Airline choice by passengers from Taiwan and China: A case study of outgoing passengers from Kaohsiung International Airport

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ABSTRACT

Understanding what factors passengers consider when selecting an airline is critical, as airlines can utilize this information in market segmentation and marketing strategies. However, few studies have explored how passenger demographics and the nationality/type of carrier (full service or low-cost; regional or international) affect the choice factors of passengers when selecting airlines. The main objective of this study was to explore the airline choice factors considered by passengers, compare the choices of passengers with different demographics, and analyze which factors are emphasized by passengers from Taiwan and China when selecting airlines. We conducted a questionnaire survey of outgoing passengers at Kaohsiung International Airport in relation to 22 factors underlying their choice of airline. Using factor analysis, we identified the five factors: ground services, convenience, in-flight services, price, and travel availability. We then utilized cluster analysis to identify four groups, each concerned with price, comfort, convenience, and ground services, respectively. Nationality, age, income, flying frequency, and purpose of travel lead to differences in deciding which factors were considered by cross-strait passengers. Passengers of different nationalities concerned with different factors when selecting airlines. Our findings can add to the completeness of existing research as well as provide airlines with reference in developing marketing strategies for different customer groups.

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1. Introduction

21st century China is developing at an astounding pace, achieving rapid progress in all sectors including politics, economics, defense, and technology. As policy reform in China has lightened travel restrictions on its citizens, it has already become the fastest growing nation in the global travel industry. The spending power of Chinese tourists has also attracted the attention of travel businesses worldwide. It is estimated that by the end of 2015, China will be the largest international travel market in the world (Zhang et al., 2010). In view of this, the government of Taiwan and its tourism industry is concerned with how to expand the "Three Links" (postal, transportation, and trade links between Taiwan and China) and attract greater numbers of China tourists, stimulating Taiwan's employment and economic growth.

In 2008, Taiwan signed an agreement with China to facilitate direct cross-strait flights, which included policies on improving air freight and weekend/weekday charters (Mainland Affairs Council, 2015). Cross-strait travel became more viable and the cost of cross-strait commerce was greatly reduced, promoting greater economic and cultural exchange. Direct flights brought economic benefit and opened up a new market for domestic airlines, all of which has contributed to developing Taiwan as an Asian-Pacific logistics hub (Cross-Strait Exchange Forum, 2015). According to statistics from the Tourism Bureau, 1.63 million mainland Chinese visited Taiwan in 2010, exceeding Japan as the largest source of tourism to Taiwan. In 2014, this figure increased to nearly 4 million tourists, accounting for approximately 40% of all international visitors to Taiwan (Executive Information System, Tourism Bureau, 2015). Tourists from mainland China have become the main driver of the tourism industry in Taiwan.

As cross-strait air travel market becomes increasingly competitive, airline companies have rushed to claim a market share. Data on airlines operating cross-strait flights in 2014 is compiled in Appendix A, including international carriers (such as China Air and EVA Air)

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and regional carriers (such as TransAsia Airways, Mandarin Airlines, UNI AIR, and Far Eastern Air Transport) from Taiwan, as well as full-service carriers (such as Xiamen Airlines, China Southern Airlines, and China Eastern Airlines) and low-cost carriers (such as Spring Airlines and Juneyao Airlines) from mainland China (see Section 3.2 for details). In order to strengthen the competitive advantage, some of them purchased new aircraft to expand their fleets, others invested in low-cost carriers, and yet others formed strategic alliances to improve their positioning. Taiwanese airlines must focus more on service quality and meeting passenger needs in order to retain their existing market share while attracting new business. The key to staying competitive is to identify the choice criteria (or factors) used by passengers in selecting airlines, and on this basis formulate marketing segmentation and promotional strategies.

Passengers contemplate a myriad of factors when selecting an airline; for example, service quality, corporate image, brand recognition, price, and promotional strategy (e.g., Theis et al., 2006; Chang et al., 2006). Passengers may also have different considerations based on socioeconomic factors (e.g., Balcombe et al., 2009) or their purposes for travel. To passengers traveling for business purposes, time is money, and they are looking to reach their destination in the most efficient way possible. Punctuality is likely to be one of the most important considerations to them when choosing an airline. To passengers traveling for leisure, reducing the cost of flying may be a priority, and air fare is likely to have the greatest influence on their choice of airline. Understanding the preferences of different types of passengers is essential to airline companies, enabling them to target these customer groups and attract return customers, as well as create new business through marketing.

Previous studies on this topic have mainly focused on determinant attributes and their order of priority in the decision-making process (Theis et al., 2006; Chang et al., 2006), as well as how service attributes affect airline choice and the price passengers are willing to pay (Balcombe et al., 2009; Wen and Lai, 2010). However, few studies have simultaneously considered how passenger attributes, the nationality of airlines, and the type of carrier influence choice of airline. These factors could be vital considerations in market segmentation and promotional strategy.

Instead of focusing only on service quality, this study aimed to explore the critical factors passengers consider when selecting an airline, and whether these considerations differ according to socioeconomic status and nationality (China or Taiwan), as well as the type of carrier (low-cost, full service, regional or international). We further analyzed the causes underlying any differences identified, the results of which can serve as reference for the future marketing strategy of national airlines.

2. Passenger choice criteria in selecting airlines

A number of studies have explored the factors that passengers consider when choosing airlines. Alamdari (1999) indicated that the key factors influencing passengers flying for business are reliability, punctuality, schedules, and seating comfort. Passengers flying for leisure indicated that price, seating comfort, reliability, and punctuality are most important to them. In-flight entertainment is a differentiating factor that contributes to satisfaction with airline service. In order to effectively segment the target market, Gilbert and Wong (2003) studied the service constructs most important to outgoing passengers from Hong Kong International Airport, and analyzed and compared differences among passenger expectations of reliability, assurance, facilities, employees, flight patterns, customization, and responsiveness. Results showed that ethnicity, nationality, and reason for travel led to significant differences in service expectations. To gain a better understanding of the decision-making process that leads passengers to purchase tickets from a specific airline, Park et al.

(2004) built and verified a causal relationship model comprising service expectations, service perception, service value, passenger satisfaction, airline image, and behavioral intentions, using data collected from Korean passengers on international airlines. Results showed that service value, passenger satisfaction, and airline image directly affect the decision-making process.

