Scientific
Research
Publishing

The Game Analysis of the Tourist Shopping Process in Tourism Destination

Mingzhu Liang, Ruonan Ma

Jinan University, Guangzhou, China
Email: 1224817994@qq.com

Abstract

Under the condition that the current China's tourism shopping market is not standardized, it is difficult to boost the shopping in tourism with low shopping consumption in proportion of tourism consumption. This paper used the method of game theory, analyzed the game between the tourists and merchants of tourism destination in the process of tourism shopping, and made the research results which called equilibrium solution that tourism merchants choose to sell inferior commodities and tourists buy at a high price, no matter the tourists join the group tour or not. Finally the essay has gotten the reason why the tourism shopping market is not booming in China, and strengthening the government's supervision of the market has been put forward to increase the management and guide measures for tour guides and tourists.

Keywords

Game Theory, Tourism Shopping, Tourists and Merchants, Equilibrium Solution

1. Research Background

In the late years, all kinds of tourism emergencies are being frequently exposed in the media, and cause hot debate in public. Many tourism events have occurred, such as swindling money out of customers in Sanya, tour guides forcing the tourists to shop in the tourism destination, uncivilized behavior of tourism and zero or negative tour expense in group. Especially in the annual May Day, National Day of the tourist season, the news of this kind of travel event is full of people's eyeball, and arises people's extensive hot debate. In these tourist events, due to the necessities of consumption, like food, accommodation and so on in tourism destination, tourist defrauding events can cause more attention of people, such as tour guides forcing tourists to shop in Sanya and Yunnan, and

"astronomical prawns" in Qingdao. Such incidents developed from the tourism news to the ridicule in the network media, and the perception of such group has also developed to the all public. Furthermore, because of the necessity of tourist shopping for tourists and the traditional public's perception of tourism destination shopping, it seems that everyone feels the commodities' price of the travel destination must be higher than normal products. Therefore, it is very meaningful to analyze the tourist shopping process of tourist destination. The object of study in this paper is tourist shopping process in tourist destination.

Game theory mainly studies decision-making behavior in direct interaction, that how the participants use the information that they have mastered to make decision, and the equilibrium solution of this decision-making, which reflects the participants' actions and interactions between the conflict, competition, coordination and cooperation in the game (Zhang, 1999). Game theory can be divided into non-cooperative game (Nash Equilibrium) and cooperative game (Von Neumann & Morgenstern, 1944). The former is mainly to study the individual's strategic choice, emphasizing personal rationality; the latter mainly studies the result of cooperation and the distribution of benefits, emphasizing group rationality. In tourist shopping process, there is a certain information asymmetry between the merchants and tourists, which causes a non cooperative game. Using the game theory to analyze the game between tourists and merchants in the process of tourism shopping including the analysis of game elements at first, namely the game subject, different modes of game rules and each participant' interests; secondly, including different game processes of two types of tourism commodities—tourist souvenirs and general merchandise. In a word, this paper analyzes the four sides game between the local travel agencies, tour guides and merchants and tourists under the tour group mode, and the two sides game between tourists and merchants without the tour group mode. This paper uses the game theory analysis to reveal the game between tourism shopping in the interests of the results, to understand the formation mechanism of tourist shopping results in tourist destination, so as to have a better understanding of tourism consumption market, and also to promote tourism consumption, improve tourism shopping market and improve tourist consumption satisfaction.

2. Literature Review

2.1. The Definition of Concept

Tourists will spend time and money on shopping during the travel, and the shopping during the travel will promote the economic development of the destination. Tourist shopping behavior, which is defined as "the economic and cultural behavior of tourists in order to buy or various physical commodities in the activities of tourism, that includes not only the special shopping behavior in tourism destination, also include the sum of all the behavior related to shopping in the travel (Shi, 2005). Tourist shopping, including all shopping activities related to the tourism through the preparation stage, the journey, and after re-

turning to the place of residence. In this paper, the research is limited to the tourists shopping process in the tourist destination, does not include the tourists buying tourism products in the process before the trip in the residence.

