Article

Examination of Chinese Cruise Tourists' Attributes Using a Choice Experiment

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Received: 31 May 2019; Accepted: 30 June 2019; Published: 1 July 2019

Abstract: Several studies have mentioned the differentiation between Western and Asian cultures in terms of people's backgrounds, life styles, and perspectives. In particular, in cruise tourism, tourists from China have shown different behavior from Western tourists. Previous research has investigated the preferences of cruise tourists. However, there have been few systematic studies of their preferences. Thus, it is necessary to examine cultural uniqueness with a systematic method. Therefore, the main purpose of the study is to apply a choice experiment (CE), which is a scientific method for understanding Chinese tourists' preferences for a given attribute as a form of marginal willingness-to-pay, and to identify their priorities. In order to collect the data from an online data platform, the answers from 244 Chinese were used for multinomial logit analysis. The study results demonstrate that the respondents placed the highest value on having a variety of shopping items in duty-free shops on board. Furthermore, room type, percentage of traditional Chinese food served, and touring in ports of call were also statistically significant attributes. The conclusion and the implications of this study will be discussed.

Keywords: Chinese cruise tourists; cruise tour preference; cultural difference in cruise tourism; marginal willingness to pay

1. Introduction

Recently, the cruise industry worldwide has been growing rapidly, and the number of cruise travelers has also been increasing steadily [1–5]. To be specific, the annual number of cruise tourists increased from 20.9 million in 2012 to 24 million in 2015 worldwide [6]. Of the cruise tourists, Chinese cruise tourists account for a large portion in the cruise market, and their number is continuously increasing [3,7]. According to the Korean Maritime Institute [8], a think tank developing Korean policies on marine affairs, Chinese cruise tourists also accounted for 92% of inbound cruise travelers to Korea. In particular, Chinese companies such as Shinhwa Life Insurance, Baojian, a company that produces and sells skin-beauty products and daily necessities, and Amway, a multi-level marketing company that sells health, beauty, and home care products, provided cruise tours to Korea to their well-performing employees in the name of incentive tours, with an estimated (4000 to 12,000) tourists visiting Korea on such incentive cruise tours [9]. Incentive tours are generally paid for in full by a company, and the amount of individuals' spending is larger than for ordinary forms of tourism, so in turn the mass consumption brings a large economic ripple effect [10]. That is, Korea's cruise industry

relies heavily on the Chinese market and shows a huge influence from Chinese tourists. Therefore, the Korean cruise industry is trying hard to attract more Chinese incentive tourists [11].

However, in 2017, China imposed a ban on group tours to Korea in response to terminal high-altitude area defense (THAAD) development. The Chinese government also banned cruise tours to Korea, which had a huge impact on the entire Korean cruise tourism industry [12]. Fortunately, the number of Chinese group tourists is on the rise again as of 2019, because of the creation of a political reconciliatory mood between Korea and China [13]. As evidence of this mood, the Chinese travel agency Yingke Tourism has resumed sales of cruise tour packages to Incheon, Korea [14]. The improvement in this situation is likely to serve as a boon for the Korean cruise industry, which has relied heavily on the Chinese market.

Culture and tourism behavior have a close relationship. In other words, individual tourist preferences or behaviors are formed differently, based on idiosyncratic cultural backgrounds [15,16]. Similar phenomena are shown in the cruise tourism domain. For example, Mondou and Taunay [3] mentioned that cultural differences between Western and Eastern cultures have resulted in dissimilar preferred tourism contents or patterns among cruise tourists. Even though Chinese tourists have an enormous global market share, academic cruise research has so far centered on the study of tourists belonging to Western culture. In other words, there is a lack of systematic study of cruise-tour attributes reflecting the cultural characteristics of the Chinese, who are a major demander worldwide. In the end, this leads to a lack of understanding of Chinese cruise tourists, which in turn means that inadequate cruise products will be provided [17,18].

Therefore, it is necessary to look systematically at the cruise-tourism attributes favored by Chinese cruise tourist groups. In order to achieve this goal, a choice experiment (CE) is employed in this study. CE is a representative method to measure the degree of preference for each attribute by employing maximization utility theory [19]. One advantage of CE is that the size of the utility of attributes can be measured by converting the utility to a monetary value, which is called marginal willingness to pay (MWTP) [20]. Given the market share of cruise tourism in Korea and the methodological advantages of CE, the purpose of the study is to estimate the preferences of potential Chinese tourists heading to Korea by applying CE.