Feng and Jeng (2005) employed the importance-performance analysis matrix (IPA) to evaluate the service performance of airline companies, using seat reservation, ground service, cabin facilities, in-flight food, in-flight service, baggage delivery, complaint response, flight safety, and punctuality as criteria. They proposed strategies to improve service based on the IPA results. Theis et al. (2006) conducted an online survey of U.S. passengers in relation to their choice of domestic carriers, using a polynomial logit model for research and analysis. The variables used were aircraft type, arrival time, takeoff time, flight connecting time, punctuality, number of connecting flights, and price. Results showed that price, punctuality, and number of connecting flights have the greatest influence on passenger choice of airline. Chang et al. (2006) studied passengers departing Taoyuan and Kaohsiung International Airports for various destinations in Asia, and evaluated the feasibility of operating low-cost carriers in Taiwan. After analyzing Revealed-Preference (RP) data, they found that the main choice factors are arrival/departure times, air fare, flight safety, frequent flyer programs, service quality, and language (s) spoken by flight attendants. Park (2007) researched the cognitive factors that affect the purchasing behavior of Korean and Australian passengers, including in-flight service, reservation-related service, airport service, reliability, employee service, flight availability, perceived price, passenger satisfaction, perceived value, airline image, and overall service quality. Results showed that passenger perception of these factors differed significantly based on airline, seating levels, and frequency of flying with that airline. Chang and Yang (2008) studied customers of four major airlines flying between Hong Kong and Taiwan, and developed methods for measuring what motivates passengers to fly again with a particular airline and what service attributes influence their intentions. These factors were divided into three groups comprising a total of 18 factors: setting (entertainment facility, auxiliary facility, space disposition, cleanliness), service staff (friendliness, sympathy, appearance, profession, commitment, service for disabilities), and performance (safety, price, transit flights, in-flight meal, service rescue, reliability, special offers, smooth service). Lastly, Rasch measurements were used to identify the strengths and weaknesses in the service factors of each airline.

Balcombe et al. (2009) used an online choice experiment to explore how the services offered by airlines affect the choices of UK passengers, and conducted differential analysis of the price that passengers from different socioeconomic backgrounds are willing to pay. They designed a questionnaire based on stated preference (SP), and used the Bayesian method to estimate a mixed logit specification for a 4.5–5.5 h charter flight. Results showed that price, size of seats, legroom, flight frequency, and in-flight food and entertainment significantly affect passenger choice of which airline to fly with. Different socioeconomic factors (income, level of education, age, and gender) also implied significant differences in passenger's willingness to pay. Wen and Lai (2010) conducted an SP-based questionnaire survey, using a multinomial logit model and latent class model to explore how Taiwanese passengers traveling from Taipei – Tokyo and Taipei – Hong Kong routes selected airlines. Results showed that the key factors of influence are price, time differences, frequency of flights, punctuality, check-in services, legroom, and in-flight services. While different routes yielded different values of willingness to pay for service improvements, passengers are generally willing to pay more for better service quality. If an airline wants to gain competitive advantage by

differentiating its service from its competitors, improvements in service quality deserve to be considered for market segmentation.

The review above demonstrates the value in evaluating and identifying the key choice criteria used by passengers in selecting airlines. This information assists airlines in understanding the preferences of their customers and forecasting their future consumer behavior.

3. Methodology

3.1. Building choice criteria in selecting airlines

Before designing the questionnaire, we first assessed the factors passengers consider when selecting airlines. We identified a number of considerations (or choice factors) based on a review of previous literature (e.g., Alamdari, 1999; Gilbert and Wong, 2003; Park et al., 2004; Feng and Jeng, 2005; Theis et al., 2006; Chang et al., 2006; Park, 2007; Chang and Yang, 2008; Balcombe et al., 2009; Wen and Lai, 2010), including price, flight scheduling, seating comfort, punctuality, and flight safety. After interviewing ten aviation industry experts, we compiled a final list of 22 factors for selecting airlines, as shown in Table 1. These factors form the basis of the questionnaire design.

3.2. Classification of airlines

In order to facilitate the analysis and comparison of cross-strait passenger choice behavior, this paper classified the airlines operating the cross-strait flights. The results are presented in Appendix A. During the study period, all airlines in Taiwan comprised full-service carriers only. The low-cost airlines that later appeared did not offer cross-strait routes. Among the airlines that offered cross-strait flights in Taiwan, EVA Airlines and China Airlines also operated international flights and displayed significant differences from the other four airlines which only offered regional routes in Asia, in terms of capital, aircraft types, fleet size, routes, and destinations. We therefore divided the airlines in Taiwan that operated cross-strait routes into international carriers and regional carriers.

Three of the airlines that offer cross-strait flights in China, Xiamen Airlines, China Southern Airlines and China Eastern Airlines, are similar to EVA Airlines and China Airlines in Taiwan. They are also large airlines with international routes providing full services. The other two airlines that offer cross-strait flights in China, Spring Airlines and Juneyao Airlines, are regional companies that operate on the low-cost model, in contrast to the full-service regional carriers in Taiwan. The services provided by low-cost and full-service airlines are considerably different, and thus, it would not be suitable to divide the airlines that offer cross-strait flights in China into international and regional carriers and thus dividing the Chinese airlines into full-service carriers and low-cost carriers is more appropriate.

3.3. Questionnaire design and sampling

Based on the choice factors shown in Table 1, we designed a questionnaire using the 7-step process recommended by Churchill (1991). The two-part questionnaire first covers demographics such as nationality, gender, age, monthly income, frequency of flights taken in the past year, purpose of flight, and airline chosen. The second section measures the 22 factors using a 7-point Likert scale (1 = extremely unimportant − 7 = extremely important). We conducted a pilot test of the draft questionnaire, which was reviewed by ten aviation industry experts, in order to improve its quality and ensure validity.

Because travelers in tour groups are usually not given a choice of airlines, we excluded tour group passengers from the population of this paper. Considering time and cost limitations, we chose to survey passengers from Taiwan or mainland China who were boarding cross-strait flights out of Kaohsiung International Airport. The convenience sampling method was conducted in this paper. Trained interviewers scheduled their visits around the departure times of flights from various airlines and distributed questionnaires to passengers entering departure lounges. Passengers arriving at the departure lounge were randomly approached and asked if they would like to voluntarily participate in the survey. To ensure that passengers had adequate time to complete the questionnaire, surveys were completed 20 min before boarding. During the survey period of December 2013 to January 2014, a total of 370 questionnaires were distributed and 320 valid questionnaires recovered, making a valid recovery rate of 86.5%.

