



Empirical Study on Domestic Tourism Development in Guangdong Province Based on Market Competition Model and Cluster Analysis

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Abstract. This article takes 21 destination cities in Guangdong Province as the research object, and conducts empirical analysis on the development of domestic tourism industry in Guangdong Province based on statistical data such as domestic tourist numbers and tourism revenue from 2014 to 2023 in the Guangdong Statistical Yearbook (2015-2024). A trend chart of the number of domestic tourists and tourism revenue in Guangdong Province from 2014 to 2023 was drawn using Excel 2016 software. It was found that the number of domestic tourists and tourism revenue in Guangdong Province steadily increased from 2014 to 2019, but declined in 2020 due to force majeure factors, but resumed growth in 2023. Further using the tourism market competition model, the domestic tourism destination market competition in Guangdong Province was analyzed in two stages: the early stage (2014-2018) and the late stage (2019-2023). It was found that the number of cities in the celebrity market increased, the Taurus market disappeared, the number of children's markets decreased, and the number of skinny dog markets increased. At the same time, using IBM SPSS Statistics 25.0 software, a systematic clustering analysis was conducted on the domestic tourism destination market in Guangdong Province. The results showed that Guangzhou and Shenzhen were the first largest categories with the strongest competitiveness, while the remaining 19 cities were the second largest category. This article aims to provide data support and policy basis for the construction of the "One Core, One Belt, One Zone" tourism pattern in Guangdong Province through empirical analysis.

Keywords: Guangdong Province, domestic tourism, the market competitive state, cluster analysis

1 Introduction

Domestic tourism is one of the three major tourism markets in China and an important indicator of regional tourism development level. This article selects 21 destination cities in Guangdong Province as research objects. Based on the statistical data of domestic tourism numbers and tourism revenue from 2014 to 2023 in the Guangdong

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Statistical Yearbook (2015-2024), Excel 2016 software is used to empirically analyze the development overview of the domestic tourism industry in Guangdong Province. The tourism market competition model is used to further analyze the tourism competition situation of 21 cities in Guangdong Province. At the same time, IBM SPSS Statistics 25.0 software is used to conduct systematic clustering analysis of the domestic tourism destination market in Guangdong Province. Through empirical analysis, we aim to achieve precise market segmentation, optimize tourism product design, and improve marketing efficiency. Based on the results of the empirical analysis, we propose relevant development suggestions to provide data support and policy basis for Guangdong Province to build a "One Core, One Belt, One Zone" tourism pattern.

2 Overview of the Development of Domestic Tourism Market in Guangdong Province

Guangdong Province is one of the most active provinces in China in terms of tourism development. Located on the southern coast of China, Guangdong Province is adjacent to Hong Kong and Macao, and is an important gateway connecting mainland China with Southeast Asia. With two first-tier cities in China, Guangzhou and Shenzhen, Guangdong Province has a well-developed transport network and very good infrastructures such as aviation, high-speed rail, highways and sea transport, which provide convenient conditions for the development of tourism. With its advantageous geographical location, unique natural resources and profound historical and cultural heritage, Guangdong Province has become the most important tourist source, destination and tourism industry cluster in China and even in the Asia-Pacific region ^[1], and the number of tourists received and tourism revenue have ranked the top in the country for many years. In 2023, the province of Guangdong received 777 million tourists and the total tourism revenue exceeded RMB 950 billion yuan, which are both ranked the first in China ^[2].

According to the domestic tourism statistics of Guangdong Province, Excel 2016 software is used to draw a trend chart of changes in the number of domestic tourists and tourism revenue in Guangdong Province from 2014 to 2023 (Figure 1). From Figure 1, it can be seen that the development trend of the number of domestic tourists and tourism revenue in Guangdong Province from 2014 to 2019 shows a steady growth, with the number of domestic tourists growing from 294.06 million in 2014 to 494.1 million trips in 2019, with a growth rate of 68.02%, and the domestic tourism revenue is growing from 680.125 billion yuan in 2014 to 1,374.002 billion yuan in 2019, with a growth rate of 102.02%, which is a rapid growth momentum. Although the number of domestic tourists and tourism revenue declined sharply from 2020 due to force majeure factors, the growth trend resumed from 2023, and the number of domestic tourists in 2023 increased by 120.72 million over the lowest 2022, with a growth rate of 60%; the domestic tourism revenue in 2023 increased by 465.23 billion yuan over 2022, with a growth rate of 113.56 per cent. It is believed that in the near future, the number of domestic tourists and tourism revenue in Guangdong Province will reach new highs.