2. Literature Review

2.1. Cruise Incentive Tourism in China

Cruise tourism refers to a tour that allows individuals to travel to several port destinations by ship, enjoying various amenities provided on board and participating in leisure programs [21]. During the cruise tour, tourists could stay a few days on board and enjoy a variety of recreational activities and facilities, including restaurants, shopping, sports, and spas [22]. Because of these characteristics, the cruise industry and tourism have grown rapidly, especially in the past decade, with the number of cruise tourists rising noticeably [23,24]. Tourism-product providers and experts see the Chinese as a potential major consumer that in the future could provide a significant opportunity for the cruise industry [25,26]. The number of Chinese cruise tourists began to increase in 2006; their cruises spread throughout Asia, including Korea and Japan, as well as Europe, the Mediterranean, and the Caribbean [3,7]. In 2010, 328,000 Chinese tourists participated in a cruise tour, and the number is expected to continue to grow, and to reach 31 million by 2025 [27].

This growth of Chinese cruise tourists was marked by cruise tours to Korea [21]. They accounted for more than 90 percent of cruise tourists visiting Korea in 2016 [8]. In particular, Chinese companies, such as Shinhwa Life Insurance, Baojian, Amway, and Newskin, chose to take large-scale cruise tours to Korea in the form of employee incentive tours [9]. Since companies pay the full amount of travel expenses, individual employees are free from the burden of traveling expenses, and hence are likely to spend more to meet their individual needs than are ordinary travelers. In addition, those on large-scale cruise tours could bring considerable economic ripple effects by spending heavily on cruise-tour goods,

such as port tours, on-board parties, duty-free shopping, and casinos [28]. For example, Amway estimated that 15,000 employees visited Korea on a reward vacation, and they spent about 16.9 billion Korean Won (KRW) on cruise tours, of which 14 billion KRW (roughly 11.75 million USD) was spent on shopping. The consumption generated economic ripple effects worth 57.7 billion KRW in Korea. For these reasons, the Korean government or suppliers are continuously trying to attract Chinese incentive cruise tourists.

2.2. Preference of Chinese Cruise Tourists

Understanding tourists' tendencies and preferences is necessary to drive continued consumption. In other words, recognizing Chinese cruise tourists' preferences is essential for the continued growth of cruise tourism for the Chinese [25,29]. Some studies have emphasized that the preferences of Chinese cruise tourists differ from those of Western tourists [3,30]. For example, Yang [30] conducted a study on which items Chinese cruise tourists prefer the most among existing cruise products. He asked respondents what they thought was important by suggesting categories, including accommodation, dining, on-board entertainment programs, shore excursions, and social interactions with other tourists. Most Chinese and Western tourists considered accommodations and dining to be important categories. In contrast, there was a different result for social interaction with other tourists. Generally, tourists from Western cultures showed greater expectations for meeting and interacting with strangers on cruise ships. On the other hand, Chinese tourists regarded communicating with others as a relatively less important part of a cruise tour.

Moreover, the type of meals served by cruise ships also showed a higher preference for eating traditional Chinese food, unlike Western-culture individuals, who prefer to taste different and unique foods from other countries. In addition, the Financial Times [31] mentioned that the Chinese enjoy a boisterous and noisy atmosphere, because they consider it important to see and enjoy things that give them a lively feeling. For this reason, they prefer to watch various exciting music performances and comedy shows, and to participate in games like mahjong, rather than sunbathe like Western cruise tourists prefer to do. Other distinguishable Chinese preferences can be found in shopping and port tours. Chinese tourists showed a high preference for duty-free shopping on board [3]. They have a strong desire to experience seeing and buying expensive luxury brands and various products [32]. Additionally, they tend to like finding gifts for their family, friends, or acquaintances by shopping at duty-free shops [33]. Considering these characteristics of Chinese tourists, the cruise company 'Costa' removed sunbath rooms and swimming pools that are used for western tourists, and expanded shopping spaces for Chinese tourists. They also increased the numbers of duty-free items, and provided shopping opportunities during port tours to satisfy the preference of Chinese tourists [25]. Furthermore, for the Chinese, tourism has traditionally been concentrated on visiting historical sites. Therefore, visiting historical sites or attractions in the port is essential for tourism in the port area. [30]. They tended to spend a lot of time sightseeing in the port's famous tourist attractions, and shopping at local traditional markets or shopping malls [8]. Considering that Chinese cruise tourists' preferences are different from those of Western cruise tourists, it is necessary to systematically find out the preferences of Chinese cruise tourists, in order to be more competitive with them.