Table 1
Factors passengers consider when selecting airlines.

Choice factors	Literature review								
	1	2	3	4	5	6	7	8	9
1.Price		V		V	V	V	V	V	V
2.Flight scheduling	V	V		V		V	V	V	V
3.Direct or connecting flight	V	V		V		V			
4.Punctuality of flights	V	V	V	V	V	V			V
5.Safety and reliability of the airline	V	V	V		V	V	V		
6.In-flight meals	V	V	V			V	V	V	V
7.In-flight entertainment		V	V			V		V	V
8.Seating comfort		V	V			V		V	V
9.Cabin cleanliness and sanitation	V						V		
10.Service attitude of flight attendants	V	V	V		V	V	V		V
11.Efficiency in problem solving of passengers	V	V	V				V		
12.Speed of baggage transport	V	V	V			V			
13.Reliability and safety in baggage handling	V	V	V			V			
14.Convenience in making reservations	V	V	V						
15.Frequent flyer programs	V	V			V				
16.Completeness and user-friendliness of website functions	V								
17.Convenience of online search system	V								
18.Image and reputation of airline		V		V	V		V		
19.Efficiency of ground services staff	V	V	V			V	V		V
20.Promotional strategies				V	V		V		
21.Speed in providing flight information	V	V				V			
22.Other travel-related services	V								

Note: 1 = Gilbert and Wong (2003); 2 = Park et al. (2004); 3 = Feng and Jeng (2005); 4 = Theis et al. (2006); 5 = Chang et al. (2006); 6 = Park (2007); 7 = Chang and Yang (2008); 8 = Balcombe et al. (2009); 9 = Wen and Lai (2010).

4. Results and discussion

4.1. Analysis of sample structure

Statistical analysis of the demographics of respondents is shown in Table 2. A total of 145 were Taiwanese citizens (45.3%) and 175 were mainland Chinese (54.7%); 163 (51.0%) were male and 157 (49.0%) were female. As regards age, 144 respondents (45.0%) were aged between 31 and 50 years, while another 96 (30.0%) were younger than 30 years old. A majority of respondents (208, 65.0%) earned NT$20,001—NT$70,000 per month; 170 (53.1%) reported flying once a year, while another 120 (37.5%) flew 2—5 times a year. With regard to their purposes of travel, the majority were flying for leisure (172, 53.8%), with the next most common reason being business (98, 30.6%). The 11 different airlines flown by passengers showed a fairly even distribution, with EVA Air being the most popular (49, 15.3%), followed by Juneyao Airlines (38, 11.9%), Spring Airlines (37.11.6%), and China Eastern Airlines (34, 10.6%).

4.2. Descriptive statistical analysis

In order to understand which factors are emphasized by passengers in choosing airlines, we calculated the mean of importance of each factor and arranged them in order of priority based on the mean (as shown in Table 3).

The three top factors were *safety and reliability of the airline* (6.85), *punctuality of flights* (6.52), and *efficiency in problem solving* (6.43). These factors were rated as important (6) to extremely important (7). This indicates that *safety and reliability* are the most important consideration to passengers. Aviation accidents generally have serious consequences, which severely damage trust in an airline and create reluctance to re-patronize. *Punctuality of flights*, the second most highlighted factor, indicates how important it is to passengers that flights are on schedule. Delays interfere with passenger itineraries and cause inconvenience and even commercial loss, which is ultimately detrimental to the airline. The third factor is how efficiently an airline can solve problems and meet the needs of its passengers. Passengers will be more inclined to trust in and rely on an airline that can resolve issues in a timely manner and satisfy their needs. With limited resources at hand, airlines should invest their resources in these key factors in order to attract passengers.

The three factors least emphasized by passengers were *in-flight entertainment*, *frequent flyer programs*, and *other travel-related services*, which were all rated at less than 5. Therefore, airlines may not need to invest particular resources in these areas for this passenger

cohort. However, passengers may have different views about the choice factors according to their socioeconomic factors or their purposes for travel. In order to identify the critical socioeconomic variables influencing the choice factors, more advanced analysis was undertaken.

4.3. Factor analysis

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1970) came out at 0.870 and the Bartlett sphericity test result was extremely significant ($p < 0.001$), showing common variance between choice factors. These results demonstrated that the sample data is suitable for subsequent factor analysis.

In conducting exploratory factor analysis, we employed principal component analysis with maximum variation rotation and eigenvalues exceeding 1 to extract constructs according to the Kaiser criteria. The choice factors with factor loadings exceeding 0.5 were retained. Hair et al. (1998) suggested that constructs should be named to reflect their properties according to choice factors with higher loadings. The results of factor analysis are shown in Table 4. We found the factor loadings of all choice factors are larger than 0.5 and should be retained. The 22 choice factors were classified into five constructs considered by passengers in choosing airlines: *ground services*, *convenience*, *in-flight services*, *price factor*, and *travel availability*. The cumulative explained variance was 62.22%. Therefore, all five constructs were shown to have strong construct validity, as described below:

1. *Ground services* (8 factors): Named after the fact that most of its key factors are related to ground services provided by an airline: Efficiency in problem solving of passengers, efficiency of ground services staff, service attitude of flight attendants, speed of baggage transport, reliability and safety in baggage handling, speed in providing flight information, safety and reliability of the airline, and punctuality of flights. Explained variance of this construct is 18.25%.

2. *Convenience* (4 factors): The four factors of this construct chiefly relate to convenience, efficiency, and expediency: Convenience of online search system, completeness and user-friendliness of website functions, frequent flyer programs, and convenience in making reservations. Explained variance of this construct is 14.13%.

3. *In-flight services* (6 factors): This construct was named to reflect its six factors, which all relate to the in-flight services offered by an airline: In-flight meals, seating comfort, in-flight

Table 2
Analysis of sample structure.

