

A Study of Customer Satisfaction in Airlines

Ching Ming Kei

Abstract—This paper aims to evaluate the customer satisfaction of the airline industry in Hong Kong by using the Importance-Performance Analysis (IPA). A list of 11 attributes is identified and rated using a five-point Likert scale. The IPA reveals that Full Service Carrier (FSC) should improve its on-time performance and seat comfortability while there is no concentration in Low Cost Carrier (LCC). Moreover, it has been found that crew attentiveness is overdone by FSC while check-in services are overkilled by both FSC and LCC. Furthermore, the overall performance of FSC is found to be satisfactory but not LCC by their customers. The results are important for airlines to identify the key areas for strategic focus and particularly relevant for developing strategy for the air transport industry in HK. Future research could consider attributes like terminal tangibles if FSC and LCC are using different terminal location and/or facilities.

Index Terms—Customer satisfaction, full service carrier, importance-performance analysis, low cost carrier.

I. INTRODUCTION

Air transport industry not only directly contributes around 3% of HK's GDP, but also has an impact of the competitiveness of Hong Kong as it helps to improve the performance of tourism and aviation industry [1]. Air transport has become more and more important for Hong Kong's trade over the last few decades: 38% of Hong Kong's total exports and 45% of its total imports were shipped by air in 2018, compared to 20% of its exports and 19% of its imports in 1980. As one of the regional hubs in Asia, Hong Kong has been connected with most Asian urban centers and half of the world's population within 5 hours of flight time. Over 120 airlines operate about 1,100 flights daily to and from Hong Kong to more than 220 destinations worldwide including about 50 destinations in Mainland China. The air transport carried 72.9 million of passenger and 4.9 million tons of cargo in 2017, which is over 9% increase in air cargo movement compared to 2016. Hong Kong International Airport (HKIA) has been ranked as the world's busiest airport for international cargo every year since 2006 and provide round-the-clock operations. In 2018, HKIA broke another record with total cargo throughput including airmail exceeding 5 million tonnes and handles about 68 flights per hour at peak hours.

Moreover, the Hong Kong SAR Government has approved the construction of the Third Runway System (3RS), began in 2016 and the new runway is expected to be commissioned in

2022 and the entire 3RS project be completed by 2024. HKIA will then be able to handle as much as 102 million passengers, 8.9 million tonnes of cargo and 607,000 aircraft movements annually by 2030.

Following the US Airline Deregulation Act in 1978, budget or Low-cost carrier (LCC) were evolved to provide lower fares air transportation. More and more LCCs are established to offer scheduled services with inexpensive airfare that directly compete with the traditional Full Service Carriers (FSCs). As LCC operates in a different business model with aims to reduce cost, the expansion of LCCs has significantly affected the air transport development in HK, just like the cases in United States and Europe. Not only LCC has achieved huge growth with their price competitiveness and distinctive marketing, but also restructured the global air services market. LCCs is playing a key role in the air services industry, handling around 28% of the global air carrier passengers in 2015. However, LCCs in Asia operate in different business environment than fully deregulated/liberalized North America/Europe air transport industry where there is a comparative lower market share of LCC in Hong Kong. The Asia operation also exhibits different features in operation and management where a relative lower income per capita is expected [2] and the impact [3] and development of LCC in Hong Kong aviation seems different [4]. Besides, the services provided by FSC and LCC become blurred as services provided by them are changing as some LCCs have started to launch loyalty programs to raise their satisfaction like FSC while some FSC consider adopting low cost measurements. Recently, the Hong Kong biggest FSC, Cathay Pacific, has decided to acquire a LCC (Hong Kong Express) as wholly owned subsidiary, following similar initiatives of other established Asian airlines; Singapore Airlines, which set up Tigerair and has begun placing its codes on flights operated by Scoot, and Qantas has been code-sharing with its LCC subsidiary Jetstar Airways and All Nippon Airways to create Peach. Moreover, the introduction of LCC, rather than just absorbing the existing demand in FSC market, has indeed created new demand in the airline industry [5]. It is therefore not certain whether previous findings in North America and Europe could be directly applied in Asia including Hong Kong and hence it is important for this study to find out the strategic focus of both FSC and LCC amid rapid market evolution of the air transport in Hong Kong context.

II. RESEARCH OBJECTIVES

To sustain and strengthen its world leading air transport operation, the airline of Hong Kong needs to consolidate its development and maintain its competitive advantages by getting key marketing knowledge and design the best business strategies to meet customers' expectation. This

Manuscript received April 17, 2019; revised October 12, 2019. This work was fully supported by a grant from the College of Professional and Continuing Education, an affiliate of the Hong Kong Polytechnic University.