2.3. Stated Preference: Choice Experiment and its Use in a Recreation and Tourism Context

The stated preference (SP) approach is a systematic method to estimate the economic value of non-market goods based on individuals' preferences for specific products or services [34]. Through SP, it is possible to identify preferences for the attributes of a given product by asking respondents to choose a favorite product that consists of combined attributes [35]. There are two representative methods in SP: the contingent valuation method (CVM) and the choice experiment (CE). Of them, the CE is a specialized method for identifying the utility respondents attribute to goods and services, and transforming the utility into monetary value [36–38]. In other words, researchers could identify how much more respondents are willing to pay for an attribute as a form of marginal willingness-to-pay

(MWTP), when increasing one unit of quantity or quality of a product or services' attribute [39]. By comparing the size of MWTPs, researchers could indirectly identify which attributes respondents prefer [21,40].

Because of this advantage, several tourism studies have employed CE to identify preferred attributes and their monetary values. For example, Balcombe, Fraser and Harris [41] conducted a study of airplane preferences, including the width and space between seats, in-flight meals, in-flight entertainment (e.g., seat-back screens, in-flight bar), in-flight drinks, and ticket prices. The study results showed that the width and spacing of seats and the in-flight entertainment are statistically significant, especially with the relatively younger generation, who have a higher preference for in-flight entertainment, whereas the older generation places more value on the width and spacing of seat. Chia-Jung and Pei-Chun [42] identified the determinants of tourists' choice of green hotel attributes. They included attributes as room type; service quality; environmentally cooperative behavior of guests; and green measures such as degree of environmental practices, facilities, and equipment. They concluded that respondents with a high level of green consumption traits are more likely to choose hotels that have a greater number of environmentally friendly attributes.

Hearne and Salinas [43] conducted a study to estimate the preferences of tourists visiting Costa Rica by using a CE. They classified attributes, including accommodation, service, availability of picnic areas and cable car, degree of trail restrictions, and entrance fee. The study result demonstrated that respondents place a higher value on access to trails with low restrictions, and picnic and cable car availability. Another example of applying CE in a tourism context is Masiero, Heo, and Pan's study [44]. They classified hotel attributes, including room views, hotel floors, club accessibility, free mini bar, wireless internet access, cancellation fees, and room prices, finding that first-time visitors to the hotel showed more willingness to pay for room views, club accessibility, and free minibars than repeat visitors.

Given the methodological advantages of CE, we also selected it as a main analytic method to investigate preferences for facilities and programs in Chinese cruise tourism by estimating and comparing their MWTPs.

3. Method

3.1. List of Attributes and Levels

To identify preferences for attributes of a specific product or service, in-depth review of the attributes is required. In other words, representative attributes and levels that constitute cruise products should be identified to systematically investigate preferences for cruise tour packages for the Chinese. In the study, to identify the preferred characteristics of cruise tourism for Chinese tourists, the attributes and their corresponding levels for the study were chosen based on prior research on cruise tourism, a report published by an official agency, and related newspaper articles [3,7,17,18,25,26,45]. After the settlement process, five attributes and three levels of each were finally selected. Moreover, cruise tour prices are also included as a component of a product, which should be included as a baseline to estimate an individual MWTP. The following six attributes were identified: (1) room type, (2) programs, (3) variety of shopping items, (4) tour packages in ports of call, (5) percentage of traditional Chinese food, and (6) price. Table 1 shows the attributes and corresponding levels used in this study.

3.2. Choice Sets and Experimental Design

Once the attributes and levels were established, a hypothetical product consisting of different levels of attributes was presented to the respondent, who was asked to select the most preferred product. This product or service combining several attributes is called a profile. The hypothetical Chinese incentive cruise tourism in the study had a total of six attributes, each with three levels. Again, a profile is a set of attributes that includes room type, programs, variety of shopping items, tour packages in ports of call, and percentage of traditional Chinese food. This combined package

is called a profile. In this study, three profiles, including one opt-out profile ('I would not take A or B'), made up a choice set. If a respondent did not like either A or B, he or she could select the opt-out profile.

