

Empirical analysis of airline choice using survey data in Hong Kong

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Abstract

Aim: This research aims to determine how much various choice factors matter when selecting an airline. This research aims to determine which factors are most significant to Hong Kong air travellers when making plans.

Method: The residents of Hong Kong are polled in an empirical study to collect the necessary information. The manager at a conventional travel agency and three frequent flyers were interviewed in depth. There were a total of 387 responses to the survey.

Findings: The findings revealed substantial differences in service perceptions between passengers of different ages and income levels, those who travel for business versus leisure, and those who play a decision-making versus a supporting role during a trip. According to the data, price is the most important consideration for passengers when selecting an airline and booking a flight. Possibly because of this, Low-Cost Carriers (LCC) have been gaining market share in recent years. Full-Service Carriers (FSC) can compete better with LCCs if they prioritise efficient flight operations, increasing flight frequency and decreasing delays. Since passengers place a premium on these considerations.

Implications/Novel Contribution: To our knowledge, this is the first empirical study to examine how customers decide which airline to fly with based on how they made their reservations.

Keywords: Airline Choice, Low-Cost Carrier, Full-Service Carrier, Hong Kong

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INTRODUCTION

LCCs have grown substantially in Asia over the past decade thanks to rising levels of mobility, ongoing aviation liberation and deregulation, and enhanced aviation infrastructures (Homsombat, Lei, & Fu, 2014; Koldowski & Yoo, 2006; Wang, Tsui, Liang, & Fu, 2017). According to (Moiseiwitsch, 2014), LCCs controlled 45% of the South Asian market in 2013. Some conventional FSCs have responded to the rapidly shifting business climate by setting up shops as LCCs on their own, citing the research of (Huse & Evangelho, 2007). Example: in Australia, Qantas created Jetstar Airways as a wholly owned subsidiary to compete with low-cost carrier (LCC) Virgin Blue.

Flights for Oasis Hong Kong Airline, Hong Kong's first low-cost carrier, began in October 2006. Nonetheless, the carrier went out of business in April 2008 (Chau, Lai, Lee, & Or, 2015; Wang et al., 2017) because of the intense competition and because its revenue model was not sustainable or profitable. The airline, formerly known as Hong Kong Express Airways, changed its name to HK Express in June 2013 to reflect its transition to a low-cost carrier. Currently, HK Express is the largest low-cost carrier (LCC) in Hong Kong, and it regularly flies to 28 different cities across Asia. At 3,787,000 passengers in 2017, HK Express carried 5.23% of the Hong Kong airline market, an increase of 30% from the previous year's numbers (Civil Aviation Department Hong Kong, 2018; HK Express, 2018). With the Hong Kong-Zhuhai-Macau Bridge and the Hong Kong leg of the Guangzhou-Shenzhen-Hong Kong Express Rail Link set to open this year, HK Express anticipates transporting more than 4.35 million passengers by air.

FSCs and conventional travel agencies face extinction due to the disruptive effects of the explosive expansion of low-cost carriers. LCCs rely heavily on the Internet and less on conventional travel agencies to cut costs (Sanchez & Rubio, 2008). Traditional travel agencies need help competing in the face of this tactic and the rising popularity of travel websites.

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This research aims to determine which factors are most significant to Hong Kong air travellers when making plans. As far as we know, this is the first empirical study to examine how the reservation method influences the ultimate decision of which airline to use. The findings can aid aviation industry stakeholders and traditional travel agencies in developing customer segmentation strategies.

METHODOLOGY

Hypotheses Formulation

In addition to investigating the factors that affect passenger's decision regarding airline choice, this research is interested in identifying the difference in service perceptions between passengers traveling for different purposes. As based on a number of authors (Chen & Chao, 2015; Gilbert & Wong, 2003; Kuljanin & Kalić, 2015), the expectations and choice of airlines of passengers traveling for different purposes would be different. This leads to the first hypothesis.