Some scholars have classified the types of merchandise purchased by tourism, divided them into non tourism commodities and tourism commodities, and pointed out that non tourism commodities are for business investment purposes, while tourist commodities are purchased for non commercial purposes (Miao, 2004). That is to say, the definition of tourist commodities refers to tourist products that are not purchased for commercial purposes, but also the visible commodities that are centered around tourist souvenirs. Meanwhile, tourism commodities are also pointed out, such as daily necessities, tax-free commodities and tourist souvenirs (Miao, 2004). This study divides the tourist commodities in tourism shopping into two categories: souvenirs and daily necessities, which can make a different analysis of the purchase process between the two kinds of tourist commodities.

2.2. Review of Research on Tourism Shopping Market

The research content of the tourist shopping market is rich in foreign countries with the wide research scope, and the research on the decision-making analysis of the tourist shopping process needs to be further studied. In the study of the behavior of tourist shopping, Daniel L. et al. (Spears & Rosenbaum, 2012) analysed the tourism package in Japan and the United States, pointing out that there are great differences between different types of tourists in the choice of travel destinations and time choice. In the study of tourism shopping experience, Wong I K A. et al. (Wong & Wan, 2013) found that tourism shopping satisfaction can learn from the destination attributes and system development of shopping experience. In the aspect of tourism shopping decision, Jose M. et al. (Merigo et al., 2012) points out that the purchase behavior of tourists with different motives has a great impact on the travel cost and the frequency of shopping.

Domestic research on tourist shopping market is quite a lot, and it mainly concentrated in the following aspects: the first is the research on the problems in the tourism shopping market, namely the market failure, which deepens the understanding of the restrictive factors and countermeasures of tourism shopping (Cao, 2005), and believe that whether groups and individual consumer shopping, it will be affected by the impact of information asymmetry (Ju & Li, 2009). The second category is the analysis of the Industrial Organization of the tourism shopping market, pointing out that in the structure of tourism shopping market, there are a number of buyers, merchants with small scale, and has not formed the industry leader enterprises, therefore, the market is full of homogeneous products, low barriers to entry, where exists serious information asymmetry (Shi, 2005). The third category is the analysis of complaints in tourist shopping market, that is, to explain the types and causes of tourists' shopping complaints, and the influence of subsequent behaviors, etc. (Qian & Wen, 2006; Ma, 2006).

These studies analyzed the factors on the macro level of the tourism shopping market, pointed out that the tourism shopping market information is asymmetric, and that the influence of the tourist shopping by asymmetric information may cause various complaints, so for the forming mechanism of the shopping process needs further study.

2.3. A Review of the Game Theory Analysis on Tourism Shopping

The application of game theory to the study of tourism related issues includes the zero cost tour group, the formation of tourism price and so on. Tourism development in Northeast Asia is growing increasingly competitive, and the Nash equilibrium strategy is commonly applied to explain interdependency among these destinations (Tran & Thompson, 2015). The zero-fare is an extreme phenomenon of commission based model known in Chinese outbound market, in which the tourists barely pay the group fee, a better balance between experiential and operational considerations drives itinerary choices for zero commission tours (Wong & McKercher, 2012). In addition, numerous studies apply game theory to illustrate pricing strategies within a single sector (e.g., hotels or travel agencies), or cooperative relationships among sectors (Tsaur & Chen, 2018).

Although the quantity is not much, there still has the scholars in domestic to use the game theory to solve and discuss the traveling shopping question. Some scholars have discussed the problem of tourist satisfaction and tourist shopping based on the perspective of supply chain, and proposed the concept of satisfactory equilibrium, then use game theory to analyze satisfaction imbalance problem of the normal reception mode, zero profit receiving mode, zero fare reception mode, negative fare reception mode in tourism shopping (Chen et al., 2013). Scholar Wan (Wan, 2011) use game theory as a research tool, found the equilibrium solution through the game analysis of the tourism shopping market under the condition of incomplete information, and come to the conclusion that there will must be a large number of inferior products in the tourism shopping market in the condition of incomplete information. However, the game analysis of tourism commodity purchase didn't distinguish tourists individually from the tour groups, at the same time, the analysis of the purchase process of tourist commodities is not classified. The analysis in this paper includes different game process of two types of tourism commodities which means tourist souvenirs and general merchandise: the four sides game under the tour group mode, and the two sides game between tourists and merchants without the tour group mode, so as to obtain a more comprehensive understanding of all kinds of situations of tourism shopping process.