The good momentum of domestic tourism in Guangdong Province will have a positive effect on the development of the tourism industry.

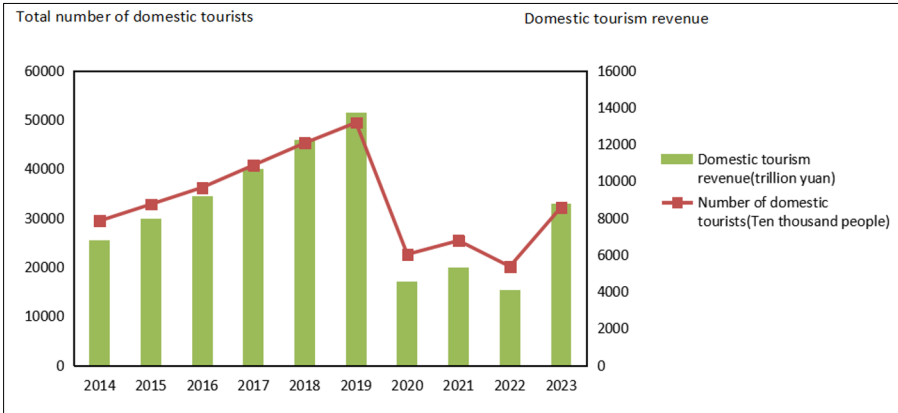


Fig. 1. Trends in Domestic Tourist Arrivals and Tourism Revenue in Guangdong Province (2014-2023).

3 Analysis of the Competitive Status of Domestic Tourism Destination Market in Guangdong Province

3.1 Research Method

This article uses a tourism market competition model to analyze the changes in the domestic tourism destination market in Guangdong Province. Chinese tourism scholars have applied the Boston Matrix method to tourism market research and established a competitive state model for the tourism market [3], which can be expressed by the following formula:

$$a_i = \frac{X_i^t}{\sum_{i=1}^n X_i^t} \times 100\% \tag{1}$$

$$\beta_i = \frac{X_i^t - X_i^{t-1}}{X_i^{t-1}} \times 100\% \tag{2}$$

α means market share, β means market growth rate, and the combination of both constitute market competition state $\Omega(\alpha, \beta)$, put Ω value in coordinate system, then the tourism market competition state can be reflected, see Fig.2. See Table 1 [4] for the type and characteristics of tourism market competition state.

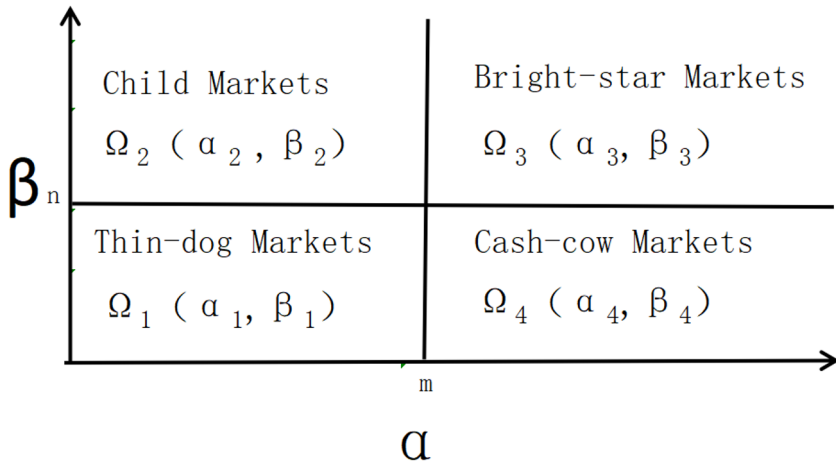


Fig. 2. Schematic diagram of market competition state

Table 1. Basic characteristics and strategic direction of tourism market competition state

