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Study on Customer Satisfaction and its Influencing Factors in Wulong Tourism

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Abstract: *This study focuses on customer satisfaction with the two-day-one-night tour in Wulong, aiming to identify key factors influencing customer satisfaction through scientific methods. By analyzing online reviews from Ctrip.com, combined with quantitative satisfaction measurement and semantic network analysis, this study employs multiple regression analysis to investigate influencing factors. The research reveals seven critical factors affecting customer satisfaction: tourism service and management, hotel quality, environmental atmosphere, tourism commodities, transportation, tourism landscapes, and catering services. Among these, tourism service and management exerts the most significant impact. The findings provide actionable insights for Wulong's tourism administration to optimize services and enhance customer satisfaction, thereby fostering customer loyalty and promoting sustainable development of local tourism.*

Keywords: *Wulong Tourism; Customer Satisfaction; MultipleRegression; Service Quality.*

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I. INTRODUCTION

Wulong District in Chongqing boasts 5A-level scenic spots such as the Tiankeng Difeng (Natural Bridges and Karst Gorges) and Fairy Mountain, renowned for their unique karst landforms and rich natural landscapes, making them popular destinations for domestic and international tourists. However, under the dual pressures of intense market competition and diversified customer demands, improving customer satisfaction has become a critical challenge for Wulong's tourism industry. This study utilizes online reviews from Ctrip.com to quantify customer satisfaction, integrates semantic network analysis, and applies a multiple regression model to systematically explore key determinants of customer satisfaction in Wulong tourism.

Online reviews have gained prominence in service industry research due to their cost-effectiveness in data collection, serving as a valid tool for measuring product quality and reputation. This approach enables scholars to refine the scope of factors influencing tourist destination satisfaction based on case-specific contexts. By constructing a comprehensive evaluation index system, this study aims to provide strategic guidance for Wulong's tourism development, optimize service delivery, enhance customer satisfaction and loyalty, and ultimately drive the sustainable growth of Wulong's tourism sector.

II. Literature Review on Customer Satisfaction

Customer satisfaction refers to the discrepancy between customer expectations and actual perceptions. Initially proposed by Pizam et al. based on customer satisfaction theory, this conceptual interpretation aligns with the theoretical framework of customer satisfaction and has been widely accepted in tourism academia. Chon et al., while investigating the role of destination image in customer satisfaction, developed a mediating theoretical framework to explain customer satisfaction. As a crucial indicator reflecting scenic area quality, the influencing factors of customer satisfaction have garnered extensive attention from scholars globally.

Lian Yi and Wang Xia constructed a Tourism Destination Customer Satisfaction Index (TDCSI) assessment model and established corresponding evaluation criteria. Li Ying developed an index system for analyzing customer satisfaction and influencing factors in Xi'an's domestic tourism market. This system aims to comprehensively evaluate critical dimensions including tourism landscapes, destination ambiance, dining experiences, tourist merchandise, accommodation facilities, entertainment options, transportation and communication infrastructure, as well as tourism service and management. Such multidimensional analysis facilitates a deeper understanding of the complex factors affecting customer satisfaction, providing both theoretical guidance and practical references for tourism development in the Xi'an region.

The current study seeks to address this research gap in the Wulong District through empirical analysis. By investigating the influencing factors of customer satisfaction and establishing a customer satisfaction

evaluation index system for Wulong's tourist attractions, this research aims to provide valuable references and practical recommendations for future tourism management and marketing strategies in the Wulong District.

III. Indicator System and Model Construction

3.1 Determination of Evaluation Indicators

Tourists' actual evaluations of destinations are primarily shaped by their sensory experiences and interactions with two core aspects: the soft environment (service quality and intangible aspects) of destinations and the "six essential components of tourism activities" (dining, accommodation, transportation, sightseeing, shopping, and entertainment). Based on these dimensions and aligned with research objectives, this study employs a multiple linear regression model to develop a Wulong-specific evaluation index system measuring the discrepancy between tourists' expectations and perceived performance. The system comprises seven evaluation categories:Tourism landscapes, Environmental ambiance, Dining services, Tourist merchandise, Hotel facilities, Transportation infrastructure, Tourism service and management.