3. Analysis of Tourist Shopping Game Elements in Tourist Destination

3.1. Participants (the Game Player)

Participants (the game player) is the decision-making body of the game. The

players of the game is the stakeholders in the process of game analysis, and decision makers in the game there must exist a variety of interest relationship. If the participant does not exist interested relationship with other participants in the game, the participants can't become the main body of the game (Wu & Hu, 2007). In the process of tourism shopping, the biggest two stakeholders are the merchants in the tourism destination and the tourists. Due to the travel agency and the tour guide has a great guiding influence on the tourists who will shop in the destination, so there is also a quartet game between the travel agency, tour guides and merchants, tourists. When choosing strategies and taking actions, the government should not only consider their own actions to the impact of the spending, also have to consider the competitor's actions to the impact of their spending, such as the pricing regulation promulgated by Industrial and Commercial Bureau, Tourism Bureau for tourist shopping, so the government departments are also in the game model (see Figure 1).

3.2. Game Rules

The rules of the game are the provisions of the game, such as providing the order of behavior, the information, action choice, results, etc. (Wu & Hu, 2007). In the process of tourism shopping, there is information asymmetry between the merchants and tourists in the tourism destination. First the merchant marked the price on the merchandise, but does not provide the product cost information, and then the tourist decide whether to buy it according to the degree of demand and the price. In the dynamic game of incomplete information, the merchants in the tourist destination and tourists choose their own behavioral decision respectively, and finally get the results of the tourist shopping in the tourism destination.

In the case of tourists participating in the tour group, while the four sides game process between the tourists and travel agencies, tour guides, merchants, players are rational people for their own economic interests, and they have their own interests demand : The merchant fix a price to pursue the maximum profits; Tourists want to buy the highest cost-effective tourism commodities; Travel agencies are reluctant to pay higher compensation for the guide in order to reduce operating costs; The tour guide wants to get kickbacks to raise revenue through guiding tourists shopping. In addition, in the game model of tourism
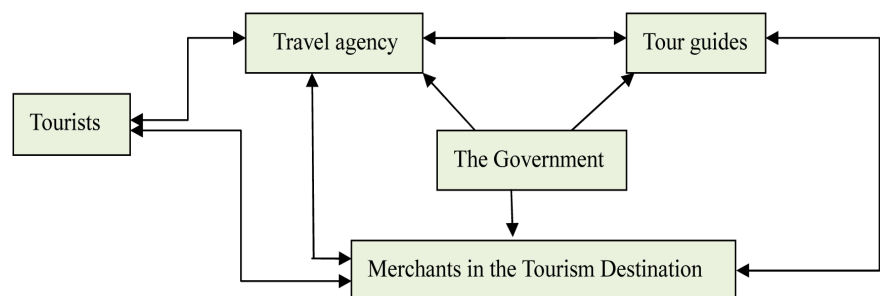

Figure 1. Tourists in the tourism destination of the tourist shopping game model.

shopping in the tourist destination, the government is the social management, but also is the representative of the interests of the whole society. Therefore, the government's decision should be the maximization of social benefits (Wang, 2008), and the game rules of such multi-party players are formed.

3.3. Results and Benefits

It usually puts the results and benefits as the same concept on the analysis of game time. The result is that each of the possible action combinations of all participants will eventually emerge; the benefit is the participant's gains and losses in the concept of economics as a preference, which is based on each of the potential results. Participants in the game will compare the different results in order to seek the best benefits. As for the final result of game theory, game theory is divided into cooperative game, non cooperative game (or contention game) and cooperative contention game according to the behavior of decision maker whether is achieved and applied a binding agreement.

