2)The sustainable development of rural tourism should focus on ecological economy. The government should establish a sound system of laws and regulations in policy formulation, clarify the development direction and goals of rural tourism, and strengthen the protection and management of the ecological environment. At the same time, the protection and restoration of th

e ecological environment needs to be further strengthened, and the sustainable development of the ecological environment should be realised through the establishment of ecological protection zones, the promotion of ecological restoration projects and other measures. The limitation of this paper lies in the fact that due to the limitation of time, region and other kinds of factors, only one case of Yangshuo County of Guangxi Zhuang Autonomous Region was selected for the study, failing to analyse the development of rural tourism in other places of the country in depth, and the scope of the study can be expanded in the future by selecting richer sample cases for further exploration.

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