Demographics	No. of sample	Percentage (%)	Demographics	No. of sample	Percentage (%)
Nationality			*Purpose of travel*		
Taiwan	145	45.3%	Flying for leisure	172	53.8%
Mainland China	175	54.7%	Flying for business	98	30.6%
Gender			Others	50	15.6%
Male	163	51%			
Female	157	49%			
Age			*Airline chosen*		
30 years or younger	96	30.0%	Spring Airlines	37	11.6%
31—50 years old	144	45.0%	China Air	27	8.4%
51 years or older	80	25.0%	EVA Air	49	15.3%
Monthly income			TransAsia Airways	24	7.5%
NT$20,000 or less	42	13.1%	Mandarin Airlines	16	5.0%
NT$20,001—NT$70,000	208	65.0%	UNI AIR	25	7.8%
NT$70,001 or more	70	21.9%	Far Eastern Air Transport	26	8.1%
Frequency of flying			Xiamen Airlines	29	9.1%
once a year	170	53.1%	China Eastern Airlines	34	10.6%
2—5 times a year	120	37.5%	China Southern Airlines	15	4.7%
6 times or more a year	30	9.4%	Juneyao Airlines	38	11.9%

Table 3
Descriptive statistical analysis of importance of choice factors.

Choice factors	Mean	Standard deviation	Rank
V5. Safety and reliability of the airline	6.85	0.428	1
V4. Punctuality of flights	6.52	0.639	2
V11. Efficiency in problem solving of passengers	6.43	0.722	3
V10. Service attitude of flight attendants	6.40	0.738	4
V13. Reliability and safety in baggage handling	6.30	0.799	5
V12. Speed of baggage transport	6.20	0.772	6
V3. Direct or connecting flight	6.18	0.837	7
V19. Efficiency of ground services staff	6.17	0.819	8
V21. Speed in providing flight information	6.00	0.885	9
V9. Cabin cleanliness and sanitation	5.91	0.828	10
V14. Convenience in making reservations	5.82	0.925	11
V1. Price	5.78	1.157	12
V 8. Seating comfort	5.71	0.955	13
V17. Convenience of online search system	5.65	0.998	14
V16. Completeness and user-friendliness of website functions	5.56	0.977	15
V2. Flight scheduling	5.48	1.149	16
V20. Promotional strategies	5.45	1.171	17
V18. Image and reputation of airline	5.25	1.212	18
V6. In-flight meals	4.99	1.247	19
V22. Other travel-related services	4.77	1.404	20
V15. Frequent flyer programs	4.74	1.308	21
V7. In-flight entertainment	4.01	1.468	22

entertainment, cabin cleanliness and sanitation, airline image and reputation, and other travel-related services. Explained variance of this construct is 13.91%.

4. *Price factor* (2 factors): Its two choice factors are promotions and air fare. Explained variance of this construct is 8.28%.

5. *Travel availability* (2 factors): This construct was name to reflect whether the flight is direct or requires connecting flight(s) and how closely flights of different airlines are scheduled together on a given day. Explained variance of this construct is 7.64%.

We tested the reliability of each construct using Cronbach's α. The results for all constructs apart from travel availability (0.525) exceeded 0.7 (as shown in Table 4). According to the criteria provided by Guilford (1965), this indicates that each construct is reliable, the choice factors are inter-correlated, and internal consistency is at an acceptable level.

4.4. Differential analysis

We employed one-way ANOVA to conduct differential analysis

of the importance of each construct in relation to age, gender, monthly income, frequency of flying, purpose of travel, nationality, and airline chosen. Results showed that all demographics with the exception of gender implied significant differences in each construct (see Table 5).

Passengers were classified as young, middle-aged or older in accordance with three age categories: 30 years or younger, 31–50 years, and 51 years or older. As shown in Table 5, passengers of different ages showed significant differences in their importance perception of all constructs except *ground services*. *Convenience* was significantly more important to middle-aged passengers than to older passengers. This may be because the percentage of passengers traveling for business (57.1%) was significantly higher among middle-aged compared to older passengers (20.4%). In addition, elderly people are less inclined to use the Internet and websites, and consequently do not consider the functionality of airline websites to be a priority. Compared to older passengers, younger passengers placed significantly more emphasis on *in-flight services*, which could be attributed to their greater demand for in-flight meals and entertainment. Also, the *price factor* was significantly more important to

Table 4
The results of exploratory factor analysis.

Constructs	Choice factors	Factor loadings	Eigenvalues (cumulative explained variance)	Cronbach's α
Ground services	V11. Efficiency in problem solving of passengers	0.795	4.016 (18.26%)	0.850
	V19. Efficiency of ground services staff	0.756		
	V10. Service attitude of flight attendants	0.748		
	V12. Speed of baggage transport	0.698		
	V13. Reliability and safety in baggage handling	0.663		
	V21. Speed in providing flight information	0.540		
	V5. Safety and reliability of the airline	0.537		
	V4. Punctuality of flights	0.537		
Convenience	V17. Convenience of online search system	0.846	3.109 (32.39%)	0.813
	V16. Completeness and user-friendliness of website functions	0.817		
	V15. Frequent flyer programs	0.631		
	V14. Convenience in making reservations	0.624		
In-flight services	V6. In-flight meals	0.773	3.062 (46.30%)	0.817
	V8. Seating comfort	0.744		
	V7. In-flight entertainment	0.718		
	V9. Cabin cleanliness and sanitation	0.629		
	V18. Image and reputation of airline	0.539		
	V22. Other travel-related services	0.525		
Price	V20. Promotional strategies	0.792	1.821 (54.58%)	0.706
	V1. Price factor	0.725		
Travel availability	V3. Direct or connecting flight	0.833	1.680 (62.22%)	0.525
	V2. Flight scheduling	0.654		

younger passengers compared to middle aged or older respondents. Compared to younger and older passengers, middle aged passengers placed significantly greater priority on *travel availability*, possibly because many are traveling for business purposes and therefore emphasize the convenience of the flight type and schedule.

We classified monthly income into three brackets: NT$20,000 or less; NT$20,001–NT$70,000, and NT$70,001 or more, which represent lower, middle, and high income groups. As shown in Table 5, these groups differed significantly in their perceptions on all constructs except *convenience*. Those with higher incomes placed greater emphasis on *ground services* and *travel availability*, compared to those in the middle income bracket. This may be because high-earning individuals are more conscious of demands on their time. *In-flight services* were a higher priority to low-income individuals than to middle or high income groups. A possible explanation is that this group has higher expectations of in-flight services because flying is a relatively costly and less frequent activity for them. Not surprisingly, the low-income group was more sensitive to air fare than high income earning individuals, placing greater emphasis on the *price factor*.

We classified frequency of flight into three groups: once a year, 2–5 times a year, and six times or more a year. Table 5 shows that passengers with different frequency of flight did not have significantly different perceptions with the constructs except *travel availability*. Passengers who traveled more frequently placed greater emphasis on travel availability, conceivably because they understand how scheduling and connecting flights can affect their itineraries.