4. An Analysis of the Game between Tourists and Merchants in Tourism Destination

4.1. With No Group Tourism, the Analysis of the Game between Tourists and Merchants

This thesis will primarily analyze the game between tourists and merchants in the shopping process, where information is not complete, and both sides are reasonable businessman who pursues their own maximum of interests. Tourism commodity or tourism purchase, defined by scholar Miao (Miao, 2004), refers to the physical goods, which isn't purchased from the commercial purpose and takes the tourism souvenirs as the core. The tourism commodity mainly includes the goods purchased for the use in the tour, tourism souvenir, daily necessities and free commodity. This thesis mainly analyzes the purchase process of tourism souvenir and daily necessities.

4.1.1. The Game in the Purchase Process of Tourism Souvenir

There are two kinds of tourism souvenirs which are the quality product and the product of inferior quality in the tourism commodity market. Merchants can choose to sell the former or the latter, assume that the cost of the quality product is $C1$ and the cost of the product of inferior quality is $C2$. On the one hand, when merchants choose to sell the quality souvenir, there are two kinds of situation where they may sell it in high profits or in low profits, assume that the two prices are $P11$ and $P12$ and $P11 > P12$, and the value evaluated by the tourists are $S1$. On the other hand, when the merchants choose to sell the souvenir of inferior quality, as the same, they may sell it in high profits or in low profits, assume that the two prices are $P21$ and $P22$ and $P21 > P22$, and the value evaluated by the tourists are $S2$. It's clear that the relationship of these data: $C1 > C2$, $P11 > P21$, $P12 > P22$, $S1 > S2$. According to the assumption that the tourism consumers are rational, they may choose to buy it on the condition that $S > P$, mean-

while, if the souvenir merchants are rational, they cannot sell it under the cost of the products, so they must sell it on the condition that P > C, so it must be S > P > C when the deal is closed.

Because of the asymmetric information, consumers cannot distinguish the product of superior quality and the product of inferior quality, besides, the market supervision of government is not perfect, so Table 1 illustrates the game of tourism consumers and the souvenir merchants. According to the assumption that both consumers and merchants are rational, merchants may choose to sell the product of inferior quality in high profits, that's to say P21 − C2, or choose to sell the quality product in high profits, namely P12 − C1. In reality, the value of souvenir evaluated by tourists (S1) is generally less than P11 and more than P12, so S1 − P12 < 0. So when the merchants sell the quality souvenirs in the price of P11, consumers think it's higher than their evaluation, so they choose not to buy it (S1 − P12 < 0); when the merchants sell the souvenir of inferior quality in the price of P21, because the consumers cannot distinguish true or false, the benefits of tourists' psychology are at large (S2 − P21), so they choose to buy it. So the choice of the game between consumers and merchants is to sell the product of inferior quality in high profits, for which reaches a balance (S2 − P21, P21 − C2).

4.1.2. The Game in the Purchase Process of Daily Necessities in Tourism

Although generally there is no division upon the quality or inferior quality in daily necessities, merchants still can choose to sell product in high profits or in low profits. Assume that the cost of daily necessities is C, merchants can choose to sell it in two price, P1 and P2. and P1 > P2, and the evaluation of consumer is S. Under the assumption that both sides are rational, when they close a deal, it must be S > P > C. In reality, because its necessity, consumers may choose to buy some in the tourism destination, which is against the assumption that the consumers are rational, then merchants will sell the daily necessity in high profits, namely P1.

The purchase process on daily necessities is a process where the tourists play the game with themselves, according to the degree of necessity and the price offered by the merchants.

4.2. The Analysis of Game between Tourists and Businesses in Group Tours

In group tours, travel agency and guides contract an alliance with merchants.

Table 1. The game of tourism consumers and the souvenir merchants.