Table 1. Chinese cruise tourism related attributes and corresponding levels.

Attributes	Level
Room type	Inside Ocean view Suite room
Programs	Onboard entertainment activities Onboard entertainment activities + sport and fitness programs Onboard entertainment activities + sport and fitness programs + spa and wellness programs
Variety of Shopping items	Less duty-free shipping items Moderate duty-free shopping items Lots of duty-free shopping items
Tour Packages in ports of call	Sightseeing Sightseeing + historical sites Sightseeing + historical sites + shopping
Percentage of Traditional Chinese food	33% 66% 100%
Price (CNY)	4777 (USD 700) 6825 (USD 1000) 8873 (USD 1300)

Based on the six attributes and their three levels, there are 729 ($3 \times 3 \times 3 \times 3 \times 3 \times 3$) possible choice profiles (called full factorial design). However, it is unrealistic to ask respondents for their preferences on all 729 cases in a survey questionnaire. Therefore, instead of providing all combinations, a methodological technique, called a fractional-factorial design, is used to extract a smaller number of representative and efficient linear design profiles. Statistical Package for Social Science (SPSS) was used to derive a fractional-factorial design, and a total of 18 sets were derived. Table 2 shows an example of one of the choice sets:

Table 2. An example of a choice set sent to respondents.

Attributes	Profile A	Profile B	Profile C
Room type	Inside	Inside	I would not take A or B
Programs	Onboard entertainment activities + sport and fitness programs	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	
Variety of shopping items	Lots of duty-free shopping items	Moderate duty-free shopping items	
Tour packages in ports of call	Sightseeing + historical sites + shopping	Sightseeing	
Percentage of traditional Chinese food	100%	66%	
Price (CNY)	4777	6825	

3.3. Theories of Choice Experiment

Random utility maximization theory (RUT) is a main theoretic underpinning of CE [46,47]. According to RUT, an individuals' utility can be expressed in two sections by an equation between an observed component and an unobserved random component. Individuals' utility is derived not only from the attributes of observable goods/services, but also from unobservable characteristics. The following equation shows the utility function for alternative j of the j^{th} individual:

$$U_{ij} = V_{ij} + \varepsilon_{ij} \quad (1)$$

where, U_{ij} indicates the indirect utility acquired when choosing i alternatives. As shown in Equation (1), utility is distinguished by two parts: V_{ij} is the observable utility or the deterministic component of utility, and ε_{ij} is the unobserved stochastic component or unobserved idiosyncrasies of personal taste, which are treated by researchers as a random variable because of uncertainty factors [48].

The unobservable error component explains that consumers' preferences are not always rational across the population [49]. That is, this error term stands for the unexplained differences in an action between individuals that the researcher cannot observe. Based on RUT, respondent i chooses alternative j ($1, 2, \dots, m$) if the utility of selecting alternative j is greater than that of selecting k ($U_{ij} > U_{ik}$ for all $j \neq k$). The equation of probability of choosing an alternative is shown as follows:

$$P_{ij} = \Pr\{U_{ij} \geq U_{ik}\} = \{V_{ij} - V_{ik} \geq \varepsilon_{ij} - \varepsilon_{ik}; j \neq k, j, k \in J_i\} \quad (2)$$

McFadden [47] argued that if random components, ε_{ij} and ε_{ik} (unobserved stochastic components) in Equation (2), are assumed to follow the Gambel distribution (independently and identically distributed across alternatives), the probability can result in a conditional (or multinomial) logit model. The probability that an individual i selects alternative j is described as follows:

$$P_{ij} = \exp(\mu V_{ij}) / \sum \exp(\mu V_{ik}) \quad (3)$$

where, μ is a scale parameter, which is typically set to one for parameter estimation. Again, this logit model hypothesizes the independence of irrelevant alternatives (IIA) property, signifying that an individual's choice does not depend on any other alternatives [50]. The parameters are estimated by log maximum likelihood estimation, which is as follows:

$$\ln L = \sum_{i=1}^n \sum_{j=1}^m \delta_{ij} \ln P_{ij} \quad (4)$$

where, δ_{ij} is a dummy variable such that $\delta_{ij} = 1$ if alternative j is chosen, and $\delta_{ij} = 0$ otherwise. Once model parameters are estimated, the implicit price for each attribute can be derived by calculating the following:

$$\text{Marginal willingness to pay for attribute} = \frac{\beta_{\text{non-cost-attribute}}}{-\beta_{\text{cost-attribute}}} \quad (5)$$

