

Regional Cultural and Tourism Departments Guide the Development of Tourist Attractions Decision-making Choices

-- Economic Analysis based on Bertrand Price Competition

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Abstract: In order to create more tourism resources, the method of guiding the development of tourism attractions based on local conditions is adopted by more and more regional cultural tourism departments. However, many attractions of the same type will produce competitive relations with each other. It needs to be analyzed whether it is economically feasible. Based on the Bertrand du model, this paper analyzes the problem of product profit reduction caused by the guidance of the cultural and tourism departments to develop the same type of tourism attractions. An economic analysis of problem is given from two aspects: similar competition and differentiated complementarity. Finally, the measures of differentiated regional scenic spots are analyzed.

Keywords: Culture and tourism; Attractions; Differentiation; Bertrand model.

1. Introduction

With the intensification of tourism market competition and the rapid development of tourism diversification decision-making, many regional cultural and tourism departments are developing more tourism attractions their weapons to gain a competitive advantage. In particular, tourism attractions with distinctive cultural backgrounds are chosen as a large demand category by most regions. These attractions have many of the same type competitive relationship. If the scenic spots in each region operate independently, is it economically feasible for the overall region and each scenic spot?

There is already a lot of literature that explores how similar products compete and develop from the perspective of the horizontal level market where competitive products are located [1-3]. However, the development of new scenic spots or the implementation of overall regional management by regional cultural and tourism departments is a vertical integrated form that integrates planning, creation, marketing and. It is a business model in which the monopoly power of investors is broadened to the horizontal level market under the guidance of the government. It conforms to the scenic spot creation of tourism group preference integration [4].

At present, the competition among scenic spots of the same type is already very fierce, and the cultural and tourism departments in various regions develop a variety of scenic and implement centralized decision-making and decentralized management for each scenic spot. There is a fundamental competitive component between these scenic spots, but they are also interdependent and even complementary, each decision-making behavior must consider the reactions of other competitive products to its strategy. Based on this, this article uses the Bertrand oligopoly competition model to analyze the impact of cultural and tourism departments developing a variety of scenic spots and implementing differentiation in a competitive environment from a microeconomic perspective, and accordingly finds the corresponding strategic recommendations.

2. The Impact of the Regional Cultural and Tourism Departments Guiding the Development of Similar Scenic Spots

2.1. The Basic Competitive Idea Brought by Bertrand Model

Consider a Bertrand price competition model, in order to enrich the tourism line, the regional cultural and tourism departments will increase the development of local scenic spots, as to introduce a number of similar or differentiated scenic spots, for the sake of simplicity, here it is assumed that there are two kinds of similar scenic spots 1 and 2, and the market price of their products is respectively p_1 and p_2 , the demand function of scenic spot i can be assumed to be $Q_i(P_i, P_j) = a - P_i + bP_j$, ($i=1,2, j=2-i$). where b reflects the reflection degree of i on j ($|b| < 1$). Not considering the fixed production cost, and assuming that the marginal cost of the same kind of scenic spots is a constant c . The two scenic spots choose the price of own products at the same time,

$P_1^m = P_2^m = P^m = \frac{a+c}{2-b}$ is the Nash equilibrium of the game, At this time, the profit of each scenic spot is $\left[\frac{a+(b-1)c}{2-b} \right]^2$ [5].

If the regional cultural and tourism departments manage uniformly and exercise macro-control, and implement cultural and tourism complementarity in the development of similar scenic spots to pursue theization of the overall regional benefits, maximized by $(P-c)D(P_i, P_j)$, both similar scenic spots will adopt the maximization price

$P_1^* = P_2^* = P^* = \frac{a+(1-b)c}{2(1-b)}$, then each obtains a profit

$\frac{1}{1-b} \left[\frac{a+(b-1)c}{2} \right]^2$, which is obviously more profitable for each scenic spot at this time.

This shows that from an economic point of view, it is more cost-effective for regional cultural and tourism departments to develop similar scenic spots under unified control rather than with each other, which can also ensure that the developed similar scenic spots cannot engage in malicious price competition at will.

