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**Conjoint Analysis of Consumer Preferences to Destination Brand Attributes:
Take Shandong Province, China as an Example**

Introduction

Destination image has become a popular research topic in the tourism research area and has contributed to the understanding of travel-related consumer behavior, such as destination decision process and future travel intentions and satisfactions (Beerli and Martín 2004; Fakeye and Crompton 1991). Much of the research in this areas has focused on the effect of destination image, such as how it affects behavioral intentions, and the effect of social media on destination image (Pike 2002). Previous studies have shown that there are different kinds of factors and attributes that affect destination image, such as facilities for water sports, facilities for golfing and tennis, historical and cultural interest, scenic beauty, etc. (Goodrich 1978).

The main goal of this paper is to increase our knowledge of key attributes attracting Chinese tourists. More specifically, the key objectives are:

1. To employ choice-based conjoint to identify the key attributes which attract tourists to Qingdao, Yantai and Weihai.
2. To provide these three cities with marketing strategies that would assist them in attracting tourists.

Literature Review

Destination Image

Numerous research projects have confirmed the role and importance of destination image in the area of tourism. In the early 1970s, Hunt (1975) first studied the effect of image in tourism development and since then, destination image has become a popular research topic in the tourism research area (Gallarza, Saura, and Garcia 2002; Kladou and Mavragani 2015). Over the years, researchers have debated the definitions of destination image, but there is no consensus in defining destination image. According to Crompton (1979), destination image is an attitudinal concept, which refers to a tourist's views, beliefs, impressions and ideas of a destination. The definition of Crompton is widely used in the area of tourism. Some researchers hold similar definitions as Crompton, such as Embacher and Buttle (1989), Koterl et al (1994) and so on.

|Other researchers view destination image as a mental construct that develops from an individual's impression (Fakeye and Crompton 1991). Lawson and Ban-Bovy (1977) presented a study to demonstrate that destination image consists of cognitive and affective factors. In their study, the cognitive refers to an individual's beliefs and knowledge about the physical attributes of a destination (Baloglu and McCleary 1999; Pike 2002). Affective refers to the feelings associated with these attributes (Baloglu and McCleary 1999). Based on Lawson and Ban-Bovy's study, Gartner (1993) added another important construct, conative, as the related component to destination image.

Attribute Properties

The development of destination image is dependent upon particular destination characteristics and destination attributes (Edwards, Griffin, and Hayllar 2008). Previous studies related to destination attributes mainly focused on natural resources, humanity resources, activities, price, service, etc. (Chen and Gursoy 2001; Zenker, Eggers, and Farsky 2013; Zenker, Petersen, and Aholt 2013). Studying destination attributes has been helpful in developing the theoretical

framework and measurement system of destination brands (Cracolici and Nijkamp 2009; Echtner and Ritchie 1993). Kim (1998) made a summary of destination attributes, which could be classified into natural resources, activities, accommodation and transportation, culture, etc. Buhalis (2000) developed a framework with six primary indicators, such as attractions, accessibility, amenities, available packages, activities and services. Pearce (2001) proposed a framework that emphasizes the matrix including "site, district, city-wide, regional, national and international".

Destination image is not only a set of attributes mentioned above, but "a complex and intergrade portfolio of services" which meet tourists' needs (Cracolici and Nijkamp 2009). The literature on destination attributes is dominated by models such as the fishbein-type choice model (Seddighi and Theocharous 2002), perception index model (Ma and Mi 2008), tourist attractiveness scheme (Cracolici and Nijkamp 2009), Analytic Hierarchy Process (AHP) model (Hsu, Tsai, and Wu 2009), and conjoint choice model (Dellaert, Borgers, and Timmermans 1995; Suh and McAvoy 2005).

Different statistical techniques are available to decompose the overall preferences or choices as provided by the respondents into utility weights associated with the factors. It is important for potential tourists to make a decision on destination choice so as to enable destination marketers to better understand the competitive positioning of destination in the market place and combine this information with tourist preferences.

Methodology

In a choice-based conjoint analysis, each respondent has to choose one option from a number of choice sets at different levels. Respondents choose the option which offers the maximum utility. In order to make the choice more realistic, choice sets include a no-choice option namely "None" (Vermeulen, Goos, and Vandebroek 2008). Because respondents don't make a choice all the time in real life. Some approaches are employed to estimate the utility functions, such as Hierarchical Bays (Eggers and Sattler 2009), and multinomial logit model (Eggers and Sattler 2009; Halme and Kallio 2011; Vermeulen, Goos and Vandebroek 2008). In this paper, we use the multinomial logit model to analyze data. If there are j alternatives in the choice set k, the utility can be presented as $u = V_{kj} + \varepsilon$. In this formula, ε refers to uncertain errors which are caused by unobserved factors. The vector V_{kj} refers to the attributes function which contains different levels of attributes of the jth alternative in choice set k (Eggers and Sattler 2009; Vermeulen, Goos and Vandebroek 2008; Zenker, Eggers and Farsky 2013). Then the probability of choosing alternative j of choice set k is