Purpose of flight was classified as leisure, business, or other (such as visiting family or studying). Table 5 shows that passengers traveling for different purposes placed significantly different degrees of importance on *in-flight services*, *price factor*, and *travel availability*. Those traveling for leisure or other purposes placed greater emphasis on *in-flight services* and *price factor* than those traveling for business, which are likely to be less important to those traveling

for business and whose fares are often paid for by their employers. *Travel availability* was a higher priority to individuals traveling for business and other purposes, because their itineraries are likely to be less fixed and they may need to travel to two or more destinations, or change their itineraries at short notice. Tourists, on the other hand, particularly those traveling with tour groups, generally have pre-arranged itineraries and are therefore less concerned with flight type (direct or connecting) and scheduling.

We also conducted a differential analysis of nationality for the purpose of understanding whether passengers from Taiwan and mainland China emphasize different factors when selecting an airline. Table 5 shows that Taiwanese passengers placed significantly greater importance on *in-flight services*, *price factor*, and *travel availability*, compared to mainland Chinese. We surmise that the reason for this could be that since economic reform is a fairly recent development in China, those who can afford to travel abroad have higher incomes and are therefore less concerned with *price factor*. Table 5 also showed the passengers with high monthly incomes pay less attention to *price factor* than ones with low monthly incomes. In addition, they may have less experience with international travel or have limited itineraries, leading them to place less emphasis on *travel availability* compared to Taiwanese.

We further conducted a differential analysis of the types of airlines for the purpose of understanding whether passengers from Taiwan and mainland China emphasize different factors when selecting the type of airline. Table 6 shows that Taiwanese passengers flying with Chinese low-cost carriers placed significantly greater emphasis on *convenience* than those flying with Taiwanese regional carriers. Considering that low-cost carriers offer low prices, enable easy online booking, fly direct rather than have connecting flights, use secondary airports and do not serve in-flight meals, passengers traveling with these carriers may place greater value on the convenience of online search system, user-friendliness of website functions and booking processes. Taiwanese passengers flying with Chinese low-cost carriers placed significantly greater importance on

Table 5
Differential analysis of importance of choice factors based on various demographics.

Choice factors	Age[a]			F Value	P Value	Scheffe	Gender[b]		T Value	P Value
	1 (N = 96)	2 (N = 144)	3 (N = 80)				1 (N = 163)	2 (N = 157)		
Ground services	6.33	6.40	6.31	1.132	0.324		6.39	6.34	0.877	0.381
Convenience	5.51	5.52	5.21	4.276	**0.015***	2 > 3	5.49	5.46	0.277	0.782
In-flight services	5.29	5.05	4.99	3.362	**0.036***	1 > 3	5.13	5.16	−0.352	0.725
Price factor	5.92	5.56	5.35	7.938	**0.000****	1 > 2, 1 > 3	5.54	5.75	−1.848	0.066
Travel availability	5.73	6.03	5.57	10.368	**0.000****	2 > 1, 2 > 3	5.93	5.79	1.506	0.133

	Monthly income[c]			F Value	P Value	Scheffe	Frequency of flying[d]			F Value	P Value	Scheffe
	1 (N = 42)	2 (N = 208)	3 (N = 70)				1 (N = 170)	2 (N = 120)	3 (N = 30)			
Ground services	6.43	6.30	6.48	3.638	0.027*	3 > 2	6.33	6.41	6.30	1.115	0.329	
Convenience	5.36	5.44	5.50	0.387	0.679		5.42	5.48	5.38	0.268	0.765	
In-flight services	5.56	5.08	4.92	8.392	0.000**	1 > 2, 1 > 3	5.17	5.06	4.99	0.913	0.402	
Price factor	5.96	5.62	5.38	4.643	0.010*	1 > 3	5.68	5.56	5.47	0.850	0.428	
Travel availability	5.79	5.76	6.08	4.440	0.012*	3 > 2	5.68	5.95	6.20	8.056	**0.000****	2 > 1, 3 > 1

	Purpose of flight[e]			F value	P value	Scheffe	Nationality[f]		T value	P value	
	1 (N = 172)	2 (N = 98)	3 (N = 50)				1 (N = 145)	2 (N = 175)			
Ground services	6.33	6.40	6.38	0.700	0.497		6.40	6.33	1.199	0.231	
Convenience	5.44	5.41	5.50	0.186	0.830		5.56	5.40	1.574	0.116	
In-flight services	5.22	4.78	5.37	12.084	**0.000****	1 > 2, 3 > 2	5.33	4.99	3.523	**0.000****	1 > 2
Price factor	5.75	5.22	5.93	12.788	**0.000****	1 > 2, 3 > 2	5.79	5.53	2.266	**0.024***	1 > 2
Travel availability	5.63	6.12	5.98	13.240	**0.000****	2 > 1, 3 > 1	6.00	5.75	2.765	**0.006****	1 > 2

Note: *p < 0.05, **p < 0.01.
[a] 1: 30 years or younger, 2: 31–50 years old, 3: 51 years or older.
[b] 1: Male, 2: Female.
[c] 1: NT$20,000 or less, 2: NT$20,001–70,000, 3: NT$70,001 or more.
[d] 1: 1 time/a year, 2: 2–5 times/a year, 3: 6 times or more/a year.
[e] 1: Leisure, 2: Business, 3: Others.
[f] 1: Taiwan, 2: Mainland China.

price compared to those flying with Chinese full service airlines. Passengers who choose low-cost carriers are likely to try to minimize costs and focus more on air fares and promotional campaigns.

Among passengers from mainland China, those flying with international or regional Taiwanese airlines emphasized *ground services* significantly more than those flying low-cost carriers from mainland China. A conceivable reason for this could be that those who choose Taiwanese airlines are more concerned with service efficiency, punctuality, safety, and reliability than price. Passengers from mainland China flying low-cost carriers emphasized *price* significantly more than those flying international Taiwanese carriers.

4.5. Cluster analysis

We conducted a dual-stage cluster analysis of the five constructs (*ground services, convenience, in-flight services, price factor,* and *travel availability*) in order to facilitate market segmentation of the target customer groups. Using the factor analysis scores, we measured the closeness between samples in accordance with the Ward method and Euclidean distance principles, and identified *k* clusters. Using K-means nonhierarchical clustering analysis, we assigned *k* number of seeds to each group, and distributed each sample observation to the nearest cluster based on its distance from each seed.