Merchants / Tourist	The quality product	The product of inferior quality
Cost P11	S1 − P12, P12 − C1	
Cost P12	S1 − P12, P12 − C1	
Cost P21		S2 − P21, P21 − C2
Cost P22		S2 − P22, P22 − C2

The guides are to induce tourists to shop, in return, the merchants will pay the guides in a certain proportion of the profits. In the process of travel, there is always one side facilitating tourists to shop in order to get high commission. Due to the internal constraints of travel agencies, the game between the travel agencies and tour guides is the result of the two party cooperation game, namely, the pursuit of the maximization of the interests of the two party groups. To make it brief, we regard the travel agency and guides as one side, whose purpose is to promote tourists to shop and get high profits (there is no analysis of the game between travel agency and guides). In fact, the guides will get high commissions when induce the tourists to buy souvenirs and duty-free goods, as a result, we only analyze tourism souvenirs in this paragraph.

In this process, the guides need to get commissions in r proportion, so they will induce tourists to buy goods in the shops where have high profits. It is hard for tourists to recognize quality goods and poor products, however, the guides will induce them to spend much money in buying inferior products, as in Table 2. In this moment, the merchants always choose the way to get more profits, so they induce tourists to buy poor goods. The analysis of the final game is {S2 − P21, P21 − C2(1 − r)}. As a result, tourists buy inferior goods at a high price and they are on the hook of the businesses and guides. So that merchants and tour guides can split the benefits of tourists.

4.3. The Game Analysis of Tourists and Merchants under the Situation of Government Intervention

The government is not only an important management and planner for the development of regional industry, but also an important distribution and control agency of tourism resources (Wang, 2008). As one of the game players, the government will invest resources such as manpower, material resources and technology to supervise the purchase market of tourist commodities, when there are many problems in the tourism purchase market, and will consider the balance of costs and benefits, in order to achieve the purpose of market supervision. If the supervision and management cost of the local government is too high, and there are fewer problems in the current tourism purchase market, and the price of the tourism commodities is mostly reasonable, then the local government will ultimately choose the strategy of "less supervision" or "no supervision". However, when there are many problems in the tourism purchase market, the government

Table 2. The game between tourists and merchants in group tours.

Merchants / Tourist	The quality product	The product of inferior quality
Cost P11	S1 − P12, P12 − C1	
Cost P12		
Cost P21		S2 − P21, P21 − C2(1 − r)
Cost P22		

will play the role of supervision and management, and will influence the development of tourism by means of legislation, regulation, coordination policies and infrastructure construction (Wearing & Neil, 1999).

In view of the situation of inferior commodities sold in the tourism market, the implementation of the supervision and management policies of the government will focus on the punishment policies for the illegal businesses. Such a punishment policy will increase the fraudulent cost of the tour sellers who sell the inferior products. In the process of analysis, the cost of merchants selling genuine and inferior goods and tourists purchase price assumptions as above, and the government's punishment policy of supervising the inferior goods of tourism is added to the game analysis. Then It is assumed that the probability of the inferior goods being sold by merchants is q_1, and the penalty amount is M_1. The first case is that when merchants sell genuine products, they will not be punished by the government, however, due to the asymmetric information of tourist souvenirs, tourists' valuation of tourist souvenirs C1 will be higher than that of merchants selling high priced P12. According to the merchants to maximize the benefits that merchants will choose larger profit (P12 − C1) (i.e. a high profit to sell genuine goods). The second case is that the merchants selling inferior souvenirs when they face punishment by the government, and there is a game between merchants and tourists no matter whether merchants sell inferior commodities, then merchants choose the price P21 to sell which is less than consumers' evaluation C2 and higher than the normal price (see Table 3). The government should make the merchants interests (P12 − C1) higher than {(P21 − C2 − M_1) × q_1} under the reasonable supervision cost, that is to say, we need to use the larger penalty amount and the lower q_1 to reduce the supervision cost. For the government, the outcome of the game is to adopt policies to punish a large amount, so the ultimate benefit comparison of merchants, namely {(P21 − C2) (1 − q_1)} is larger than {(P21 − C2 − M_1) × q_1}. Considering the above two kinds of circumstances, in the absence of government regulation, merchants will choose types of commodities according to the inspection probability q_1 of the government, so the government should not only intensify supervision and management in the amount of punishment, but also improve the enforcement of supervision, will make the tourism market tourism gets rid of inferior commodities.