3.4. Survey and Data Collection

The survey questionnaire was confirmed by experts in the field of tourism and the cruise industry, and was translated into Chinese language by a Chinese translator to check its clarity and fluency. We uploaded our questionnaires in 'Wen Juan Xing', a Chinese online survey platform (<https://www.wjx.cn/>) in order to collect data. 'Wen Juan Xing' is a data platform used by more than 30,000 companies and more than 90% of universities in China. Once respondents clicked the survey through QR code or internet link address, they were then asked to answer choice questions. Initially, a total of 303 surveys were distributed from May 8th to 10th, 2019, but 59 were excluded because of

missing responses. Ultimately, 244 were used for data analysis. Appendix A presents the measurement used in this study.

4. Results

Estimation Results of the Study Model

Table 3 shows the results of a frequency analysis of respondents' demographic characteristics. There were 126 (51.6%) females and 118 (48.4%) males; thus, the ratio of females was slightly higher. For age groups, there were 107 (43.9%) in their 30s, 93 (38.1%) in their 20s, 38 (15.6%) in their 40s, and 6 (2.5%) over 50s. In terms of academic background, 157 (64.3%) respondents graduated from a university or college, representing the largest group, followed by those attending university and college at 47 (19.3%). For monthly average income, 86 (35.2%) were between price (CNY) 5000 and 8000, 66 (27%) respondents were between CNY 8000 and 12,000, 57 (23.4%) were between CNY 2000 and 5000, 23 (9.4%) were more than CNY 12,000, and 12 (4.9%) were less than CNY 2000.

Table 3. Demographic information.

		Frequency	Percentage (%)
Gender	Male	118	48.4
	Female	126	51.6
Age	20s	93	38.1
	30s	107	43.9
	40s	38	15.6
	Over 50s	6	2.5
Academic background	Less than high school	19	7.8
	Attending university/college	47	19.6
	Graduated from university/college	157	64.3
	Graduate school	21	8.6
Price (CNY)	Less than 2000	12	4.9
	2000–5000	57	23.4
	5000–8000	86	35.2
	8000–12,000	66	27.0
	More than 12,000	23	9.4

Multinomial analysis was used for the data analysis. Table 4 shows the result of the multinomial logit model of this study. The hypothesis tests were conducted at 0.05% level, through maximum likelihood estimation and five attributes, excluding program attributes, were statistically significant. In addition, a variable called 'alternative specific constant' (ASC), the utility that individuals obtain when choosing A or B package over the opt-out choice (neither A nor B), is included in the study model.

Table 4 shows that the estimated coefficient of 'room type' is 0.371 with a corresponding $p < 0.001$. This indicates that there is a higher chance of choosing a product when the quality of the room is improved. Similarly, other variables, except programs, were statistically significant, which could be interpreted as meaning that respondents preferred to increase the level of attributes. On the other hand, 'programs' is not significant ($p = 0.246$), demonstrating that quality improvement or degradation of the programs would be interpreted as not affecting the choice of respondents. For the cruise price, the parameter was negative and significant, meaning that an increase of cruise price was not preferred by respondents.

Table 4. Estimation results of the main attributes.

Parameter	Estimates	Standard Error	t-Value	Pr>
Room type	0.371 **	0.041	8.91	0.000
Programs	−0.047	0.041	−1.16	0.246
Variety of shopping items	0.389 **	0.042	9.23	0.000
Tour packages in ports of call	0.157 **	0.042	3.68	0.000
Percentage of traditional Chinese food	0.240 **	0.041	5.87	0.000
Price	−0.0005016 **	0.0000222	−22.58	0.000
Alternative specific constant (ASC)	5.189 **	0.200	25.86	0.000
Log-Likelihood = −2974.4151				
McFadden Pseudo R^2 = 0.2757				
Number of observations = 6453				

** indicates significance at 0.05 level.

Table 5 indicates the marginal willingness-to-pay for each attribute. MWTP is the amount an individual is willing to additionally pay when increasing the level of a given attribute. According to Table 5, ‘variety of shopping items’ (133,358 KRW) had the highest MWTP among the six attributes, followed by ‘room type’ (127,187 KRW), ‘percentage of traditional Chinese food’ (82,277 KRW), and ‘tour packages in ports of call’ (53,823 KRW). The result implies that respondents place the highest value on ‘variety of shopping items.’ In other words, it can be indirectly interpreted that the Chinese consider ‘variety of shopping items’ to be the most important attribute in a cruise tour to Korea.