H1: For passengers having different trip purposes, their perceptions of desired airline would also be different.

Other than trip purpose, Chen and Chao (2015) found that age and income also lead to differences in deciding which factors were considered by the passengers. This generates the second and third hypotheses.

H2: Passengers at different age groups placed significantly different emphasis on the choice factors when selecting airlines.

H3: Passengers at different income groups had different perceptions on the choice factors when selecting airlines.

One of the main factors affecting expected desired service is enduring service intensifiers (Zeithaml & Bitner, 1996). The individual expectations of the decision makers are intensified because his/her experiences derived expectations from other travel partners who will receive the airline service too. This leads to the fourth hypothesis.

H4: The perceptions of desired airline service will be significantly different from decision makers and non-decision makers in choosing the airline.

Questionnaire Design and Sampling

To obtain information on passengers perception on airline choice and the difficulties faced by traditional travel agencies, three in-depth interviews were conducted from the manager who work in traditional travel agency and the frequent travelers. These results are used to design the questionnaire.

The final questionnaire consists of three parts. In the first part, respondents provided information on trip characteristics such as trip purpose, trip destination, air ticket cost, and reservation method of their most recent trip. In the second part, respondents were asked how factors such as fare, flight schedule, in-flight entertainment, are important regarding airline choice using a 7-point Likert scale (1 = not important at all, 7 = extremely important). Also, level of importance of payment method, provision of advice, etc., on reservation method were retrieved. Finally, socio-demographic data were obtained.

The convenience sampling method was used in this study targeted on Hong Kong residents. E-mail invitations were sent out to the staff and students of City University of Hong Kong, inviting them as well as their family members and friends to complete the questionnaire posted online. A total of 481 replies were received during the survey period 10th to 30th October 2017, and the response rate was 19.24%. Of the 481 replies, 27 were non-targeted respondents, and 67 of them were incomplete. Therefore, the useful number of responses for this study was 387, i.e., 80% of the collected replies.

RESULTS AND DISCUSSION

Sample Characteristics

The sample consists of 235 (60.72%) females and 152 (39.28%) males. About one-thirds of the respondents were younger than 31 years old, while another 47.55% were aged between 31 and 50 years. Three-quarters of the respondents indicated that they had completed an undergraduate degree with full-time employment. The majority of the respondents (69.25%) had personal income ranged between HK\$10,000 and HK\$40,000 per month. Regarding the frequency of flying, 42.64% of the respondents reported flying at least once a year, while another 25.84% flew at least once every six months, and 17.31% flew at least once every three months.

To increase the data reliability, 305 (78.81%) respondents who had made an air trip within the six months prior to the survey taking place were asked to provide information on their most recent trip. Among this group of respondents, the most popular destination was Japan (34.43%), followed by Taiwan (15.08%), and Southeast Asia countries such as Malaysia, Singapore, Thailand and Vietnam (14.43%). With regard to their purposes of travel, the majority were flying for leisure (77.05%), with the next most common reason being visiting family and friends (9.51%). Around 20% of the respondents traveled on their own, and 59.67% traveled in a group of 2 to 4 persons. The average group size was 3.33 persons.

The FSCs dominated the market, with 75.08% of the respondents flying with them. As shown in Table 1, passengers choose FSC due to its convenient flight schedule (55.46%), low cost (43.67%), offered direct flight (38.86%) and good reputation of the company (34.93%). For LCC users, cost is the primary reason of their choice (96.05%). It is noted that 66.23% of the respondents made the airline decision by themselves and 20% by family members.