The above approach was used to classify the 320 samples into four groups: the first group was the smallest with 36 samples (11.25%); the second group was the largest with 101 samples (31.56%). The third group had 96 samples (30%) and the fourth had 87 (27.19%) (as shown in Table 7). Each cluster is described in further detail below:

Cluster 1: As individuals in this cluster prioritize the *price factor* and are less concerned with *ground services*, we referred to them as the *price-oriented group*. Their choice of airline is based on air fare and promotional deals.

Cluster 2: This group selects airlines based on *in-flight services* and is less concerned with *travel availability*; they are therefore identified as the *comfort-oriented group*.

Cluster 3: This group focuses on *convenience* and *travel availability* rather than *in-flight services*. Their choice of airline is based on website functions of reservation services and airline services; therefore, we called them the *convenience-oriented group*.

Cluster 4: This group emphasizes *ground services* rather than *convenience*, placing higher priority on factors such as staff attitude and baggage freight. We named them the *ground services-oriented group*.

Based on the results of ANOVA, all four clusters differ significantly in their perception of the five constructs. Scheffe post hoc comparisons were then employed to test the differences in relation to each construct, and the findings are shown in Table 7. The differences are broadly in line with the clustering characteristics of each group. For example, the *convenience-oriented group* scored *travel availability* significantly higher than the other three groups.

We conducted chi-squared test to understand whether each cluster is significantly correlated with demographic variables. Results showed that age, monthly income, purpose of travel, and type of carrier are significantly correlated with different clusters, as shown in Table 8.

We further analyzed the distribution of demographic variables in each cluster in order to identify the customer attributes of each market segment (see Table 9). The *comfort-oriented group* had the highest number of young passengers, and the *convenience-oriented group* had the highest number of middle aged passengers. Older passengers were mainly found in the *comfort-oriented* and *ground services-oriented groups*. The highest concentration of low and middle income passengers was found in the *comfort-oriented group*. The highest number of high income travelers was found in the *convenience-oriented group*.

In relation to purpose of flight, the majority of passengers traveling for leisure were clustered into the *comfort-oriented group*, while those traveling for business were mostly found in the *convenience-oriented group*. Passengers traveling for other purposes were mainly distributed throughout the *convenience-* and *comfort-oriented groups*. Most passengers flying with international Taiwanese airlines were in the *convenience-* and *comfort-oriented groups*, while the majority flying with regional Taiwanese airlines was found in the *ground services* and *comfort-oriented groups*. The *comfort-oriented group* also had the greatest concentration of passengers flying with full-service Chinese carriers, while the *convenience-oriented group* had the highest number of passengers flying low-cost Chinese airlines.

5. Conclusions and recommendations

5.1. The most important factors in choosing an airline

The population of this research was outgoing passengers from Kaohsiung International Airport flying with 11 different airlines offering scheduled flights. The main objective was to explore the key choice factors of passengers in selecting airlines for cross-strait

Table 6
Differential analysis of choice factors of cross-strait passengers based on type of airline.

Factors	Airlines				F Value	P Value	Scheffe
	1 (N = 42)	2 (N = 51)	3 (N = 25)	4 (N = 27)			
Taiwan passengers[a]							
Ground services	6.43	6.43	6.34	6.35	0.273	0.845	
Convenience	5.46	5.42	5.49	5.98	3.094	0.029*	4 > 2
In-flight services	5.32	5.32	5.31	5.32	0.000	1.000	
Price factor	5.68	5.81	5.35	6.23	3.264	0.023*	4 > 3
Travel availability	6.07	5.88	5.79	6.35	2.661	0.051	
Factors	Airlines				F value	P value	Scheffe
	1 (N = 34)	2 (N = 40)	3 (N = 53)	4 (N = 48)			
China passengers[a]							
Ground services	6.47	6.48	6.31	6.15	4.334	**0.006****	1 > 4, 2 > 4
Convenience	5.41	5.23	5.49	5.45	0.715	0.544	
In-flight services	4.81	4.98	5.21	4.88	2.122	0.099	
Price factor	5.43	5.25	5.47	5.90	3.296	**0.022***	4 > 2
Travel availability	5.99	5.59	5.63	5.84	2.146	0.096	

Note: *p < 0.05, **p < 0.01.
[a] 1: International Taiwanese carriers, 2: Regional Taiwanese carriers, 3: Full-service Chinese carriers, 4. Low-cost Chinese carriers.

Table 7
Cluster analysis of factors affecting choice of airlines.

Constructs	Cluster				F Value	P Value	Scheffe
	1 (N = 36)	2 (N = 101)	3 (N = 96)	4 (N = 87)			
Ground services	−1.736	0.098	0.348	**0.250**	78.043	**0.000****	2 > 1,3 > 1,4 > 1
Convenience	0.135	0.352	**0.742**	−1.205	179.469	**0.000****	3 > 1 > 4,3 > 2>4
In-flight services	−0.577	**0.877**	−0.522	−0.182	65.247	**0.000****	2 > 1,2 > 3,2 > 4,4 > 3
Price factor	**0.709**	−0.239	0.031	−0.063	9.559	**0.000****	1 > 2,1 > 3,1 > 4
Travel availability	−0.499	−0.458	**0.547**	0.143	26.029	**0.000****	3 > 4 > 1,3 > 4>2

Note: *p < 0.05; **p < 0.01; 1: Price-oriented group, 2: comfort-oriented group, 3; convenience-oriented group, 4.Ground services-oriented group.

flights. The results showed that the top three considerations are *safety and reliability*, *punctuality*, and *efficiency in solving customer problems*. Indeed, safety, reliability, and punctuality are core services provided by airlines (Alamdari, 1999). These results are similar to those of Gilbert and Wong (2003) & Feng and Jeng (2005).

Aviation is a special type of transport industry. Any issue with the safety or reliability of a flight puts hundreds of lives at risk. The recent incidents involving Malaysia Airline flights, for example, have severely damaged its reputation. The importance of flight safety and reliability cannot be overemphasized. In contrast, Eva Air of Taiwan is demonstrating its commitment to safety and reliability by continuously investing in new technology, including an electronic flight bag (EFB) that uses GPS to track taxiing and take off positions, and prevent the plane from positioning itself on the wrong runway or taxiway. In 2014, the Jet Airliner Crash Data Evaluation Centre (JACDEC) ranked Eva Air as the third best airline for flight safety records, just behind Cathay Pacific and Emirates (JACDEC, 2015). By introducing new technology, improving plane maintenance, providing pilots and flight attendants with professional response training, and ensuring compliance with safety inspections and standard operating procedures, airlines can provide passengers with a secure, enjoyable flight experience and build a safe, reliable brand image.