Ching Ming Kei is with the Hong Kong Community College, Hong Kong (e-mail: ccsc@hkcc-polyu.edu.hk).

study aims to explore customer satisfaction by means of how they value the degree of importance and performance of major airlines' attributes under the division of FSC and LCC. In particular, the objectives of this study are to (1) determine the importance of 11 attributes for the airlines, (2) assess the perceived performance of the airlines, (3) compare and measure the relationship between importance and performance of the 11 attributes for airlines, and (4) identify improvement area and make recommendations.

III. LITERATURE REVIEW

Importance-performance analysis (IPA) was developed by Martilla and James at the end of seventies of the twentieth century. It helps to understand customer satisfaction, identify potential areas of improvement and place priority on those areas as well. IPA assumes that customers' level of satisfaction with the attributes is derived from their expectations and judgment of performance. In particular, IPA is simple and easy method to use as it does not require excessive knowledge and application of statistical methods [6]. Although IPA has been subject of various criticisms by different scholars over the past years [7], it enables managers to obtain a quick and easy insight into the overall picture of the situation during planning or when improvement is necessary.

IPA is basically a graphic method with a two-dimensional coordinate system where the average values of importance and performance of different services/products elements calculated in relation to one another. According to the traditional IPA technique, the average value of importance and performance of different service attributes are provided by direct users' evaluation where the horizontal axis represents performance and the vertical axis represents importance. The x-axis performance represents the customers' perception of the quality of services delivered by the company and the y-axis importance refers to the assessment of the importance of the services by customers. As a result, the IPA tool identifies the strengths and weaknesses in terms of two criteria that consumers adopt in decision making; one is the relative importance of attributes while the other one is consumers' evaluation of the attributes. IPA not only examines the performance but also the importance of the attribute as a determining factor in satisfaction [8]. Consequently, IPA helps manager to identify the improvement area as well as why they need immediate attention.

This analysis has been widely used in service industries including tourism and hospitality research for many years [9]. Many scholars tried to compare and evaluate the effectiveness of IPA models and its framework; IPA is said to be more superior to other tools like SERVQUAL and SERVQUAL as it has included importance ranking in the survey method [10]. In 2005, Feng and Jeng [11] applied IPA to understand airline customers' degree of care, degree of satisfaction and priority list on several critical service items, like seat reservation complaint response, flight safety and flight on-time status, in Taiwan. Besides, Choon [12] used IPA to evaluate a budget airline satisfaction in Singapore and reveals that there were many areas, including checking-in service, in-flight entertainment, pricing and

convenience, that the customers find important but the performance of the budget airline did not match up to expectation. Yeung *et al.* [3] conducted a similar study on both short- and long-haul of LCCs in Hong Kong at end of the 2007 on 11 attributes (airfare, perception of safety, punctuality, timetable schedules, nonstop flight, seat comfort, reservation and check-in service, airlines' image, aircraft type, in-flight service, frequent flyer program) though without significant finding except most mean scores of performance do in fact fall short against performance. In this study, IPA is applied to measures of importance and performance of FSC and LCC in order to get data interpretation and identify possible suggestions based on the improvement areas identified. The collected data is used to construct a two-dimensional matrix with importance as the y-axis and performance as the x-axis. Meanwhile, median values were adopted as the reference line as Martilla and James [13] recognized that median values as a measure of central tendency were more theoretically preferred than means because a true interval scale may not exist.

Using two-dimensional Importance and Performance matrix analysis, it allocated the quality characteristics into four categories according to importance and performance for the organizations. The IPA model is therefore consisted of following four quadrants namely Concentrate Here, Keep up the Good Work, Low Priority and Possible Overkill (Fig. 1).

Quadrant I High Importance/Low Performance Concentrate Here <i>Immediate attention for improvement</i>	Quadrant II High Importance/High Performance Keep up the Good Work <i>Achieving or maintaining competitive advantage</i>
Quadrant III Low Importance/Low Performance Low Priority <i>Minor weaknesses but no effort needed</i>	Quadrant IV Low Importance/High Performance Possible Overkill <i>Resources committed to these attributes would be overkill and should be deployed elsewhere</i>

Fig. 1. The four quadrants in IPA.

Quadrant I is considered to be very importance by the customers while the company is perceived to provide less than expected satisfaction. Clearly, this area becomes key concern for the company as it fails to meet customer satisfaction while it is highly regarded by the customers and hence it should be addressed and handled with top priority.

Quadrant II is said to be strength where the factor is perceived to be important and it has been well performed. Hence, it is always good for the airline to "keep up the good work" here and maintain this strength whenever possible. In fact, they should be the pride of the airlines and could be competitive advantages of the company.

Quadrant III indicates those areas where the firm is not performed well but the customer perceives comparatively less important. As a result, the attributes there are referred to "Low Priority" where the airline should not too concern and only limited resources should be allocated on this segment.