Table 1: Reasons for Choosing the Airline

Choice Factor	FSC		LCC		Overall	
	n	%	n	%	n	%
Low cost	100	43.67%	73	96.05%	173	56.72%
Convenient flight schedule	127	55.46%	23	30.26%	150	49.18%
Offer direct flight	89	38.86%	40	52.63%	129	42.30%
Good reputation of the company	80	34.93%	3	3.95%	83	27.21%
Good safety record	65	28.38%	4	5.26%	69	22.62%
Offer frequency flyer program	49	21.40%	3	3.95%	52	17.05%
Short traveling time	14	6.11%	6	7.89%	20	6.56%
Only choice to destination	6	2.62%	7	9.21%	13	4.26%
Others	28	12.23%	0	0.00%	28	9.18%

As expected, FSC passengers spent more on the air tickets than LCC passengers. Table 2 shows that, to make a trip to Taiwan, 23.69% of FSC passengers spent more than HK\$2,000 per person, but none of the LCC passengers did so. Take traveling to Japan as another example. Around a quarter of the FSC passengers reported that they spent less than HK\$2,000 on the air ticket, which is a much smaller percentage compared to the LCC passengers (74.47%).

Table 2: Air Ticket Cost by Trip Destination

Destination	Cost	FSC		LCC		Overall	
		n	%	n	%	n	%
China	< HK\$1K	3	14.29%	0	0.00%	3	13.64%
	HK\$1-2K	7	33.33%	1	100.00%	8	36.36%
	HK\$2-3K	5	23.81%	0	0.00%	5	22.73%
	> HK\$3K	6	28.57%	0	0.00%	6	27.27%
	Sub-total	21	100.00%	1	100.00%	22	100.00%
Taiwan	< HK\$1K	7	18.42%	2	50.00%	9	21.43%
	HK\$1-2K	22	57.89%	2	50.00%	24	57.14%
	HK\$2-3K	5	13.16%	0	0.00%	5	11.90%
	> HK\$3K	4	10.53%	0	0.00%	4	9.52%
	Sub-total	38	100.00%	4	100.00%	42	100.00%
Southeast Asia countries	< HK\$1K	2	7.69%	5	41.67%	7	18.42%
	HK\$1-2K	13	50.00%	5	41.67%	18	47.37%
	HK\$2-3K	3	11.54%	1	8.33%	4	10.53%
	> HK\$3K	8	30.77%	1	8.33%	9	23.68%

⁰HK\$7.8 = US\$1

Table 2: Continue...

Destination	Cost	FSC		LCC		Overall	
		n	%	n	%	n	%
	Sub-total	26	100.00%	12	100.00%	38	100.00%
South Korea	< HK\$1K	0	0.00%	0	0.00%	0	0.00%
	HK\$1-2K	2	25.00%	9	100.00%	11	64.71%
	HK\$2-3K	5	62.50%	0	0.00%	5	29.41%
	> HK\$3K	1	12.50%	0	0.00%	1	5.88%
	Sub-total	8	100.00%	9	100.00%	17	100.00%
Japan	< HK\$1K	4	7.69%	6	12.77%	10	10.10%
	HK\$1-2K	10	19.23%	29	61.70%	39	39.39%
	HK\$2-3K	14	26.92%	10	21.28%	24	24.24%
	> HK\$3K	24	46.15%	2	4.26%	26	26.26%
	Sub-total	52	100.00%	47	100.00%	99	100.00%

Figure 1 presents the reservation method used by airline choice of passengers. It is found that, in general, only one-fifths of the respondents reserved their air tickets from the traditional travel agencies, while 55.41% and 13.44% were via airlines official websites and travel websites, respectively. Among all travel websites, Expedia.com was the most commonly used one by the respondents.