Punctuality is also critical in an age where efficiency is everything, and delayed flights can be very costly to airlines by sparking aggressive passenger behavior, demands for compensation, and complaints by passengers to the media. FlightStats (2015) conducts an annual survey of the punctuality of airlines worldwide, the best of which are awarded the On-time Performance Service (OPS) Awards. The three top-ranked major international airlines for 2014 were KLM, SAS − Scandinavian Airlines, and Iberia. However, airlines from Taiwan and mainland China were not ranked in the top ten, which shows they have much room for improvement.

Consumers are growing increasingly aware of service quality, have higher expectations of customized service, and are less hesitant to voice their requirements or complaints. Airline staff must be patient, attentive, and professional in dealing with customers, assisting them in solving problems and meeting their needs. In the 'Communications Civil Aeronautics Administration 2015 Guidelines for Improving Service Quality,' the Taipei

Table 8
Chi-square testing of each group against demographics variables.

Demographics variables	Chi-square value	Degrees of freedom	P Value
Nationality	5.456	3	0.141
Gender	1.188	3	0.756
Age	13.237	6	**0.039***
Monthly income	15.011	6	**0.020***
Frequency of flying	9.300	6	0.157
Purpose of travel	15.668	6	**0.016***
Type of carrier	36.331	9	**0.000****

Note:*p < 0.05, **p < 0.01.

Songshan Airport (2015) proposed methods and strategies for solving customer issues and reducing complaints. In addition to improving staff training, airlines can also launch shared check-in counters, which are flexible and reduce waiting times for passengers, enabling them to quickly complete check-in processes. Airlines can collect information on frequent Q&As to enable staff at service counters to quickly provide satisfactory replies to customer queries. As stated by Dixon et al. (2010), the loyalty of customers is won by solving their problems.

5.2. Market segmentation based on choice factors

In order to interpret the behavior of passengers, this paper conducted differential analysis of passenger attributes in relation to the five constructs passengers consider when selecting airlines, and found that age, monthly income, flying frequency, purpose of travel, nationality, and type of airline all implied significant differences in the level of importance perception. These results are similar to those of Gilbert and Wong (2003), who found that passengers with different ethnicities, nationalities, and travel purposes had significantly different expectations of reliability, security, facilities, staff, flight model, customization and responsiveness. Park (2007) also found that different nationalities (Korean or Australian), airlines, seating class, and frequency of flying implied significant differences in the perception of consumer purchase behavior.

Airlines targeting middle aged passengers should highlight the convenience of the flight type (direct or connecting) and flight scheduling. If targeting younger passengers, airlines should emphasize on-board entertainment, meals, legroom and seating comfort, as well as price and promotional deals. As income and age are generally positively correlated, passengers in lower age and income brackets usually have the same priorities; therefore, marketing strategies for both of these groups would have the similar focus. Airlines marketing to high income passengers should highlight *ground services* such as problem-solving ability, service efficiency, speed of baggage transport, safety and reliability, as well as flight type (direct or connecting) and flight scheduling.

More frequent fliers placed greater emphasis on *travel availability*, meaning that flight type (direct or connecting) and flight scheduling are crucial to this customer group. As far as purpose of travel, individuals traveling for business were more concerned with *travel availability*, while those traveling for leisure emphasized *inflight services* and *price factor*. We suggest that in order to attract business travelers or middle aged, high income-earning passengers, airlines should make flying more convenient (Gilbert and Wong, 2003) and offer more frequent flights, possibly through collaborating or forming strategic alliances with other airlines.

Based on the analyzed results of nationality and types of airlines, we surmise that *ground services* such as problem-solving ability, service efficiency, service attitude, baggage freight efficiency, safety and reliability may be the key attractions of Taiwanese airlines to

Table 9
Distribution of demographic variables in each cluster.

No. of subjects (%)		Customer group				
		Price-oriented	Comfort-oriented	Convenience-oriented	Ground services-oriented	Total
Age	30 years or younger	15(15.6%)	**38(39.6%)**	22(22.9%)	21(21.9%)	96(100.0%)
	31–50 years	14(9.7%)	36(25.0%)	**54(37.5%)**	40(27.8%)	144(100.0%)
	51 years or older	7(8.8%)	**27(33.8%)**	20(25.0%)	**26(32.5%)**	80(100.0%)
	Total	*36(11.2%)*	*101(31.6%)*	*96(30.0%)*	*87(27.2%)*	*320(100.0%)*
Monthly income	NT20,000 or less	1(2.4%)	**21(50.0%)**	10(23.8%)	10(23.8%)	42(100.0%)
	NT20,001–NT70,000	28(13.5%)	**65(31.2%)**	57(27.4%)	58(27.9%)	208(100.0%)
	NT70,001 or more	7(10.0%)	15(21.4%)	**29(41.4%)**	19(27.1%)	70(100.0%)
	Total	*36(11.2%)*	*101(31.6%)*	*96(30.0%)*	*87(27.2%)*	*320(100.0%)*
Purpose of flight	Leisure	22(12.8%)	**66(38.4%)**	39(22.7%)	45(26.2%)	172(100.0%)
	Business	8(8.2%)	20(20.4%)	**41(41.8%)**	29(29.6%)	98(100.0%)
	Other	6(12.0%)	**15(30.0%)**	**16(32.0%)**	13(26.0%)	50(100.0%)
	Total	*36(11.2%)*	*101(31.6%)*	*96(30.0%)*	*87(27.2%)*	*320(100.0%)*
Type of airlines	International Taiwanese airlines	9(11.8%)	**23(30.3%)**	24(31.6%)	20(26.3%)	76(100.0%)
	Regional Taiwanese airlines	4(4.4%)	**31(34.1%)**	21(23.1%)	**35(38.5%)**	91(100.0%)
	Full-service Chinese airlines	5(6.4%)	**33(42.3%)**	20(25.6%)	20(25.6%)	78(100.0%)
	Low-cost Chinese airlines	18(24.0%)	14(18.7%)	**31(41.3%)**	12(16.0%)	75(100.0%)
	Total	*36(11.2%)*	*101(31.6%)*	*96(30.0%)*	*87(27.2%)*	*320(100.0%)*

Note: The bold represents the relationship between a specific level of demographic variable and a specific customer group is significant.

mainland Chinese customers. To attract local Taiwanese passengers, Taiwanese airlines should highlight *in-flight services* such as entertainment, meals, and seating comfort, as well as price and promotional marketing. Low-cost airlines should emphasize user-friendly website systems, convenient booking processes, and low prices to attract customers. However, safety, reliability, and punctuality must not be neglected (Alamdari, 1999). In summary, airlines should invest more resources and improve marketing strategies in each market segment, building an irreplaceable brand image in the minds of their target customer groups.