These categories encompass 22 specific evaluation factors (detailed in Table 1). Informed by expert consultations from tourism practitioners, government agencies, and academia, this research constructs a customer satisfaction evaluation index system for Wulong tourist attractions based on the perceived performance theoretical model. Quantification is achieved through a 5-point Likert scale, where each indicator is assessed across five levels: Very satisfied (5 points) Satisfied (4 points) Neutral (3 points) Dissatisfied (2 points) Very dissatisfied (1 point)

Table1. Evaluation Indicators

Evaluation Category	Indicator Name	Code
Tourism Landscape (S1)	Landscape Value	C1
	Richness of Landscapes	C2
	Lanscape Distinctiveness	C3
	Ticket Pricing	C4
Environmental Atmosphere (S2)	Urban Landscape	C5
	Cleanliness and Hygiene	C6
	Air Quality	C7
Catering (S3)	Culinary Features	C8
	Variety of Catering Options	C9
	Food Hygiene Standards	C10
Tourism Commodities (S4)	Local Specialty Products	C11
	Commodity Pricing	C12
	Diversity of Commodities	C13
Hotel Services (S5)	Hotel Pricing	C14
	Location Convenience	C15
	Service Quality	C16
Transportation (S6)	Transportation Accessibility	C17
	Transportation Service Standards	C18
Tourism Services & Management (S7)	Tour Guide Services	C19
	Service Attitude	C20
	Itinerary Arrangement	C21
	Safety Assurance	C22

3.2 Model Construction

The latest version of SPSS software was utilized to conduct multiple regression analysis, ensuring precise analytical outcomes. Based on the evaluation indicators established in Table 1, which encompass seven evaluation items and 22 evaluation factors related to Wulong tourism, the weighted average method was applied to calculate the mean value of each evaluation item for individual samples (see Table 2). A regression model was constructed using stepwise regression in the multiple regression framework. Specifically, the overall customer experience of the two-day and one-night tour in Wulong, as reflected in online reviews, served as the dependent variable (Yi), while the seven evaluation items acted as independent variables (xi). The regression equation is formulated as follows:

$$Y_i = \partial_0 + \sum_{i=1}^{7} \partial_i x_i + u_i$$

Here, Yi represents the overall evaluation of the tourism product, Xi denotes the seven evaluation items, and Ui is the constant term. The regression process comprised seven iterative steps, with the results of each step detailed in Table 5.

IV. Data Source and Descriptive Statistics

4.1 Data Source

The data for this study was sourced from Ctrip, a highly influential online travel service platform in China. Ctrip covers a wide range of user groups and provides a large amount of user-generated content, including travel reviews and ratings. Ctrip also has a dedicated section for "Two-Day and One-Night Tours in Wulong," making the data collection more targeted and accurate.

4.2 Research Object

During the data collection process, the time range was first determined, focusing on the most recent year (October 2023 to October 2024) for two-day and one-night tours in Wulong, ensuring the timeliness and relevance of the data. Subsequently, using Ctrip's search and filtering functions, the study precisely located Wulong and filtered out two-day and one-night tour products. All customer review data related to Wulong's two-day and one-night tour products were collected, including overall evaluations of the tour products as well as feedback on accommodation, dining, transportation, guide services, and scenic experiences.

4.3 Collection of Online Reviews

A preliminary cleaning of the collected 452 reviews was conducted, removing duplicate reviews, reviews containing only emoticons, and reviews unrelated to the research topic, ensuring the quality and relevance of the data. After cleaning, 300 valid reviews were obtained for subsequent analysis. Additionally, high-frequency vocabulary content was coded to facilitate quantitative analysis.

Table2. Evaluation Indicators

Evaluation Item	Sample Size	Minimum	Maximum	Mean	Standard Deviation
Tourism Landscapes	300	3.00	5.00	4.58	0.43
Environmental Atmosphere	300	3.00	5.00	4.30	0.45
Dining	300	2.75	5.00	3.73	0.63
Tourism Products	300	2.33	5.00	3.76	0.73
Hotels	300	1.00	5.00	4.13	0.83
Transportation	300	3.00	5.00	4.55	0.50
Tourism Service and Management	300	2.33	5.00	4.80	0.35

V. Regression Testing and Result Analysis

5.1 Regression Testing

(1) Reliability and Validity Testing

Table3. Reliability Statistics

Cronbach's Alpha	Number of Items
0.784	8

Cronbach's Alpha coefficient is a method for measuring the reliability of a scale or test, reflecting the degree of internal consistency. The coefficient ranges from 0 to 1, with values closer to 1 indicating better internal consistency, meaning higher reliability. In this study, the Cronbach's Alpha coefficients for the seven evaluation items and overall experience all exceeded 0.7, indicating the reliability of the research data.

Table4. KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		0.788
Bartlett's Test of Sphericity	Approx. Chi-Square	779.488
	Degrees of Freedom	28
	Significance	0

Table 4 shows that the KMO and Bartlett's Test results indicate a high level of simple correlation in the analyzed dataset, and the variables are not completely correlated, suggesting that the multiple linear regression model has high explanatory and predictive power.