Table 3. The game analysis of tourists and merchants under the situation of government supervision of inferior products.

Tourists \ Merchants	The quality product	The product of inferior quality has not been investigated	The product of inferior quality has been investigated
Cost P11	S1 − P11, P11 − C1		
Cost P12	S1 − P12, P12 − C1		
Cost P21		(S2 − P21) (1 − q_1), (P21 − C2) (1 − q_1)	(S2 − P21) × q_1, (P21 − C2 − M_1) × q_1
Cost P22		(S2 − P22) (1 − q_1), (P22 − C2) (1 − q_1)	(S2 − P22) × q_1, (P22 − C2 − M_1) × q_1

According to the game analysis results of the previous section, besides the management and control of the inferior commodities in the tourism market, the government should also implement the price management policy of the tourism market, and execute the policy of unreasonable price sale which will be punished, so as to control the sale of the high priced products. At this time, it is assumed that the probability that the merchants who sell the tourist products at high price will be inspected is q_2, and the penalty amount is M_2. Merchants will be punished by the government when they sell products at high prices, at the same time, the merchant's benefits (P11 − C1) would be higher than that {(P11 − C1 − M_2) × q_{2}}, so compared to the amount of punishment, the merchants pay more attention to the probability of q_2 that the government inspection of inferior products. So the government control of the tourism market prices need to adopt relatively reasonable amount of punishment, and to improve the monitoring probability q_2, finally the tourist purchase market will solve the problem of too many inferior products and too high price to reach the optimal solution (see **Table 4** below).

5. Conclusion and Suggestion

Through the above analysis, this paper obtained the following conclusions: 1) Without the government management of the tourism shopping market, because of the asymmetry of market information, the result of the game is that the merchants will choose to sell inferior commodities and the tourists will buy inferior commodities in high price because of lacking in the recognition ability, no matter the tourists join the group tour or not, then the merchants, tour guides and local travel agencies make profit. This is the reason why there are so many inferior commodities in sightseeing places. 2) In the case of government intervention, if the government only chooses to supervise the inferior commodities, we should use a larger amount of punishment, and at the same time try to improve the enforcement of supervision, so that the inferior commodities in the tourist market can be largely got rid of. 3) If the government only supervises inferior commodities not price regulation, merchants will eventually choose to sell quality commodities at higher price; therefore, the final result of the game is that the government should adopt a reasonable amount of punishment and a higher probability to rationalize the price of the tourist shopping market. According to

Table 4. The game analysis of tourists and merchants under the situation of government supervision of commodity prices.

Merchants / Tourists	The high price of product has not been investigated	The high price of product has been investigated
Cost P11	S1 − P11(1 − q_2), P11 − C1(1 − q_2)	
Cost P12	S1 − P12, P12 − C1	
Cost P11		(S1 − P11) × q_2, (P11 − C1 − M_2) × q_2
Cost P12		(S1 − P12), (P12 − C1)

the above conclusions, we need to solve two original problems to improve the quality of tourism market: To improve the consumption ability of tourist shoppers, the government strengthens the supervision to make the tourist merchants sell the quality commodities, and strengthens the price supervision to rationalize the price of the tourism market.

On the one hand, the solution of this problem depends on the guidance of government, media and other authoritative organizations to guide the tourists' consumption ability (Chen, 2013). The government can also consummate the tour guide salary system and increase the disclosure of the low price group's forced shopping problem with the media, so that consumers can rationally understand and resist low price group, thus rationally consume and improve their self consumption ability. It can also enhance the tourists' self-protection consciousness by guiding the tourists' rational rights (Liu, 2006). Enhancing tourists' consumption ability and awareness of rights can solve the problem of inferior quality and unreasonable price of commodities in tourist shopping market. On the other hand, the government's measures to strengthen market supervision can be implemented in many ways; for example, the government can set up a cooperation network of comprehensive departments of law enforcement, such as tourism management department, business administration department, cultural administration department and so on, and establishing a comprehensive monitoring network, strengthening inspection etc. Through the above suggestions, we can make tourism shopping merchants consciously standardize their business behaviors under the pressure of market pressure, and achieve the standardized development of tourist shopping market.

