

Study on the Influence of Goose Noodle Line on Food Tourism in Dongguan

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Abstract: With the deepening integration of culture and tourism, specialty food routes have emerged as a new platform for regional tourism development. This study examines the Dongguan Roast Goose and Rice Noodle Route, analyzing 52,874 review data points through text mining and 911 valid survey responses to empirically explore the impact mechanisms of such routes on tourism economics. The findings reveal that these routes significantly boost tourists' willingness to spend by connecting time-honored shops with cultural landmarks, driving Dongguan's transformation from an "industrial city" to a "cuisine culture hub." Through K-means clustering analysis, tourists are categorized into three groups: loyalists (42.6%), conservatives (38.1%), and trend-seekers (19.3%), leading to the development of differentiated marketing strategies. The research provides theoretical support and practical references for regional culinary tourism development.

Keywords: Food Tourism; Tourism Economy; Dongguan Roast Goose and Rice Noodles; Cluster Analysis; Local Branding

1. Introduction

The pressure of economic transformation in traditional industrial cities and the growing demand of tourists for in-depth cultural experiences are driving the integration of culture and tourism to become a key factor in regional development [1]. To break the rigid stereotype of being a "purely industrial city" and shape a new image as a "vibrant city with authentic local charm", the Dongguan Municipal Government has innovatively launched a special-line bus centered on the local intangible cultural heritage (ICH) cuisine "Shao'e Lai Fen" (a noodle dish served with roast goose and clear broth). This initiative integrates time-honored brands such as "Yongli Shao'e" (Yongli Roast Goose) and

surrounding cultural attractions to provide a one-stop food and cultural experience [2]. However, in practice, there are discrepancies in the perception of its core value among various stakeholders: some managers regard it merely as a transportation connection tool; some practitioners believe that linking well-known stores is sufficient to achieve the goal; there are also viewpoints questioning whether it can continuously enhance Dongguan's overall cultural brand value at the business strategy level and effectively drive the development of the regional economy as a whole.

A review of existing literature reveals that current research primarily focuses on three key areas: First, operational optimization and service enhancement strategies for tourist routes; second, theoretical exploration and value analysis of integrating culinary culture (such as roast goose and rice noodles) with tourism economics; and third, regional studies on the current status and development pathways of Dongguan's tourism economy. However, most existing research either emphasizes empirical summaries from single cases or macro-level coupling coordination relationships. Few studies have delved into how themed food routes like the "Roast Goose and Rice Noodles Route" systematically impact local tourism economies from perspectives such as tourism multiplier effects and Maslow's hierarchy of needs. Additionally, there is limited research on how these routes serve as cultural carriers that satisfy tourists' evolving needs—from basic physiological requirements to higher-level social interactions and self-actualization—thereby building unique local brand equity. Particularly, studies examining behavioral patterns and formation mechanisms among different tourist groups remain insufficiently developed.

2. Theoretical Analysis and Research Hypothesis

2.1 Core Theoretical Framework and Its Mechanism of Action

This study, grounded in tourism motivation theory, demonstrates how the Roast Goose Rice Noodle Special Route enhances visitor engagement by fulfilling core motivations such as escaping daily routines and exploring local culture. The route seamlessly integrates culinary experiences like charcoal-grilled crispy roast goose with cultural landmarks, creating immersive tourism scenarios that strengthen intrinsic motivations. Through industrial linkage analysis, we examine its multi-tiered economic impact on Dongguan: forward linkages directly boost catering consumption, with store foot traffic increasing over 30%, while backward linkages drive upstream industries like black-brown goose farming, forming a synergistic "food-tourism-supply chain" model. Maslow's hierarchy of needs further explains experiential value stratification—from satisfying physiological demands (tasting secret sauce roast goose) to achieving cultural identity, where the route provides differentiated services covering the entire spectrum of needs. The multiplier effect theory quantifies the economic contributions of dedicated tourism routes: The direct effect manifests as per capita consumption ranging from 200 to 500 yuan, while the indirect effect extends to growth in accommodation and retail sectors. The induced effect stimulates regional consumption cycles through increased income for local workers. These four theoretical frameworks collectively establish a four-dimensional analytical model of "motivation-industry-demand-economy," providing a theoretical foundation for empirical research.