Table 5. Marginal willingness-to-pay.

Attributes	Price
Room type	127,187 KRW
Variety of shopping items	133,358 KRW
Tour packages in ports of call	53,823 KRW
Percentage of traditional Chinese food	82,277 KRW

5. Discussion

Michael Thamm, the CEO of the world’s leading cruise company, ‘Costa’, maintains that Chinese cruise tourism should be seen as a promising market [51]. In Korea, the cruise market is also growing—Chinese cruise tourists visiting the country accounted for about 92 percent of all cruise tourists by 2016 [52]. In particular, numerous Chinese companies offer large-scale cruise tours to Korea as incentives for employees. The companies pay for employees’ cruise trips, so incentive tourists tend to spend relatively more than ordinary tourists, which has a huge economic impact on tourist attractions [28].

The research on cruise tourists has focused mainly on Western tourists; however, research to understand the Chinese market, which is a big part of the demand for global cruise markets, has not been enough [17,18]. Some studies have argued that the cultural differences between Chinese and Western tourists would cause idiosyncrasies in preferences for cruise attributes, such as activities or programs [3,29]. Thus, a systematic study of cruise tourism preferences for Chinese tourists reflecting the cultural characteristics is needed. Therefore, the purpose of the study was to systematically understand the preferences for cruise tour product attributes through a CE for potential Chinese incentive cruise tourists.

Through literature review of prior studies and expert interviews, the following six cruise tour attributes and their corresponding levels were chosen for the study. Room type (inside, ocean view, and suite room), programs (onboard entertainment activities, onboard entertainment activities plus sport and fitness programs, and onboard entertainment activities plus sport and fitness programs plus spa and massage programs), variety of shopping items (less, moderate, and lots), percentage of

traditional Chinese food served of (33, 66, and 100) %, and price of CNY (4777, 6825, 8873). A total of 729 (3⁶) cruise products could possibly be combined based on the number of attributes and levels. However, it is physically impossible to identify respondents' preferences for all combinations. Therefore, data were gathered by the minimum representative combinations through a fractional-factorial design, which enabled the researchers to statistically verify attributes, even without using all combinations. The collected data were statistically analyzed by the multinomial logit analysis. Five attributes, including room type, programs, variety of shopping items, tour packages in ports of call, percentage of traditional Chinese food served, and price, were statistically significant, except for programs. This result indicates that a one-unit increase of room type, variety of shopping items, tour packages in ports of call, and percentage of traditional Chinese food changes would increase the likelihood of choosing the products.

For the MWTPs, how much individuals were willing to pay as a given attribute's condition increased, and the variety of shopping items had the highest value among the five attributes in this study. In other words, respondents are more likely to place the highest value on the diversity of shopping offered on cruise ships. This conclusion is externally validated by previous studies. According to a survey of foreign cruise tourists released by the Korea Tourism Organization (KTO) in 2013, 87.4% of Chinese tourists shopped at cruise duty-free shops, whereas less than 10% of tourists from the U.S., Australia, and New Zealand participated in duty-free shopping [51]. Chinese tourists preferred to purchase luxury brand products in duty-free shopping, more so than did other cultural tourists [3,32,33]. Therefore, given the report published by the public sector and the validity of the study, it is important to build various duty-free shops on cruise ships to satisfy Chinese tourists on cruise tours. Therefore, it can be concluded that Chinese cruise tourists prefer to have luxurious experience by shopping offered on cruise ship.

Second, the type of room was also identified as an important attribute. A cabin is considered an important attribute for Chinese tourists, as well as for overall cruise tourists, as shown by numerous prior studies of cruise tourism [21,25]. Since cruise tourists have to stay in a limited space, they prefer a cabin where they can see the ocean, or a suite with balconies and luxurious furniture, because, unlike ordinary trips, cruise tourists are more likely to want a luxurious and unique experience while participating in a tourism cruise [52–55].