References

Cao, G. X. (2005). Analysis of China's Tourism Commodities Market Failure. *Economic Latitude and Longitude, No. 2.*

Chen, Y. C., Xu, H., & Guo, J. (2013). Satisfaction Equilibrium: An Analysis of Tourist Satisfaction and Shopping from a Supply Chain Perspective. *Tourism Tribune, No. 3.*

Ju, M. J., & Li, Z. S. (2009). Research on the Influence of Information Asymmetry on Tourists' Shopping Behavior and the Treatment Measures. *Journal of Leshan Normal University, No. 12.*

Liu, H. (2006). An Analysis of the Source of Problems Regarding Tour Guide Service Quality and Study for Countermeasures: Based on Stakeholder Theory and Visitors Perceptive Visual Angle. *Tourism Tribune, 24.*

Ma, J. F. (2006). Review of Domestic Research on Tourism Shopping. *Journal of Beijing International Studies University, No. 9.*

Merigo, J. M., Gil-Lafuente, A. M., Martorell, O. et al. (2012). Uncertain Induced Aggregation Operators and Its Application in Tourism Management. *Expert Systems with Application, 39,* 869-880. https://doi.org/10.1016/j.eswa.2011.07.085

Miao, X. L. (2004). Conceptual Definition of Tourist Commodities and Local Characteristics of Tourist Souvenirs. *Tourism Tribune, 19.*

Qian, Y. C., & Wen, J. (2006). Analysis and Countermeasures of Tourist Shopping Complaints. *Market Modernization, No. 2.*

Shi, M. (2005). Analysis of Industrial Organization of the Tourism Shopping Market. *Commercial Times-Theory, No. 35.*

Shi, M. (2005). Research on the Tourist Shopping Behavior of. *Tourism Tribune, No. 5.*

Spears, D. L., & Rosenbaum, M. S. (2012). The Packageo Touriste: A Japanese and Americh Persective. *Tourismos: An International Multidisciplinary Journal of Tourism, No. 7.*

Tran, X., & Thompson, C. (2015). Application of Game Theory in Tourism. *Tourism Analysis, 20,* 697-702. https://doi.org/10.3727/108354215X14464845878192

Tsaur, R.-C., & Chen, C.-H. (2018). Strategies for Cross-Border Travel Supply Chains: Gaming Chinese Group Tours to Taiwan. *Tourism Management, 64,* 154-169.

Von Neumann, J., & Morgenstern, O. (1944). *Theory of Games and Economic Behavior.* Princeton University Press.

Wan, S. (2011). Research on the Transformation and Upgrading of Tourism Shopping Market Based on Game Theory. *Journal of Resources Development and the Market, 27.*

Wang, Z. (2008). Tourism Industry Cluster and Its Stakeholders—A Study of Government Game. *Journal of Hunan University, 22.*

Wearing, & Neil (1999). LAC Model in Ecotourism. *Annals of Tourism Research, No. 5.*

Wong, C. U. I., & McKercher, B. (2012). Day Tour Itineraries: Searching for the Balance between Commercial Needs and Experiential Desires. *Tourism Management, 33,* 1360-1372. https://doi.org/10.1016/j.tourman.2011.12.019

Wong, I. K. A., & Wan, Y. K. P. (2013). A Systematic Approach to Scale Development in Tourist Shopping Satisfaction Linking Destination Attributes and Shopping Experience. *Journal of Travel Research, 52,* 29-41.
https://doi.org/10.1177/0047287512457263

Wu, X., & Hu, Y. (2007). Under the Limited Resources of the Tripartite Game Analysis. *Modern Commercial and Trade Industry, No. 3.*

Zhang, W. (1999). *Game Theory and Information Economics.* Shanghai: Shanghai People's Publishing House.