When discussing what makes airline brand strategy successful, Temporal (2006) pointed out, as an example, the AirAsia motto "*Now everyone can fly*", which positions the company as a regional low-cost airline but also conveys that the airline will not neglect its safety and services in favor of low fares and that it places great emphasis on flight safety, staff training, and customer services. AirAsia often appears in the media as a participant in charitable endeavors, positioning itself as a compassionate, cheerful, efficient, and innovative brand. Emirates is synonymous with Dubai and has modeled itself as an elite brand providing low-cost, high-value packages. On the other hand, Singapore Airlines, which won the Skytrax Best Airline award for six consecutive years, has increased its investments despite rising fuel costs and recession, breaking into the high-profit end of the market with innovative products and high quality services and leaving the vicious cycle of competition with low-cost carriers. Singapore Airlines has built a priceless brand image and is setting benchmarks for the aviation industry. Similarly, different types of airlines in China and Taiwan can refer to the results of this study in formulating marketing strategies for different customer groups.

5.3. Passenger cluster analysis

Using cluster analysis, we divided the passengers into four groups. We then described the characteristics of different customer groups based on the relationships between these clusters and passenger demographic variables. The *price-oriented group* is the smallest, focuses on air fare and promotional campaigns, and is mainly made up of young passengers with middle incomes traveling for leisure and flying with low-cost Chinese carriers. The *comfort-oriented group* is the largest and comprises both younger and older passengers, with low to middle incomes, traveling for leisure with non-budget carriers. The *convenience-oriented group* is

mainly made up of middle aged, high income-earning passengers traveling for business purposes on low-cost Chinese carriers. Finally, the group most focused on *ground services* comprises middle aged to older passengers with middle incomes, traveling for leisure on regional Taiwanese airlines.

These results can serve as a reference for cross-strait airlines in maintaining their competitive advantage and developing marketing strategies to meet the needs of existing clientele as well as attracting new business and increasing their market share. For example, China Air is an international Taiwanese airline with the attributes to attract customers concerned with comfort and convenience. To retain these customer groups, China Air must continue to invest resources in *convenience, in-flight services*, and *travel availability*. By contrast, passengers focusing on *ground services* and *price factor* are not as attracted to China Air. In order to appeal to these new customers and increase their market share, China Air must improve the service attitude and efficiency of its staff and the safety and reliability of its flights, as well as offer suitable promotions and marketing campaigns.

5.4. Research limitations and future research direction

Being limited by time and cost, we only surveyed passengers of Taiwanese or Chinese nationality departing Kaohsiung International Airport on flights operated by Taiwanese and Chinese airlines. If the scope of this research could be expanded to include all airports in Taiwan that offer cross-strait flights as well as increase the sample number, the sample group would be more representative, which would lead to stronger results. Also, we focused mainly on exploring how much passengers emphasize certain determinant factors when selecting airlines, and did not evaluate the performance of airlines (or customer satisfaction) with respect to these factors. If future studies could simultaneously evaluate the importance of choice factors as well as the performance of these factors for cross-strait airlines, then researchers could conduct an importance-performance analysis (IPA) to analyze and compare the competitive advantages of the airlines. The results of this study can help airlines to gain a better understanding of both themselves and their competitors, strengthen their competitive advantage, effectively allocate resources, and formulate operational strategy for the ultimate purpose of enhancing customer satisfaction and loyalty.

Appendix A. Airlines operating cross-strait flights.

Nationality of company	Taiwan						Mainland China				
Company type	International carriers		Regional carriers				Full-service carriers			Low-cost carriers	
Company name	China Air	EVA Air	TransAsia Airways	Mandarin Airlines	UNI Air	Far Eastern Air Transport	Xiamen Airlines	China Eastern Airlines	China Southern Airlines	Juneyao Airlines	Spring Airlines
Date established	1959/9/7	1989/4/7	1951/5/21	1991/6/1	1996	1957/6/5	1984/7/25	1988/6/25	1991	2005	2004/5/26
Capital (in NTD)	52 billion	32.5 billion	5.5 billion	8.26 billion	3.16 billion	3 billion	—	201.2 billion	8117.8 billion	2.5 billion	0.4 billion
Aircraft type	A340, B737, B747,	A330, A321, B747, B777, MD-90, MD-11	A320, A321, A330, ATR72	ERJ-190, B737	MD-90, DASH8, ATR72	MD-82, MD-83	B737, B757-200	A300, A319, A320, A321, A330, A340, B737, CRJ200, ERJ145	A319, A320, A321, A330, A380, B737, B757, B777, B787, E190 20	A320, A321	A320
No. of aircraft	76	62	19	9	24	7	101	345	444	34	40
Routes and destinations	Approximately 113 destinations, routes throughout Asia, Oceania, Middle East, Europe and North America	Approximately 89 destinations; routes throughout Asia, Oceania, Europe and North America	Approximately 34 destinations; routes throughout East Asia, Northeast Asia and Southeast Asia	Approximately 23 destinations; routes throughout East Asia, Northeast Asia and Southeast Asia	Approximately 27 destinations; routes throughout East Asia and Southeast Asia	Approximately 15 destinations on flight routes throughout East Asia	Approximately 57 destinations; routes throughout East Asia, Northeast Asia and Southeast Asia	Approximately 165 destinations; routes throughout Asia, Oceania, Europe, and North America	Approximately 177 destinations; routes throughout Asia, Oceania, and Europe	Approximately 45 destinations; routes throughout East Asia and Southeast Asia	Approximately 52 destinations; routes throughout East Asia and Southeast Asia

Note: 1. Fields marked with a [−] indicate information this study was unable to find.

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