Market type	Classification	Classification standard	Basic characteristics	Strategic choice
Bright-star Markets	Mar-	$\alpha \geq m, \beta \geq n$	Double high in market share and growth rate, have considerable profit opportunities and good development prospect.	Expansionary strategy
Cash-cow Markets	Mar-	$\alpha \geq m, \beta < n$	High market share, low growth rate, can recycle cash in large amount, but markets tend to saturation.	Harvesting strategy
Child Markets		$\alpha < m, \beta \geq n$	Low market share, high growth rate, have relatively big development potential.	Selective strategy
Thin-dog Markets	Mar-	$\alpha < m, \beta < n$	Double low in market share and growth rate, lie in a depressed state	Withdrawal strategy

3.2 Empirical Analysis of the Competitive State of Domestic Tourism Destination Market in Guangdong Province

In order to analyze the changes in the competitive state of the tourism market in Guangdong Province in depth, the competitive state of the domestic tourism destination market in Guangdong Province is divided into two stages: 2014-2018 (hereinafter referred to as the early stage) and 2019-2023 (hereinafter referred to as the late stage). The parameters m and n for evaluating the competitive state are determined by the

average method, and the coordinate system is divided into four quadrants. The competitive state values of each city are calculated using formulas (1) and (2). Subsequently, a two-dimensional coordinate graph is drawn using Excel software to form Figure 3 (early stage) and Figure 4 (late stage), providing a basis for empirical analysis.

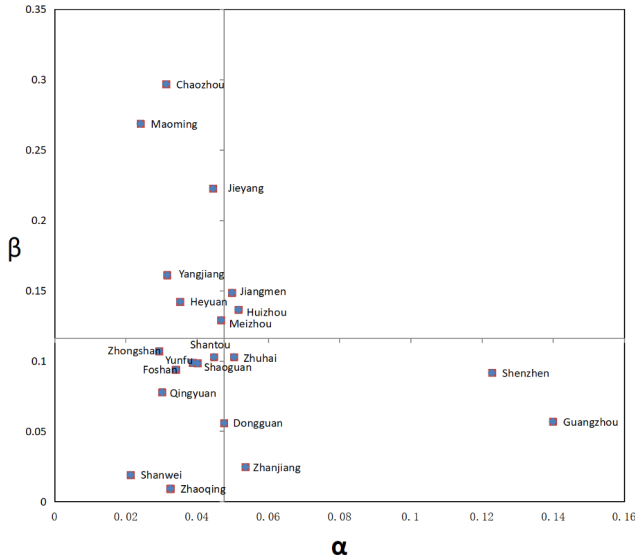


Fig. 3. Competitive Status of Domestic Tourism Destination Market in Guangdong Province from 2014 to 2018.

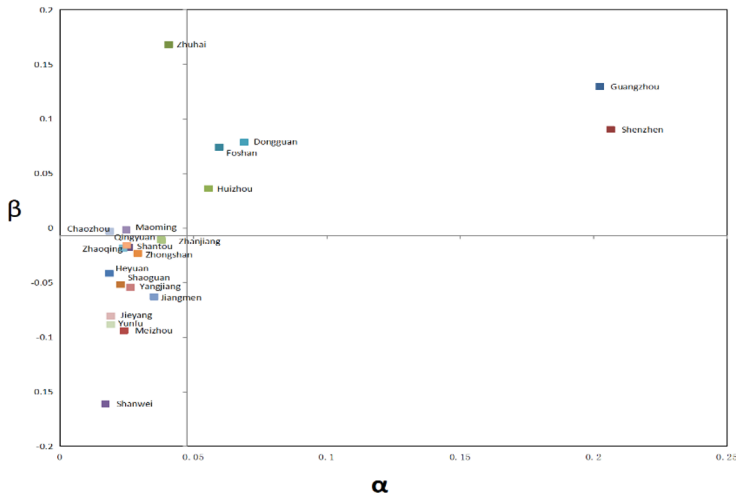


Fig. 4. Competitive Status of Domestic Tourism Destination Market in Guangdong Province from 2019 to 2023.

3.2.1 Characteristics of the Celebrity Market.

Early stage characteristics: The celebrity market includes two cities, Jiangmen and Huizhou, accounting for 9.52% of the total. These two cities have shown strong tourism competitiveness in the early stage and are the highlights of tourism development in Guangdong Province.