Given the size of MWTPs, the proportion of traditional Chinese meals served on board is preferred. This is a conclusion similar to those from earlier studies. For example, Chang, Kivela, and Mak's study [45] found that while traveling abroad, the Chinese prefer to eat something that is routine and friendly. In addition, during cruise tours, Chinese tend to prefer Chinese local cuisine to exotic foreign cuisine, whereas Western cruise tourists prefer to have a variety of international foreign cuisine while on a cruise [17].

Finally, the port tour, which consists of tourist attractions, historical sites, and shopping, was also found to be a preferred attribute. Sun et al. [25] also suggests that for the Chinese, sightseeing at a famous destination of a port is a typical motivation for cruise tourism. At the same time, the Chinese think it is important to broaden their horizons by visiting new historical and cultural sites [30]. In this regard, Chinese tourists find it important to gain new knowledge by visiting major destinations through cruise tours. Therefore, various port-tour programs will have to be prepared to satisfy the preferences of Chinese cruise tourists.

In contrast, the results indicated that programs, such as shows, casinos, sports, or spas, are relatively less preferable attributes. This finding is similar to the results of Chen, Neuts, Nijkamp, and Liu [56]. They examined the determinants of cruise demand according to motivation, preference and intention and indicated that Chinese placed the lowest value on sports facilities such as running track, golf, climbing walls and so on. In addition, based on the cruise schedule suggested by Princess Cruise [57], cruise tourists spend 24 hours on the sea from Shanghai in China to Busan and Jeju in Korea. This is a relatively shorter time period than cruises to California or Hawaii, which spend more than 48 hours at sea. In this regard, cruise tours to Korea offer a relatively short time period to participate in

various programs on board, which is reflected in the study results. Therefore, Chinese cruise tourists will tend to focus on shopping and port tours, rather than on securing diversity in shipboard programs.

6. Implication

This study presents the following practical implications. First, it is necessary to organize diverse duty-free shopping items on the ship. In other words, considering the characteristics of Chinese tourists' preference for shopping activities during cruise tours, service providers need to identify and prepare their preferred brands and items. Second, for accommodation, a method for increasing the percentage of ocean views or suites should be considered in the ship design stage, or an attractive pricing policy should be implemented to prevent dissatisfaction of the inside room guest. Additionally, for Chinese tourists, whose degree of avoidance of uncertainty seems to be large, Chinese-style meals should be served more often. For example, a service provider will likely have to focus on the Chinese tourists' favorite items, including drinks, desserts, and snacks, as well as main foods. Finally, considering Chinese cruise tourists' preference for port tours, visits to various types of tourist attractions will have to be included in the port tours. Furthermore, the satisfaction of Chinese cruise tourists will be increased by not only providing Chinese-speaking guides to explain landmarks and historical sites, but also providing pick-up and drop-off services to conveniently move tourists from ship to destinations. Furthermore, guaranteeing adequate time for attractions would be necessary as well.

Additionally, the results of the study will help to the sustainable development of the cruise tourism industry as mentioned in several prior studies [58–60]. The literature stated that a strategic approach is required for continuous sales of cruise tourism such as discounting price or provision of higher service quality (from the perspective of service providers). Additionally, efforts to establish a regional absorption system of economic benefits from cruise tourism or minimize environmental damages are necessary for sustainable development of the cruise industry [58,61].

Given this argument, this study could guide the Korean cruise industry regarding Chinese tourists to achieve sustainable development. In other words, the degree of importance of preference attributes would be identified based on the study results, which would contribute to the efficient operation of cruise companies. Furthermore, this would eventually lead to a contribution to the sustainability of the cruise industry. For academic implications, the following points can be suggested. First, this study is meaningful in that the study results help one to understand the preferred attributes for Chinese cruise tourists, who are a major consumer of the cruise market around the world. Second, the application of CE, a specialized research method that identifies the preferences of the subjects, could be considered to be a methodological contribution of the study.

However, the present study has some limitations. Theoretically, CE includes some unrealistic assumptions about the choice mechanism of respondents, which are called the irrelevant-alternatives properties (IIA) [49]. Therefore, an advanced econometric model, such as mixed-logit, which theoretically mitigates the IIA assumption, would be recommended for further studies.