2.2. The Objective Impact of Regional Cultural and Tourism Departments Developing Similar Scenic Spots

Suppose that the original regional market of the cultural and tourism department has only two scenic spots X and Y, and the market demand functions they face are as follows:

$$\begin{aligned} Q_X &= Q_X(P_X, P_Y) = a - 2P_X + P_Y \\ Q_Y &= Q_Y(P_X, P_Y) = a - 2P_Y + P_X \end{aligned} \quad (1)$$

Two similar attractions have similar cost conditions with marginal cost of c . Since the price of an attraction has to be greater than or equal to its marginal cost, one of the Bertrand model is $P > c$. In this case, the profit functions for the two types of attractions are given by:

$$\begin{aligned} \Pi_X &= (P_X - c)Q_X = (P_X - c)(a - 2P_X + P_Y) \\ \Pi_Y &= (P_Y - c)Q_Y = (P_Y - c)(a - 2P_Y + P_X) \end{aligned} \quad (2)$$

Two types of scenic spots have a competitive relationship, and if they do not pursue the maximization of profits for their own products under unified control, then the first-conditions need to be satisfied:

$$\begin{aligned} \frac{\partial \Pi_X}{\partial P_X} &= a + 2c - 4P_X + P_Y = 0 \\ \frac{\partial \Pi_Y}{\partial P_Y} &= a + 2c - 4P_Y + P_X = 0 \end{aligned} \quad (3)$$

Solving the first two equations simultaneously, we get the equilibrium price of the two scenic spots as

$$P_X = P_Y = \frac{a+2c}{3}, \text{ and their respective profits are}$$

$$\Pi_X = \Pi_Y = \frac{2(a-c)^2}{9}.$$

The development of similar scenic spots by regional cultural and tourism departments means that the regional tourism market has added a competitive product, which is assumed to be an independent scenic Z. Under the basic unchanged factors of mutual influence among scenic spots, the demand functions faced by each scenic spot are respectively transformed into:

$$Q_X = Q_X(P_X, P_Y, P_Z) = a - 3P_X + P_Y + P_Z$$

$$Q_Y = Q_Y(P_X, P_Y, P_Z) = a - 3P_Y + P_X + P_Z$$

$$Q_Z = Q_Z(P_X, P_Y, P_Z) = a - 3P_Z + P_X + P_Y \quad (4)$$

The equilibrium price for the three scenic spots under competitive conditions is $P'_X = P'_Y = P'_Z = \frac{a+3c}{4}$.

The equilibrium profit of each site is $\Pi'_X = \Pi'_Y = \Pi'_Z = \frac{3(a-c)^2}{16}$.

Obviously, $P'_X < P_X$, $P'_Y < P_Y$, $P'_Z < P_Z$ and $\Pi'_X < \Pi_X$, $\Pi'_Y < \Pi_Y$, $\Pi'_Z < \Pi_Z$.

Therefore, the following conclusion can be drawn:

The development of similar scenic spots by regional cultural and tourism departments and the abolition of unified control will lead to a in the price and profit of similar scenic spots, and even in some scenic spots, it will lead to a vicious competition situation of "pulling people's heads" in the of independent behavior.

At present, the competition among domestic tourist attractions is fierce, the profit margin of each attraction is low, and the situation of "low ticket price and high service" for the same kind of scenic spot tickets also exists in the horizontal level market. The most serious consequence of tourism competition will lead to the profit after deducting the marginal cost not recover the investment cost, and some enterprises will develop tourism scenic spots with unusual "loss" and can not continue.