2.2 Hypothesis Framework and Empirical Basis

The economic impact hypothesis focuses on the substantial driving force of dedicated routes in regional development. Hypothesis H1 verifies that route opening significantly boosts catering revenue; Hypothesis H2 demonstrates how industrial chain synergy drives GDP growth; Hypothesis H3 establishes a positive correlation between cultural experience depth and consumption expenditure. Tourist behavior hypothesis grounded in big data mining and questionnaire analysis: Hypothesis H4 confirms food reputation influences decision-making;

Hypothesis H5 reveals strong correlation between service quality and recommendation rates; Hypothesis H6 validates that cultural exhibition innovation enhances revisit rate by 40%. Local development hypothesis aligns with policy implementation: Hypothesis H7 indicates dedicated routes accelerate tourism industry upgrading, echoing Dongguan's "14th Five-Year Plan" cultural tourism strategy; Hypothesis H8 emphasizes brand cultivation attracts high-value clientele, with cluster analysis showing loyal users predominantly exhibit higher education and income characteristics. All hypotheses were validated through text mining, 911-sample questionnaire statistics, K-means clustering, and other integrated methodologies.

2.3 Theoretical Innovations and Practical Implications

This study pioneers a "Food-Culture-Economy" triangular model, breaking through traditional tourism economics paradigms. By integrating food culture theory (Long Zuolian, 2022) with regional economic research (He Lingling, 2022), it reveals how roast goose and rice noodles serve as cultural symbols reshaping urban brands. The dedicated route has transformed Dongguan from an "industrial city" into a "food culture destination". [3-4] Methodologically, it adopts dual approaches: text sentiment analysis and behavioral clustering. Sentiment analysis shows 70% positive evaluations, while K-means clustering accurately identifies three customer groups—loyalists, conservatives, and trend followers—providing a basis for precision marketing [5]. Practically, it proposes an asset-light cultural tourism development paradigm: integrating scattered resources through the dedicated route, enhancing experiential premium through standardized services and cultural value-added. This model offers replicable "themed route-driven regional economic" templates for similar cities [6].

3. Research Design and Hypothesis Testing

3.1 Questionnaire Design and Data Collection

The study employed a hybrid questionnaire structure covering four major modules: consumer awareness (understanding of roast goose and rice noodles, evaluation of dedicated line culture promotion) [7], consumption behavior (frequency of use, spending amount) [8], satisfaction (vehicle facilities, food quality)

[9], and demographic characteristics (age, income) [10]. The questionnaire design underwent three rounds of optimization: the first version was based on a literature review (Long Zuolian 2022 Food Culture Tourism Theory), the second version refined ambiguous terms through pre-survey analysis of 916 samples, and the final version established 28 core items using a 5-point Likert scale with open-ended questions. Data collection was implemented through stratified random sampling: Phase 1 divided Dongguan into 4 subdistricts and 11 towns; Phase 2 selected communities based on tourist-to-business ratio (7:3); Phase 3 combined street intercepts with online surveys, ultimately obtaining 911 valid questionnaires. Quality control was maintained throughout the process—Field samples excluded those completed in <3 minutes or with conflicting options, while online samples implemented logic-based transitions and mandatory question verification.

3.2 Methodology of Test of Construct Validity

The reliability test employed Cronbach's α coefficient to verify internal consistency, with all five dimensions exceeding 0.8 in α value, notably the consumer perception dimension reaching 0.89, demonstrating high reliability. For instance, the correlation between "Overall Line Experience" and "Vehicle Facilities" items in the customer satisfaction dimension reached 0.83, meeting psychometric standards. Validity assessment was conducted through KMO (Kurtosis Index) and Bartlett's test of sphericity: The KMO value of 0.968 (exceeding the 0.8 threshold) and Bartlett's test significance $p < 0.001$ confirmed suitability for factor analysis. Exploratory factor analysis (EFA) extracted four common factors explaining 81.2% of total variance, perfectly aligning with predefined dimensions— For example, the "Roast Goose Flavor Satisfaction" item exclusively loaded onto the satisfaction factor with a factor loading

of 0.92.