Author Contributions: Conceptualization, S.P. and W.S.L.; methodology, J.M., and W.S.L.; formal analysis, S.P., W.S.L. and J.M.; investigation, S.P. and W.S.L.; resources, J.M. and W.S.L.; data curation, S.P., and W.S.L.; writing—original draft preparation, S.P.; writing—review and editing, W.S.L., J.M. and J.H.; visualization, W.S.L. and J.M.; supervision, W.S.L. project administration, W.S.L. J.M. and J.H.

Funding: This research received no external funding.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

From the next question, please choose your preferred cruise tour choice set among ①, ②, ③.

Q1. Please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Inside	Inside	
Programs	Onboard entertainment activities + sport and fitness programs	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	
Variety of shopping items	Lots of duty-free shopping items	Moderate duty-free shopping items	I would not take A or B
Tour packages in ports of call	Sightseeing + historical sites + shopping	Sightseeing	
Percentage of traditional Chinese food	100%	66%	
Price (CNY)	4777	8873	

Q2. Please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Ocean view	Ocean view	
Programs	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	Onboard entertainment activities + sport and fitness programs	
Variety of shopping items	Moderate duty-free shopping items	Moderate duty-free shopping items	I would not take A or B
Tour packages in ports of call	Sightseeing + historical sites + shopping	Sightseeing + historical sites	
Percentage of traditional Chinese food	33%	33%	
Price (CNY)	4777	8873	

Q3. Please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Ocean view	Ocean view	
Programs	Onboard entertainment activities + sport and fitness programs	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	
Variety of shopping items	Lots of duty-free shopping items	Less duty-free shipping items	I would not take A or B
Tour Packages in ports of call	Sightseeing	Sightseeing	
Percentage of traditional Chinese food	100%	100%	
Price (CNY)	6825	8873	

Q4. please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Ocean view	Inside	
Programs	Onboard entertainment activities	Onboard entertainment activities + sport and fitness programs	
Variety of shopping items	Lots of duty-free shopping items	Less duty-free shipping items	I would not take A or B
Tour packages in ports of call	Sightseeing + historical sites	Sightseeing + historical sites	
Percentage of traditional Chinese food	66%	33%	
Price (CNY)	4777	6825	

Q5. Please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Inside	Suite room	
Programs	Onboard entertainment activities	Onboard entertainment activities + sport and fitness programs	
Variety of shopping items	Less duty-free shipping items	Less duty-free shipping items	I would not take A or B
Tour packages in ports of call	Sightseeing	Sightseeing + historical sites + shopping	
Percentage of traditional Chinese food	33%	66%	
Price (CNY)	4777	8873	

Q6. please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Suite room	Ocean view	
Programs	Onboard entertainment activities	Onboard entertainment activities	
Variety of shopping items	Moderate duty-free shopping items	Less duty-free shipping items	
Tour packages in ports of call	Sightseeing + historical sites	Sightseeing + historical sites + shopping	I would not take A or B
Percentage of traditional Chinese food	100%	66%	
Price (CNY)	6825	6825	

Q7. please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Suite room	Suite room	
Programs	Onboard entertainment activities + sport and fitness programs	Onboard entertainment activities	
Variety of shopping items	Moderate duty-free shopping items	Lots of duty-free shopping items	I would not take A or B
Tour packages in ports of call	Sightseeing	Sightseeing	
Percentage of traditional Chinese food	66%	33%	
Price (CNY)	4777	8873	

Q8. Please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Inside	Suite room	
Programs	Onboard entertainment activities	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	
Variety of shopping items	Moderate duty-free shopping items	Less duty-free shipping items	I would not take A or B
Tour packages in ports of call	Sightseeing + historical sites + shopping	Sightseeing + historical sites	
Percentage of traditional Chinese food	100%	100%	
Price (CNY)	8873	4777	

Q9. Please select one of ①, ②, or ③, and mark.

Attribute	①	②	③
Room type	Inside	Suite room	
Programs	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	Onboard entertainment activities + sport and fitness programs + spa and wellness programs	
Variety of shopping items	Lots of duty-free shopping items	Lots of duty-free shopping items	I would not take A or B
Tour packages in ports of call	Sightseeing + historical sites	Sightseeing + historical sites + shopping	
Percentage of traditional Chinese food	66%	33%	
Price (CNY)	8873	6825	

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