(2) Model Testing

Goodness-of-fit test: The R-squared value ranges from 0 to 1, with values closer to 1 indicating a better fit of the model, meaning the model can explain more of the variance in the dependent variable. As shown in Table 6, from Model 1 to Model 7, R and R-squared values and adjusted R-squared values show significant improvement, and the standard error of the estimate gradually decreases, indicating that the model's fit is continuously improving.

t-test: This tests whether each independent variable is effective in the model, i.e., whether it has a significant impact on the dependent variable. If the p-value of the t-test for an independent variable is less than the preset significance level, it indicates that the independent variable has a significant impact on the dependent

variable. As shown in Table 3, the p-values for all models are less than 0.05, indicating that all coefficients are significant, and these seven variables can positively predict Y.

F-test: This tests whether the linear relationship between the explanatory variables and the explained variable is significant overall, i.e., whether the linear relationship between the explained variable and all explanatory variables is significant. The F-value is the ratio of explained variance to unexplained variance, and the p-value indicates whether this F-value is statistically significant. If the p-value is less than 0.05, the model is generally considered significant, meaning at least one independent variable has a significant impact on the dependent variable. As shown in the ANOVA (analysis of variance) results, the significance levels of all seven models are less than 0.05, indicating that the models pass the test, and there is a linear correlation between the independent and dependent variables, confirming the validity of the regression equation.

Table5. Stepwise Regression Results

Model	Evaluation Item	Non-standardized Coefficient	Std. Error	t-value	p-value
1	(Constant)	2.410	0.129	18.751	0.000
	Tourism Service and Management	0.497	0.034	14.629	0.000
2	(Constant)	1.838	0.128	14.344	0.000
	Tourism Service and Management	0.402	0.032	12.752	0.000
	Hotels	0.225	0.024	9.445	0.000
3	(Constant)	0.788	0.177	4.452	0.000
	Tourism Service and Management	0.340	0.030	11.445	0.000
	Hotels	0.205	0.022	9.412	0.000
	Environmental Atmosphere	0.317	0.040	7.896	0.000
4	(Constant)	0.800	0.166	4.812	0.000
	Tourism Service and Management	0.245	0.032	7.702	0.000
	Hotels	0.192	0.021	9.340	0.000
	Environmental Atmosphere	0.256	0.039	6.577	0.000
	Tourism Products	0.176	0.028	6.362	0.000
5	(Constant)	0.246	0.186	1.319	0.188
	Tourism Service and Management	0.238	0.030	7.886	0.000
	Hotels	0.157	0.021	7.636	0.000
	Environmental Atmosphere	0.238	0.037	6.422	0.000
	Tourism Products	0.159	0.026	5.997	0.000
	Transportation	0.189	0.034	5.631	0.000
6	(Constant)	-0.264	0.204	-1.298	0.195
	Tourism Service and Management	0.237	0.029	8.171	0.000
	Hotels	0.157	0.020	7.982	0.000
	Environmental Atmosphere	0.172	0.038	4.533	0.000
	Tourism Products	0.154	0.025	6.081	0.000
	Transportation	0.174	0.032	5.394	0.000
	Tourism Landscapes	0.194	0.037	5.195	0.000
7	(Constant)	-0.570	0.243	-2.349	0.019
	Tourism Service and Management	0.231	0.029	8.002	0.000
	Hotels	0.152	0.020	7.742	0.000
	Environmental Atmosphere	0.177	0.038	4.693	0.000
	Tourism Products	0.153	0.025	6.060	0.000
	Transportation	0.152	0.033	4.551	0.000
	Tourism Landscapes	0.175	0.038	4.640	0.000
	Dining	0.107	0.047	2.279	0.023

Based on the final step's regression coefficients, the regression equation is established as follows:

$Y = -0.570 + 0.231x_1 + 0.152x_2 + 0.177x_3 + 0.153x_4 + 0.152x_5 + 0.175x_6 + 0.107x_7$

As shown in Table 5, all seven evaluation items entered the regression equation, in the order of: tourism service and management, hotels, environmental atmosphere, tourism products, transportation, tourism landscapes, and dining. The coefficients for each step of the regression are shown in Table 6. The R^2 (multiple determination coefficient) for the seventh step is 0.736, indicating that the seven variables explain 73.6% of the variance in the dependent variable, demonstrating a good fit of the regression model. All seven evaluation items have significant impacts, but the significance of their impacts varies. According to the principle of stepwise regression, the variables entering the equation first have the most significant impact on the dependent variable, while those entering last have the least impact. This indicates that the overall evaluation of the tourist destination is most strongly influenced by tourism service and management, followed by hotels, environmental atmosphere, tourism products, transportation, tourism landscapes, and dining. In Models 5 and 6, the constant is not significant, but this does not affect the subsequent results.