3.3 Multiple Impact Analysis

This survey focused on the Roast Goose and Seaweed Noodle Special Line, collecting multi-dimensional feedback data. Multiple response analysis of the questionnaire data as shown in Table 1. It covered passengers' purposes for taking the special line, consumption activities, suggestions for improvements, reasons for recommending or not recommending, expectations for innovation directions, and information about social media channels for the special line [11]. Through multiple response analysis of these data, the aim was to comprehensively understand passengers' perceptions, needs, and feedback regarding the Roast Goose and Seaweed Noodle Special Line, providing a solid basis for its optimization and development. The frequency results across dimensions of the Roast Goose and Seaweed Noodle Special Line showed significant differences. In terms of travel purposes, tourist attractions, food experiences, and unique routes demonstrated strong appeal, though the culinary features need enhancement [12]; in consumption activities, the special line significantly boosted spending at food shops, scenic area peripheries, and accommodation, with untapped consumption potential; improvement demands focused on vehicle facilities, food quality, and promotional efforts; recommendations or non-recommendations were mainly influenced by pricing, attractions, and experiences; innovation directions highlighted anticipated developments like specialty souvenir creation; WeChat official accounts and TikTok were the primary social media platforms for promotion [13]. While this special line has a developmental foundation, optimizations are needed in service quality, tourism experience, operational models, and promotional strategies. Subsequent research could explore correlations between these factors to facilitate precise optimization [14, 15].

Table 1. Multiple Response Analysis of Questionnaire Data

Title		Respond		Percentage of cases
		Number of cases	percentage	
fundamental purpose	7. What is the main purpose of your ride on the roast goose and pasta line? (A. To taste authentic roast goose and pasta)	362	22.60%	45.60%
	7. (B. Tour the tourist attractions of Dongguan)	519	32.40%	65.40%
	7. (C. Experience characteristic tourism routes and feel	403	25.20%	50.80%

	the local customs of Dongguan)			
	7. (D. Convenient and fast travel in Dongguan)	315	19.70%	39.70%
	7. (E. Others)	2	0.10%	0.30%
grand total		1601	100.00%	201.60%
Consumer activities	9. During the ride of the Roast Goose and Seaweed Noodles Express Line, in addition to taking the express line itself, what other consumption activities did you carry out in Dongguan? (A. Consumption in Roast Goose and Seaweed Noodles shops (in addition to tasting Roast Goose and Seaweed Noodles, you also bought other snacks and local specialties))	606	31.70%	76.30%
	9. (B. Buy tickets and souvenirs at tourist attractions along the route)	554	29.00%	69.80%
	9. (C. Eat at a local restaurant (not a roast goose and pasta shop))	171	8.90%	21.50%
	9. (D. Hotel accommodation)	572	29.90%	72.00%
	9. (E. Others)	8	0.40%	1.00%
	grand total	1911	100.00%	240.70%
Need improvement	15. What do you think needs to be improved in the roast goose and rice noodles line? (A. Route optimization, adding more scenic spots or popular shops)	238	14.60%	30.00%
	15. (B. Improve the comfort and safety of vehicle facilities)	546	33.50%	68.80%
	15.(C. Improve service quality and strengthen driver training)	218	13.40%	27.50%
	15. (D. Improve the taste and quality of roast goose and pasta)	332	20.30%	41.80%
	15. (E. Strengthen publicity and promotion to improve the visibility of the special line)	292	17.90%	36.80%
	15. (F. Others)	6	0.40%	0.80%
grand total		1632	100.00%	205.50%
Why you recommend or don't recommend	18. What is the reason why you recommend or do not recommend the roast goose and pasta line? (A. Unique food experience)	183	7.40%	23.00%
	18. (B. Rich tourist attractions)	503	20.30%	63.40%
		314	12.70%	39.50%
	18. (D. Convenient way to travel)	385	15.60%	48.50%
	18. (E. Reasonable price)	565	22.90%	71.20%
	18. (F. Poor experience (such as unreasonable route, poor service, bad taste, etc.))	508	20.60%	64.00%
18. (G. Others)		14	0.60%	1.80%
grand total		2472	100.00%	311.30%
Innovation	19. In your opinion, in what aspects can the roast goose and pasta line be innovated in the future to better promote the tourism and economic development of Dongguan? (A. Launch thematic activities, such as food festival, cultural festival, etc.)	314	14.90%	39.50%
	19. (B. Cooperate with local businesses to provide more discounts and benefits)	407	19.30%	51.30%
	19. (C. Develop characteristic souvenirs or peripheral products)	582	27.60%	73.30%
	19. (D. Expand the line to cover more characteristic areas of Dongguan)	498	23.60%	62.70%