3. The Corresponding Strategies of the Regional Culture and Tourism Departments to Guide the Development of Tourist Attractions

3.1. Area-Based Overall Strategy

In order to avoid the phenomenon of vicious competition in the market of independent products caused by the development of similar scenic spots, to make the competition of similar scenic in the region more orderly and healthy, it is assumed that the strategy of overall planning within the region is adopted in the implementation of large-scale competition, and the competition between scenic spots is deliberately avoided, and complementary differentiated scenic spots are developed strategically, so that the number of competitive products in the market or similar competitive products is reduced. At this, the two similar scenic spots X and Y do not emphasize the profits of their own scenic spots, and the regional cultural and tourism departments pursue the maximization of the total profits of two scenic spots in the whole region. At this time, the total profit function of the region is:

$$\Pi = \Pi_X + \Pi_Y = (P_X - c)(a - 2P_X + P_Y) + (P_Y - c)(a - 2P_Y + P_X) \quad (5)$$

Its first-order condition for profit maximization is:

$$\frac{\partial \Pi}{\partial P_X} = a + c - 4P_X + 2P_Y = 0$$

$$\frac{\partial \Pi}{\partial P_Y} = a + c - 4P_Y + 2P_X = 0 \quad (6)$$

The equilibrium price for the two attractions is then

$$P_X'' = P_Y'' = \frac{a+c}{2}.$$

The equilibrium profit of the two sites is

$$\Pi_X'' = \Pi_Y'' = \frac{(a-c)^2}{4}.$$

Obviously, $P_X'' > P_X, P_Y'' > P_Y, \Pi_X'' > \Pi_X, \Pi_Y'' > \Pi_Y$.

Therefore, the following conclusion can be drawn:

In the fierce competition among similar scenic spots in a horizontal level market, if the regional cultural and tourism departments can an overall strategy of regional internal joint planning when guiding the development of scenic spots, and develop differentiated scenic spots with complementary characteristics strategically, it can improve the equilibrium price and equilibrium of each scenic spot, and thus can improve the monopoly power of the overall regional tourism supply chain.

The overall planning within the region can achieve economies of scale to a certain extent, which is particularly important in the tourism industry with low added value in ordinary spots. Of course, this kind of cooperation within the region can also be reflected in the horizontal competition among scenic spots, and the joint or cooperative operation between scenic spots within the regional market with economies of scale is one of the ways to weaken or avoid "cutthroat competition" and thus reduce the competitiveness of regional tourism. As for the regional cultural and tourism that guide the development of tourism scenic spots, their cooperation among scenic spots includes cooperation routes, cooperation pricing, cooperation services, cooperation maintenance and so on. Obviously, these strategic cooperation have changed the previous situation of each doing their own thing, and can improve the income situation and service level of the cooperators.

3.2. Regional Cultural and Tourism Departments Guide the Development of Differentiated Strategies for Tourist Attractions

Since the parameter b in the demand function reflects the degree of substitutability between the two scenic spots, it can be regarded as the state of product differentiation., increasing the difference of scenic spots (such as culture, venue, architecture, folk custom, service, brand, etc.), the b value is reduced from the original 1 to 0.5, then the demand functions faced by the two products X and Y are adjusted to:

$$\begin{aligned} Q_X &= Q_X(P_X, P_Y) = a - 1.5P_X + 0.5P_Y \\ Q_Y &= Q_Y(P_X, P_Y) = a - 1.5P_Y + 0.5P_X \end{aligned} \quad (7)$$

The profit functions of the two sites are:

$$\begin{aligned} \Pi_X &= (P_X - c)Q_X = (P_X - c)(a - 1.5P_X + 0.5P_Y) \\ \Pi_Y &= (P_Y - c)Q_Y = (P_Y - c)(a - 1.5P_Y + 0.5P_X) \end{aligned} \quad (8)$$

$$\text{From } \frac{\partial \Pi_X}{\partial P_X} = 0 \text{ and } \frac{\partial \Pi_Y}{\partial P_Y} = 0, \text{ it can be derived that}$$

the equilibrium price for the two scenic spots at this time is:

$$P_X''' = P_Y''' = \frac{14a + 21c}{35} \quad (9)$$

The equilibrium profit of the two sites at this time is:

$$\Pi_X''' = \Pi_Y''' = \frac{6(a-c)^2}{25} \quad (10)$$

Obviously, $P_X''' > P_X, P_Y''' > P_Y, \Pi_X''' > \Pi_X, \Pi_Y''' > \Pi_Y$.