Later changes: Jiangmen has declined into a thin dog market, Guangzhou, Shenzhen, Dongguan, and Foshan have joined the star market, and Huizhou maintains its star market position. In the later stage, the number of celebrity markets increased to 5, accounting for 23.81%, indicating that these cities have strong domestic tourism competitiveness, demonstrating the strong momentum of tourism development in the Pearl River Delta cities led by Guangzhou and Shenzhen.

3.2.2 Characteristics of the Taurus Market.

Early features: The Taurus market covers five cities including Guangzhou, Shenzhen, Zhuhai, Dongguan, and Zhanjiang, accounting for 23.81% of the total. These cities have developed a stable and mature tourism market in the early stage, with high tourism attractiveness and competitiveness.

Later changes: Affected by force majeure, Zhuhai has transformed into a preschool market, while Zhanjiang has declined into a thin dog market. Guangzhou, Shenzhen, and Dongguan were promoted to star markets, resulting in a zero number of Taurus markets in the later stage.

3.2.3 Characteristics of the Preschool Children's Market.

Early features: The preschool market includes six cities: Chaozhou, Maoming, Jieyang, Yangjiang, Heyuan, and Meizhou, accounting for 28.57% of the total. These cities experienced rapid tourism development in the early stages, but have not yet reached a mature stage.

Later changes: Jieyang, Yangjiang, Heyuan, and Meizhou have declined into thin dog markets, Zhuhai has shifted from a Taurus market to a preschool market, and Maoming and Chaozhou have maintained their position in the preschool market. In the later stage, the number of children's markets decreased to 3, accounting for 14.29%, reflecting the negative impact of force majeure factors on the development of tourism in some cities.

3.2.4 Characteristics of the Thin Dog Market.

Early features: The lean dog market includes eight cities: Zhongshan, Shantou, Yunfu, Shaoguan, Foshan, Qingyuan, Shanwei, and Zhaoqing, accounting for 38.1% of the total. These cities have weak tourism competitiveness in the early stage and need to increase investment and development efforts.

Later changes: Jiangmen has transitioned from a celebrity market to a lean dog market, Zhanjiang has transitioned from a Taurus market to a lean dog market, and Jieyang, Yangjiang, Heyuan, and Meizhou have transitioned from a preschool market to a lean dog market. Foshan has leaped into a star market. The number of lean dog

markets increased to 13 in the later stage, accounting for 61.9%, indicating the dominant position of the lean dog market in the tourism market of Guangdong Province.

4 Cluster Analysis of Domestic Tourism Destination Market in Guangdong Province

4.1 Research Methods

Cluster analysis is a method of classifying data based on its own information [5]. Using cluster analysis can more specifically analyze the competitive level of the domestic tourism destination market in Guangdong Province. IBM SPSS Statistics software is a widely used statistical analysis software with powerful data processing capabilities. The results analyzed using this software have high authority and credibility^[6].

4.2 Empirical Analysis

Based on domestic tourism data in Guangdong Province, assuming X1=Guangzhou, X2=Shenzhen, X3=Zhuhai, X4=Shantou, X5=Foshan, X6=Shaoguan, X7=Heyuan, X8=Meizhou, X9=Huizhou, X10=Shanwei, X11=Dongguan, X12=Zhongshan, X13=Jiangmen, X14=Yangjiang, X15=Zhanjiang, X16=Maoming, X17=Zhaoqing, X18=Qingyuan, X19=Chaozhou, X20=Jieyang, X21=Yunfu^[7], selecting the number of tourists to domestic tourism destinations in Guangdong from 2014 to 2023 as variables, using IBM SPSS Statistics 25.0 software for systematic cluster analysis, Guangdong Province from 2014 to 2023 was obtained. Cluster analysis spectrum diagram of domestic tourism destination markets in the province (Figure 5).