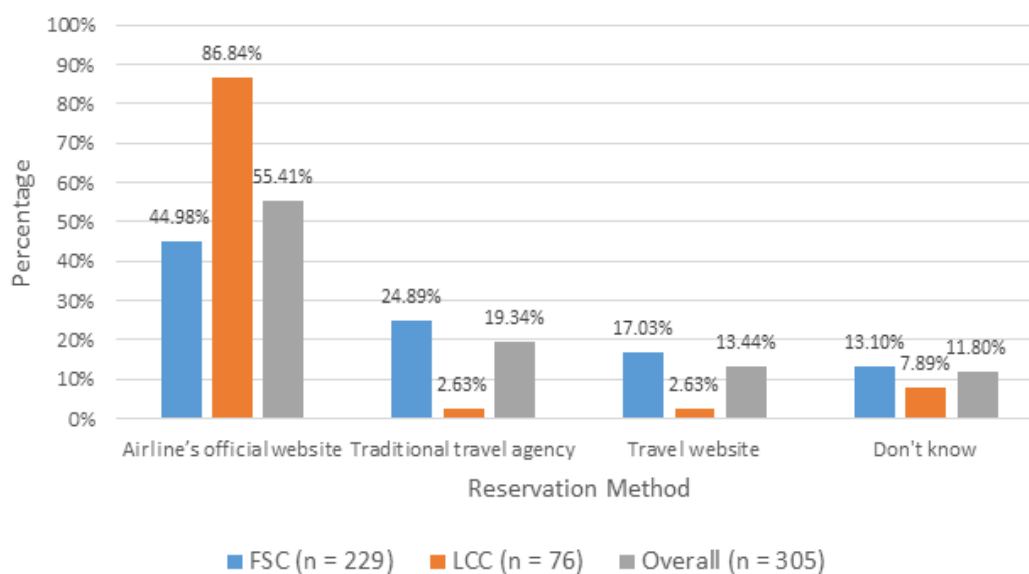


Figure 1. Reservation Method by Airline Choice

The results proved that LCCs mainly work through their official websites. As shown in Figure 1, a large proportion of LCC passengers reserved their air tickets via LCCs own websites (86.48%). For FSC passengers, a quarter of them reserved their air tickets from traditional travel agencies. A chi-squared test has been performed and the result indicated that there is a significant association between the reservation method and airline choice (chi-square value = 42.775, p -value < 0.001). Hence, to survive, traditional travel agencies should work closely with FSCs on the important factors perceived by the passengers.

The data further revealed that human element is the key to success of traditional travel agencies. Among those who reserved air tickets from traditional travel agencies, 54.55% said they would like to seek advice from the sales persons, while 42.42% had developed long-term relationship with the sales persons. For those who used the webs, price related factors were their priority. Around 40% of those who bought air tickets from airlines official websites claimed that they can only enjoyed the discounts with online booking. Passengers used travel websites mainly because it offered lower cost air tickets (63.04%) and/or compare price function (50.00%).

Descriptive Statistical Analysis

In order to understand which factors are empathized by passengers in deciding the reservation method, the descriptive statistics of importance of each factor were computed and presented in Table 3.

Table 3: Descriptive Statistics-Importance of Reservation Method Factors

Choice Factor	Mean	Standard Deviation
Cost	6.16	1.19
Ease of payment	5.22	1.35
After sales service, e.g., change of air ticket and refund	4.63	1.52
Provision of advice	4.21	1.54
Availability of complementary services, e.g., hotel booking and car rental	3.73	1.66

The cost was rated the highest (6.16), showing that the passengers sought the cheapest way to obtain the air tickets. In addition, ease of payment was at a high priority with a mean score of 5.22, indicating convenience was an important factor when passengers organize their journeys. However, due to the increasing popularity of various hotel booking platforms, passengers tended to arrange the accommodations and other related services on their own instead of purchasing a bundle. As a result, the availability of complementary services was found to be the least important (3.73).

Regarding the airline choice, as shown in Table 4, passengers consistently rank cost as the most important factor with a mean importance score of 5.95. This may explain why LCCs have an increasing market share in recent years. With its fast-paced lifestyles, Hong Kong passengers are most concerned on convenience flight schedule and departure time (5.84) in order to fit in their busy agendas. In addition, aviation accidents generally have serious consequences. As a result, the safety record of the airline (5.82) was one of the three top factors that passengers emphasized.