Table6. Model Fit Statistics

Model	R	R^2	Adjusted R^2	Standard Error of the Estimate
1	0.647a	0.418	0.416	0.370
2	0.743b	0.552	0.549	0.325
3	0.794c	0.630	0.627	0.296
4	0.822d	0.675	0.670	0.278
5	0.841e	0.707	0.702	0.265
6	0.855f	0.731	0.726	0.254
7	0.858g	0.736	0.730	0.252

5.2.1 Analysis of Test Results

Through multiple linear regression analysis, we identified seven key factors that significantly impact customer satisfaction. These factors, ranked by their degree of influence from strongest to weakest, are: tourism service and management, hotels, environmental atmosphere, tourism products, transportation, tourism landscapes, and dining. This finding highlights the central role of tourism service and management in enhancing customer satisfaction, while also revealing the importance of other factors in the customer experience. These factors not only cover all aspects of the tourism experience but also reflect customers' expectations and requirements for the overall service quality of tourist destinations.

The regression analysis shows that tourism service and management have the most significant impact on customer satisfaction. In the analysis of high-frequency keywords in online reviews, terms such as "professional guide," "service," and "reasonable itinerary" frequently appear, indicating customers' high attention to service quality. Therefore, the professionalism of guide services, the friendliness of service attitudes, and the reasonableness of itinerary arrangements directly affect customer satisfaction and word-of-mouth. Hotel service quality follows tourism service and management as the second most influential factor on customer satisfaction. Discussions about "hygiene" and "service" in the reviews show customers' high standards for hotel accommodation experiences. A clean, comfortable, and well-serviced accommodation environment can significantly enhance customer satisfaction. "Scenic spot," "Fairy Mountain," and "scenery" are keywords related to tourism landscapes in the reviews, indicating the uniqueness and attractiveness of the scenic areas, which are important for improving customer satisfaction. Environmental atmosphere, tourism products, and transportation, although contributing relatively less to customer satisfaction, also play important roles in shaping the overall tourism experience. Dining services, although the last to enter the regression equation, should not be overlooked in their impact on customer satisfaction. The quality and variety of dining are important components of the customer experience, especially during travel, where culinary experiences often leave a lasting impression.

5.2.2 Customer Satisfaction Analysis

The results of the stepwise regression analysis further confirm the impact of the aforementioned factors on customer satisfaction. Customer satisfaction is a multi-dimensional, comprehensive evaluation indicator that is influenced not only by individual factors but also by the combined effects of multiple factors. Tourism service and management account for 41.8% of the variance, significantly higher than other factors, highlighting their central role in customer satisfaction. Although hotels, environmental atmosphere, tourism products, transportation, tourism landscapes, and dining contribute less individually, their combined impact on customer satisfaction remains significant.

VI. Conclusions and Recommendations

Based on online review data from Ctrip, combined with quantitative satisfaction measurement and semantic network analysis, this study comprehensively evaluated customer satisfaction in Wulong tourism and identified key influencing factors through multiple regression analysis. For the two-day and one-night tour experience in Wulong, the following recommendations are proposed:

1.Enhance Service Quality: Given the central role of tourism service and management in customer satisfaction, Wulong's tourism sector should prioritize service quality improvements. Strengthening professional training for guides to enhance their expertise in historical-cultural knowledge, language communication skills, and emergency response capabilities.

2.Optimize Accommodation and Dining Experiences: Maintain high standards of cleanliness and comfort in hotel facilities. Provide premium bedding and modern amenities, coupled with regular maintenance and upgrades to ensure sustained environmental quality.Diversify culinary offerings by integrating authentic local cuisine. Develop signature dishes that reflect regional characteristics, allowing tourists to immerse in local culture through gastronomic experiences.

3.Refine Itinerary Design and Tourism Products: Enrich itineraries with culturally immersive activities to deepen engagement with Wulong's cultural and natural heritage.Innovate regionally distinctive tourism merchandise by leveraging Wulong's historical, ethnic, and ecological elements. Combine traditional craftsmanship with contemporary design to create unique products.

4.Strengthen Environmental Sustainability: Promote sustainable tourism practices, such as eco-certification programs and low-carbon tourism initiatives, to balance development with environmental preservation.

5.Upgrade Transportation Infrastructure: Modernize road infrastructure and implement intelligent traffic management systems to improve efficiency and safety.Establish dedicated tourist routes connecting major attractions (e.g., Tiankeng Difeng, Fairy Mountain) to minimize transfer times and enhance accessibility.

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