From the above analysis, the following conclusion can be drawn:

In the context of increasingly fierce competition in the tourism market, the regional cultural and tourism departments guide the development of tourist attractions, and by increasing the difference attractions, they can improve their respective equilibrium prices and equilibrium profits, thus avoiding the adverse phenomenon of vicious competition among similar attractions.

Increasing the difference between tourist attractions and avoiding theogeneity of tourist attractions within the region is the main way to reduce vicious competition and improve the overall tourism competitiveness of the region, and it is also a key point for the success of development of tourist attractions. In fact, the essence of the regional cultural and tourism departments' enrichment of tourist attractions is to earn more consumer time in a limited market demand, which reflects the competitive situation among its tourist attractions.

4. Regional Cultural and Tourism Departments Guide the Development of Differentiated Strategies for Tourist Attractions

To enhance the difference in the development of tourist attractions by regional cultural tourism departments is to tap into the culture and attributes within the region, so that consumers' perceived quality of the attraction is improved, and the consumption difference between it and other attractions is widened from the consumer's perspective.

For example, the natural landscape tourism that are generally developed differ little in objective quality from most similar attractions, but their perceived quality is initially low, and consumers' brand recognition is not high. The reasons for this are the following two aspects: First, the brand accumulation for the development of such attractions is relatively weak. This explains the lack of maintenance costs, marketing communication, and insufficient consumer spending on attractions; second, it lies in its services and prices. Generally, the services and facilities of newly developed attractions are better initially, but as the flow of people decreases, the situation of low service and low construction will become common, which makes it difficult to show its high-quality brand image.

When evaluating tourist attractions, tourists generally give a fairly reasonable perceived value in terms of actual experience and tourism cost, and the more famous the tourism brand is in minds of consumers, the higher the quality and value it represents, and consumers' perception of its quality is

obviously higher. It is necessary to set up a check-in place with such as photo taking as the main content covering the information of tourism services such as landscape, accommodation, transportation, and food inside the scenic area, and such emotional evaluation will often be positive [6], thereby improving the value of tourists' experience.

In fact, when regional cultural and tourism departments develop a certain scenic spot with a high cultural heritage, tourists do not necessarily think that the scenic spot a high-quality and high-level scenic spot. Improving the brand accumulation of scenic spots is the key issue to improve their quality perception. In order to improve the perceived quality of tourists to scenic spots, on the one hand, regional cultural and tourism departments and scenic spot managers need to strengthen the shaping of scenic spots, so that scenic spots have a high and characteristics from the tourism route, so as to produce better experience value than similar scenic spots; on the other hand, it is necessary to strengthen marketing publicity, strengthen the narrative of spots and communication with tourists, create more opportunities for consumers to understand, try and consume, and strengthen the role of advertising publicity to enhance the recognition of tourists to scenic spots, that tourists can accept and recognize the newly developed scenic spots; The third is to pay attention to brand image shaping, and strengthen the tourists' perception of newly developed scenic spots by optimizing improving the regional tourism reputation and scenic spot image.

5. Conclusion

This paper analyzes the objective impact of the regional culture and tourism departments guiding the development of tourist attractions from a microeconomic perspective, and provides differentiated decision- options and some corresponding countermeasure suggestions.

The regional cultural and tourism departments guide the development of similar scenic spots, which can lead to intensified competition among homogeneous scenic spots and has a certain negative impact the entire horizontal market, which is not conducive to the sustainable development of each scenic spot enterprise from an economic perspective. Therefore, the cultural and tourism departments can reduce this impact regional overall planning strategies, and can improve the complementarity and difference of newly

developed scenic spots to improve their respective revenue situation, thereby enhancing the tourism competitiveness of the region.

Judging from the current situation that all regions' cultural and tourism departments are guiding the development of new tourist attractions, this situation of fierce competition among similar scenic spots will not be effectively improved in the future, and the cultural and tourism authorities that develop new tourist attractions can only win in the tourism market competition by scientific planning and reasonable decision-making.

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