In-flight entertainment and availability of customer lounges were of least importance for passengers, which were both rated at less than 4. The results are very much in line with the previous research of [Milioti, Karlaftis, and Akkogiounoglou \(2015\)](#) who found that in-flight entertainment was far less important than cost, flight schedule and safety issues.

To sum up, cost related factors were most emphasized by the passengers. However, passengers may have different views about the choice factors according to their trip purposes or their socio-demographic factors. In order to identify the perceptions of choice factors for different types of passengers, One-Way Analysis of Variance (ANOVA) and independent sample *t*-test were conducted.

Table 4: Descriptive Statistics-Importance of Airline Choice Factors

Choice Factor	Mean	Standard Deviation
Cost	5.95	1.20
Flight schedule and departure time	5.84	1.17
Safety record	5.82	1.41
Number of transfers required	5.65	1.44
Reputation of the company	5.48	1.35
Likelihood of delays and cancellations	5.32	1.43
Flight traveling time	5.12	1.41
Included meals and luggage charges in ticket price	4.50	1.72
Service quality of flight attendances	4.41	1.52
Flexibility of changing the ticket	4.29	1.62
Refund policy	4.27	1.58
In-flight entertainment	3.72	1.68
Availability of customer lounge	2.84	1.73

Differential Analysis

Purpose of trip was classified as leisure, business, or other (such as visiting family and friends or studying). As summarized in Table 5, the ANOVA results indicated that passengers traveling for different purposes placed significantly different degrees of importance on cost and number of transfers required. The Tukeys test results further revealed that passengers traveling for leisure and other purposes placed greater emphasis on price than those traveling for business, whose fares are often paid for by their employers. A number of transfers required was at a higher priority to business travelers, because of their tight itineraries and are therefore more concerned with convenience compared to the other types of travelers. These results indicated the hypothesis H1 could not be rejected.

Passengers aged 30 or below were classified as young, 31 to 50 as middle-aged, or above 50 as a senior. Compared to younger passengers, middle-aged and senior ones were more concerned about the efficiency of flight operations (Table 5). Factors including flight traveling time, the likelihood of delays and cancellations, as well as the flexibility of changing the air tickets were rated significantly higher by middle-aged and senior passengers than the youngsters. In addition, the availability of customer lounges were found to be more important to the middle-aged and senior passengers, possibly due to their higher financial status. These imply, when selecting airlines, there is a significant difference between the perceptions of passengers at different age groups, and hypothesis H2 is being supported by the collected sample.

Table 5: Differential Analysis Based on Various Socio-Demographic Variables

Choice Factor	Purpose of Trip			F-value	p-value
	Leisure (n = 235)	Business (n = 23)	Other (n = 129)		
Price	6.00	5.35	5.96	3.081	0.047
Number of transfers required	5.74	6.04	5.40	3.279	0.039
Choice Factor	Age			F-value	p-value
	Young (n = 142)	Middle-Aged (n = 184)	Senior (n = 61)		
Flight traveling time	4.82	5.27	5.36	5.149	0.006
Likelihood of delays and cancellations	5.08	5.45	5.49	3.244	0.040
Flexibility of changing the ticket	3.88	4.45	4.74	8.063	0.000
Availability of customer lounge	2.58	2.90	3.25	3.374	0.035
Choice Factor	Personal Income			F-value	p-value
	Low (n = 27)	Middle (n = 268)	High (n = 92)		
Flight schedule and departure time	5.15	5.86	6.00	5.805	0.003
Likelihood of delays and cancellations	4.63	5.32	5.52	4.146	0.017
Number of transfers required	5.00	5.67	5.77	3.157	0.044
Price	5.44	6.06	5.75	4.932	0.008
Choice Factor	Decision Maker		t-value	p-value	
	Yes (n = 202)	No (n = 185)			
Flight schedule and departure time	6.06	5.61	3.821	0.000	
Flight traveling time	5.43	4.78	4.683	0.000	
Likelihood of delays and cancellations	5.44	5.18	1.773	0.077	
Number of transfers required	5.90	5.37	3.627	0.000	