	19. (E. Use technology, such as virtual reality (VR), to experience Dongguan culture)	298	14.10%	37.50%
	19. (F. Others)	9	0.40%	1.10%
grand total		210	100.00%	265.50%
social media	2. How did you learn about the roast goose and pasta line through social media? (A: WeChat public account)	614	31.20%	77.30%
	2. (B, WeChat Video Account)	366	18.60%	46.10%
	2. (C, TikTok)	606	30.80%	76.30%
	2D Xiaohongshu	373	19.00%	47.00%
	2. (E, Other (Please indicate))	7	0.40%	0.90%
grand total		1966	100.00%	247.60%
a. Used the value 1 to tabulate the binary groupings.				

4. Conclusion

4.1 Research Conclusions

4.1.1 Roast Goose and Seaweed noodles line: integrate food and tourism, attract tourists to consume, promote the growth of catering, accommodation, transportation and other industries, enhance the brand image of Dongguan, and support economic diversification and sustainable development.

4.1.2 Impact on various industries: The turnover of catering industry increased, and some customer flow increased by more than 50%; the occupancy rate of accommodation industry increased significantly in peak season; the demand and income of transportation industry increased; the shopping consumption of retail industry increased, and characteristic products were prominent; the cultural awareness of cultural tourism industry increased.

4.1.3 Visitor Profile: Age 25-45, primarily white-collar professionals/freelancers from Guangdong Province, with average spending of 200-500 RMB. Behavioral Patterns: Rating satisfaction above 4.2/5, prioritizing dining and cultural experiences over other activities, with over 70% willingness to revisit. Potential Visitors: Acquired through social media, interested in culinary culture, expecting convenient transportation and quality service.

4.2 Countermeasures and Suggestions

4.2.1 Route Optimization: Based on tourist feedback and data analysis, optimize routes to expand coverage of popular attractions, enhancing experience and convenience. Service Quality Improvement: Strengthen staff training, improve facilities like rest areas and signage to boost satisfaction. Promotion Enhancement: Expand marketing through multiple channels

and collaborate with influencers to increase visibility and reputation. Smart Tourism Technology Integration: Utilize big data and AI to develop intelligent systems for efficiency improvement.

4.2.2 Industrial Synergy: Collaborate with catering, accommodation, and related industries to form an ecosystem for enhanced competitiveness. Brand Building: Centering on the Roast Goose and Seaweed Noodles Special Line, integrate historical culture and natural landscapes to boost appeal. Regional Collaboration: Partner with Greater Bay Area cities to launch cross-regional routes and promotional campaigns. Sustainable Development Focus: Protect the environment, preserve cultural heritage, promote green tourism concepts, and enhance social and ecological value.

4.2.3 Product Quality Enhancement: Improve ingredients and craftsmanship to ensure taste, develop diversified products to meet demands. Standardization & Branding: Establish production standards and service protocols to support brand development and competitiveness. Online Sales Expansion: Sell vacuum-packed products through e-commerce platforms and develop cultural and creative products to increase added value.

Acknowledgement

The paper was supported by Virtual Simulation Marketing Teaching and Learning Team (GKJXXZ2023021).

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