$$ P = \frac{exp(V_{kj})}{\sum_{i=1}^{j} exp(V_{kj})} $$

Study Location

Three locations in the Shandong Province, Qingdao, Weihai and Yantai, were selected as case destinations for this study. Qingdao is the largest city in Shandong Province and located on the eastern coast of Shandong. Qingdao is also known for its rich history, unique culture, historic buildings, museums, beer festival and Olympic games. Benefiting from these attractions, Qingdao attracted 72 million tourists in 2015, contributing $120 billion to the economy in that

year. Yantai is in the northeast of Shandong Province. Yantai has beautiful beaches and islands which offer golf courses, natural beauty and a slower pace of life. Because of its cool climate in summer and beautiful beaches, Yantai attracts about 55 million visitors each year. There are also many other attractions in Yantai like traditional festivals, music concerts and unique traditional accommodations. Weihai is in the northeast of Shandong Province and next to Yantai. Weihai is famous for beautiful beaches, islands and hot springs. It also offers a slower pace of life. Weihai attracted 32.8 million tourists in 2015. From the description of Qingdao, Yantai and Weihai, we can see that these three destinations have many similarities such as a cool climate in summer, beautiful scenery, beaches, and seafood. However, there is a significant difference between the cities in visitor numbers.

Research Design

During May. 1st to May. 15th, 2015 a self-administered questionnaire was used to measure tourist perceptions of destination image for the selective destinations. To achieve the objective, an extensive review of the existing literature was conducted, and a scale used to measure constructs was developed (Table1). The survey developed included ten tourist attraction attributes (Goodrich 1978), brand attributes scale (Merrilees, Miller, and Herington, 2013), and other related studies on destination image (Beerli and Martín 2004; Byon and Zhang 2010; Kladou and Mavragani 2015) . The items from previous research can ensure the validity and reliability of the current study.

Researchers interviewed 69 students and 5 professors in Shandong University to determine 6 high-ranked attributes. In order of preference, they were beautiful nature (81.54%), history & heritage (66.15%), safety (61.54%), cultural events (60%), food & accommodation (72.31%) and transportation (63.08%).

The method used was based on a brand image scale and measurement technique named brand-anchored conjoint (Zenker, Eggers, and Farsky 2013). In traditional conjoint, attribute levels are present like "high", "medium" and "limited". But in the brand-anchored conjoint, attribute levels are present by brands (Louviere and Johnson 1990; Zenker, Eggers, and Farsky 2013). The survey included statements like "interesting historical attractions like in Qingdao" or "interesting historical attractions like in Weihai".

The last part of the survey collected demographics information, such as geographic area, age, marital status, income, ethnic group, gender and education level. Besides demographic information, the survey also included other consumer characteristics such as family members, current employment status, etc.

Table 1 Attributes of Destination Image

Construct	Source
The destination has suitable food and accommodations.	Goodrich, 1978;
The destination is safe.	Goodrich, 1978;
The destination has good shopping facilities	Doyle, 2004; Gallarza et al., 2002; Hankinson, 2004.
The destination has beautiful natural attractions	Embacher & Buttle, 1989; Gallarza et al., 2002
The destination has a good climate	Embacher & Buttle, 1989; Gallarza et al., 2002
The destination offers interesting cultural events (festival and/or concerts)	Evans, 2003; Gallarza et al., 2002; Goodrich, 1978; Hankinson, 2004
The destination offers interesting historical attractions (museums and/or art centers) and heritage	Evans, 2003; Gallarza et al., 2002; Goodrich, 1978; Hankinson, 2004
Facilities for water sports (beaches, sailing, swimming, water skiing)	Goodrich, 1978;
Facilities for golf	Goodrich, 1978;
The destination offers cuisine	Goodrich, 1978;
Social bonding	Berger-Schmitt, 2002; Putnam, 1993.
Transportation	Kozak, 2003
Availability of entertainment (Night life, outdoor entertainment)	Goodrich, 1978;

Sampling and Data Collection

This study aims to investigate the key attributes which attract tourists most. Therefore, the population of the study is the tourists and the potential tourists of Qingdao, Weihai and Yantai. Specifically, the sampling frame of this study was the people who had been to Qingdao, Yantai and Weihai or any one of them as well as people who has never been to these three cities.

A self-administered online survey was conducted to collect the data (Table 2). All questions and choices were generated randomly, which means that every questionnaire was unique. Online surveys can record the data and answers automatically, which can reduce the error compared with traditional surveys that should transform data from paper to software (Zikmund et al. 2009). Additionally, online surveys reduce expense, which includes money for printing costs, time and staff, compared with traditional mail surveys and handout, hard copy surveys (Zikmund et al. 2009).