Regarding personal income, passengers were classified into three groups low (less than HK\$10,000 per month), middle (HK\$10,000 to HK\$40,000 per month), and high (above HK\$40,000 per month). Similar to the findings for passengers at different age groups, middle- and high-income groups placed greater emphasis on flight operation efficiency (Table 5). They looked for convenience flight schedules, low possibility of flight delays and cancellations,

and fewer transfers as they are more conscious of demands on their time. Surprisingly, the low-income group rated price less important than middle- and high-income groups. A possible explanation is that this group of passengers is not paying the fares by themselves, but by their family members. These results supported hypothesis H3.

As expected in hypothesis H4, service perceptions between decision makers and non-decision makers are not the same. Based on the independent sample t-test results shown in Table 5, it was found that decision-maker placed a significantly higher rating on flight schedule and departure time, flight traveling time, the likelihood of delays and cancellations, and number of transfers required than non-decision makers. This results showed that decision makers usually value their money more, hence expecting a better service quality. In addition, he/she might want to impress their family members and friends, and afraid to be blamed if the journey is organized unsatisfactorily.

Market Segmentation

In order to facilitate market segmentation, chi-squared tests were conducted to understand whether airline choice is significantly correlated with socio-demographic variables. As shown in Table 6, personal monthly income, the purpose of travel and trip destination are significantly correlated with the choice of airline. The survey data further revealed that passengers on long-haul flights or those traveling for the business purpose were more likely to take FSCs. Comparatively, LCCs mainly served leisure travelers visiting Japan, South Korea and other Southeast Asia countries.

Table 6: Chi-Squared Testing of Airline Choice Against Socio-Demographic Variables

	Chi-square Value	Degrees of Freedom	p-Value
Gender	0.266	1	0.606
Age	1.644	2	0.440
Personal monthly income	15.189	2	0.001
Frequency of flying	4.832	3	0.185
Purpose of travel	13.302	2	0.001
Trip destination	62.924	7	0.000
Decision maker	3.481	1	0.062

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

Due to the overwhelming growth of LCC which mainly work through the Internet, the survival of FSC and traditional travel agencies become more difficult. Understanding specific drivers of passengers airline choice deemed important.

In general, cost as well as convenience, in terms of flight schedule and number of transfers required, are the two most important factors influencing the airline choice of Hong Kong passengers. This is especially true for passengers with different purposes of travel. The survey results showed that passengers traveling for business reasons are more concerned with convenience, while those traveling for leisure emphasized in price factor. As income and age are generally positively correlated, passengers in higher age and income groups tend to have the same priorities on flight operation efficiency. Therefore, airlines targeting business travelers, middle income group or age group should make flying more convenient and minimize the possibility of delays and cancellations of flights, possibly through better coordination with its subsidiary and/or forming strategic alliances with other airlines.

When deciding where to make the reservation, passengers are most concerned on cost and ease of payment. Hence, to maintain their market shares, traditional travel agencies should focus on these two issues. Also, sales persons is a valuable asset to traditional travel agencies. By providing professional advice and developing a long-term relationship with their customers, sales persons can grasp opportunities of future businesses.

To compete with the LCC, FSC should collaborate with traditional travel agencies, targeting on business travelers or passengers taking long-haul flights. Direct flight with convenience schedule and a competitive ticket price may be the key attractions of these two groups of passengers.

Being limited by time and budget, convenience sampling was adopted in this study. If the scope of this research could be expanded to include a truly random sample from the Hong Kong population as well as increase the sample

size, the results would be more representative. Also, in this study, passengers were asked to evaluate the choice factors according to the level of importance, but not the level of satisfaction on airlines service performance. Further studies could evaluate both of these, so as to identify areas that the airlines have to improve.

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