From Figure 5, it can be seen that from 2014 to 2023, the domestic tourism destination market in Guangdong Province can be divided into two categories, with Guangzhou and Shenzhen as the first largest category, and the remaining 19 cities as the second largest category. The clustering analysis results further prove that Guangzhou and Shenzhen, as two international metropolises in Guangdong Province, are the leaders in the development of tourism industry in Guangdong Province, with the strongest competitiveness and have always led the development of tourism industry in Guangdong Province. These two cities not only have rich tourism resources, such as Guangzhou Tower, Chen Family Temple, Beijing Road Commercial Pedestrian Street, Zhengjia Square, Huangpu Military Academy, Overseas Chinese Town Tourist Resort, Eastern Overseas Chinese Town, but also have advanced tourism infrastructure and perfect service system. The number of domestic tourists received has significantly surpassed other cities, becoming an important pillar of Guangdong's tourism industry. Other cities must actively seek breakthroughs, enhance competitiveness, promote the transformation and upgrading of the tourism industry, and achieve high-quality development.

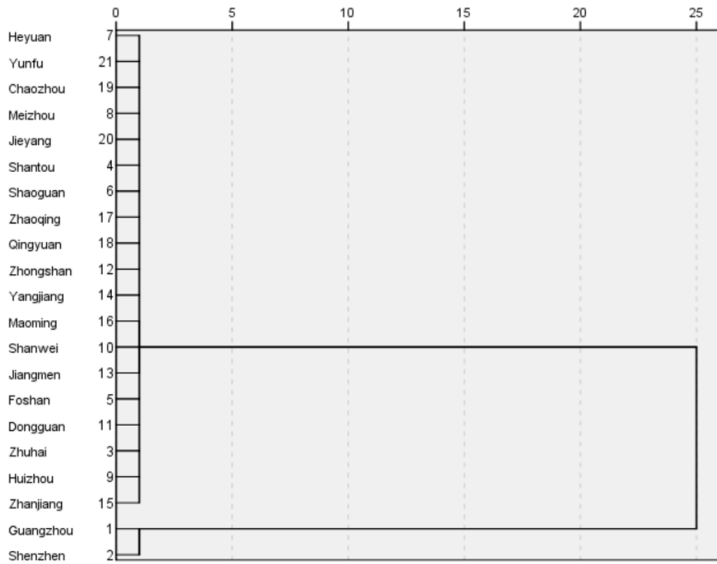


Fig. 5. Spectrum of Cluster Analysis of the Domestic Tourism Destination Market in Guangdong Province, 2014-2023.

5 Conclusion

5.1 Overview of the Development of Domestic Tourism Market in Guangdong Province

Guangdong Province, as one of the most active provinces in China's tourism industry, relies on its superior geographical location, developed transportation network, and abundant natural and cultural resources, and the domestic tourism market has a strong development momentum. During the period of 2014-2019, the number of domestic tourists and tourism revenue in Guangdong Province showed a steady growth trend. Although there was a decline in 2020 due to force majeure factors, growth has resumed in 2023, demonstrating strong market resilience.

5.2 Results of Market Competition Analysis

Star Market: In the early stage, Jiangmen and Huizhou were star markets, and later Guangzhou, Shenzhen, Dongguan, and Foshan joined, increasing the number of star markets to 5, accounting for 23.81%, indicating a significant improvement in the tourism competitiveness of these cities.

Taurus market: In the early stage, there were five cities including Guangzhou, Shenzhen, Zhuhai, Dongguan, and Zhanjiang. However, due to force majeure, the Taurus market disappeared in the later stage, indicating that some cities' tourism markets are becoming saturated or heavily impacted by external factors.

Preschool market: Initially there were 6 cities, but later it decreased to 3, reflecting a slowdown or decline in tourism development in some cities.

Skinny Dog Market: In the early stage, there were 8 cities, but in the later stage, it increased to 13, accounting for 61.9%, indicating that these cities have weak tourism competitiveness and urgently need to increase investment and development efforts.

5.3 Cluster Analysis Results

Through systematic clustering analysis, the domestic tourism destination market in Guangdong Province can be divided into two categories: Guangzhou and Shenzhen are the first largest categories, while the remaining 19 cities are the second largest categories. Guangzhou and Shenzhen, as the leaders of Guangdong Province's tourism industry, have the strongest competitiveness. Other cities need to actively seek breakthroughs and improve their competitiveness.

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[3] Innovation Team Project of Guangdong Ordinary Colleges and Universities (Humanities and Social Sciences): Collaborative Innovation Team of Digital Intelligence, Culture and Tourism Application and Standardisation Research (Project No.: 2023WCXTDO40).

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