Table 2 Exemplary Choice Set

	City1	City2	City3	
Beautiful nature like in	Qingdao	Weihai	Weihai	None
History & heritage like in	Yantai	Qingdao	Yantai	
Safety like in	Qingdao	Yantai	Qingdao	
Cultural events like in	Weihai	Weihai	Weihai	
Food & accommodation like in	Yantai	Qingdao	Qingdao	
Transportation like in	Weihai	Weihai	Yantai	
I would prefer to visit this city	◎	◎	◎	◎

Results

Descriptive analysis

Sample size can be estimated based on acceptable levels of effect size, α, and power $(1\text{-}\beta)$ (Dattalo, 2008). A total of 300 surveys were sent to respondents online. Among 300 surveys, 266 surveys were completed and a total of 232 were useable. This resulted in a total responses rate of 87.22%. Each questionnaire consisted of 12 questions, consequently there were 232*12=2784 choices. Among the completed surveys, males accounted for 45.3% of the respondents. Most respondents (54.7%) reported college as their highest level of educational attainment. In addition, the probability of choosing each virtual city is as follows (Table 3). 15.09% of the respondents were not satisfied with the virtual city1, city 2 and city3, consequently they chose "None".

Table 3 The Description of Chosen Probability

Option	Frequency	Probability
City1	801	28.77%
City2	781	28.05%
City3	782	28.09%
NONE	420	15.09%

Utility analysis

Utility refers to the probability of choice, which means tourists' preferences to the specific attributes. The value of the main effect is between 0.0 and 1.0. The higher the value, the more obvious the preference. Table 4 highlights beautiful nature and history & heritage as examples.

Table 4 The Utility of Choosing Beautiful Nature and History & Heritage

Analyze by Counting Choices

Choice Tasks Included: All Random

Beautiful Nature	Total		History & Heritage	Total
Total Respondents	232		Total Respondents	232
Qingdao	0.32		Qingdao	0.26
Weihai	0.33		Weihai	0.26
Yantai	0.28		Yantai	0.23
Within Att. Chi-Square	84.31		Within Att. Chi-Square	18.66
D.F.	9		D.F.	9
Significance	p<.01		Significance	p<.01

Table 5 The Utility of Beautiful Nature

	Utility	Std Err	t Ratio	Attribute	Level
1	0.37466	0.06927	5.40874	1	Qingdao
2	0.37938	0.06926	5.47791	1	Weihai
3	0.15622	0.07277	2.14689	1	Yantai

From Table 4 we can see that, in the aspect of beautiful nature, first of all, the utility of choosing Weihai is the highest at 0.33. The value of 0.33 means that there is 33% probability that Weihai was chosen. In other words, the beautiful nature of Weihai attracted the most preference of tourists. Subsequently, the utility of choosing Qingdao is 0.32 which means that there is 32% probability that Qindgao was chosen. From Table 5 we can see that the outcome of utility is matched with the real condition of these three cities. Qingdao, Yantai and Weihai are the coastal cities of Shandong Province and they are renowned for air quality. In the aspect of beautiful nature, the utility of choosing Qingdao and Weihai is 0.26. In recent years, Yantai has begun to protect its unique marine culture and use it as a special feature for marketing the destination. In Table 5, t value is the ratio of Effect/Std Err. It indicates a significant difference between the utility of one specific level and the utility of all other levels under the same attribute.

In addition, the probability of choosing "None" is 25%, which means that some tourists are not attracted by the virtual cities that include a combination of attributes and levels. For these respondents, we should further investigate their expected combination of attributes and levels. Marketers can then develop related marketing strategies.

Table 6 The Importance of Each Attribute

Attributes	%
Beautiful nature	24.98
History & heritage	16.66
Safety	16.68
Cultural events	10.87
Food & accommodation	16.00
Transportation	14.80
Total	100

From Table 6 we can see that when tourists choose a specific destination, they will first consider the beautiful nature of the environment. The probability of choosing beautiful nature is 24.98% which means it is the most attractive feature of a destination for respondents. History and heritage, and safety account for 16.66% and 16.68% respectively. There are few studies related to destination safety, but it is clearly an important component when tourists choose their destination.

Conclusions and Implications

For the destinations examined - Qingdao, Yantai and Weihai – the results have important implications. Preserving or sustaining their surrounding environment should be a priority. Eco-friendly development is essential for successful destinations. A well-designed blueprint for tourism development, that includes protection for the environment, guarantees sustainability of the destination. The destinations concerned should also improve their quality of transportation, shopping and accommodation, and should consider hosting more cultural events. Events and festivals are an increasingly important component of a destination's attractiveness, providing numerous benefits including increased visitation and expenditure, reduced seasonality, repeat visitation, heightened regional awareness and word of mouth recommendation. They can also provide the stimulus for additional infrastructure development in the local area and building community pride.

Like other research, this study has limitations. The sample needs to be expanded to a broader area. An Internet online survey will be conducted in this study, but online surveys have some disadvantages with regard to the sample set. Many individuals cannot access the Internet, which would affect the validity of this study. In addition, there is no control of the representativeness of the sample, which means that the demographic characteristics would not be as representative of the overall population as expected.

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