Quadrant IV is said to be less importance but has high satisfaction. It is identified as "Possible Overkill" where

these attributes are overly emphasized by the airlines. As a result, resources on this area may be over-allocated. In particular, company may consider to re-allocate the over utilized resources elsewhere.

IV. METHODOLOGY

This is a quantitative research study that used questionnaires to assess airline passengers' perceived importance and performance in the industry. To encourage better response rate, demographic data and no. of questions was reduced to a minimum where the questionnaire was basically divided into three parts. As pointed out by Rajaguru [14], services as well as perceived satisfaction are different for FSC passengers and LCC passengers, this study would therefore divide the two groups of passengers. In the first part, the respondent was asked to indicate where s/he was a LCC passenger or FSC passenger by providing the name of airline attended. Only those who managed to provide the name of the airlines were asked to continue. This serves a screening question that confirming the respondents are bona fide LCC/FSC passengers. The second part asked the respondents to rate the importance of 11 attributes of the said airlines. The 11 attributes are on-time performance, baggage handling, check-in services, inflight cleanliness, inflight schedule, inflight entertainment facilities, inflight meal, seat comfortability, crew attentiveness, booking/ticketing and frequent flyer program were retrieved from various research studies [15]. A five-point Likert scale ranging from 1 (extremely not important) to 5 (extremely important) was adopted. In the third part, respondents were asked to indicate their perceived performance against the same 11 attributes on a five-point scale ranging from 1 (Poor) to 5 (Excellent).

Owing to time and manpower constraint, convenient sampling was employed where the study was conducted outside the main exits of the Hong Kong International Airport (HKIA) so that it could reach the airline passengers more readily. The first validating question asking the respondent to name the airline travelled would screen only airline passengers but not others like visitors were selected. Out of the 270 completed questionnaires received, only 167 were finally accepted since questionnaires without providing the name of airlines would be removed as that could not be identified as LCC nor FSC passengers. Finally, 109 respondents were found to be FSC passengers while 58 respondents were LCC passengers.

Data collected was analyzed using Statistical Packaged for the Social Science Program (SPSS). IPA was then used to compare and measure the relationship between the perceived importance and performance on the 11 selected factors.

A pilot test was carried out to fine-tune the questionnaire by reducing possible errors or misunderstanding before the actual one. A total of 30 respondents were asked to complete the original questionnaire with the original 13 attributes where the two attributes namely booking and ticketing were later combined to one single attribute as most treated them similarly. Moreover, the airfare was removed as many indicated that they had no idea of the actual amount of airfare since some were travel by group tour and/or package while some were paid by others. Besides, the first part where respondents were previously asked to indicate type of carrier

they attended was changed to name the airline instead to avoid the potential misinterpretation of FSC and/or LCC. Hence, the respondents did not need to know the difference between of FSC and LCC nor whether chosen airline is FSC/LCC or not but simply provide the name the airlines taken.

V. FINDINGS AND DISCUSSION

Table I and Table II summarize the Importance-Performance rating of FSC and LCC respectively.

TABLE I: IMPORTANCE-PERFORMANCE RATINGS OF FSC

Attributes	Importance			Performance		
	Ranking	Mean	SD	Ranking	Mean	SD
On-time performance	1	4.57	1.156	10	3.50	1.207
Baggage Handling	4	4.11	1.389	3	4.02	.782
Check-in service	8	3.61	1.357	2	4.04	.871
Inflight Cleanliness	2	4.31	1.411	1	4.17	.845
Inflight Schedule	7	3.68	1.533	6	3.77	.824
Inflight Entertainment	10	3.06	1.517	9	3.53	.996
Inflight Meal	6	3.78	1.474	8	3.53	.909
Seat Comfortability	3	4.24	1.238	7	3.70	.877
Crew attentiveness	9	3.18	1.782	5	3.83	1.017
Booking/ticketing	5	3.79	1.450	4	3.86	.822
Frequent Flyer Program	11	2.54	1.803	11	3.28	.695

According to the Table I, the attributes that FSC passengers indicated as the most important was on-time performance (mean = 4.57). The second and third attributes were inflight cleanliness (mean = 4.31) and Seat comfortability (mean = 4.24) respectively. Meanwhile, the least three important attributes were frequency flyer program (mean = 2.54), inflight entertainment (mean = 3.06) and crew attentiveness (mean=3.18). The ranking means that FSC passengers most concerned with the on-time performance, flight cleanliness and seat comfortability. Meantime, it is noted that all attributes obtained at least 3.28 or above 3 (satisfactory) which means performance of FSC could basically meet the satisfaction of the customers for all attributes. In particular, the top three satisfied attributes were inflight cleanliness (mean = 4.17), check-in services (mean = 4.04) and baggage handling (mean = 4.02).

TABLE II: IMPORTANCE-PERFORMANCE RATINGS OF LCC

Attributes	Importance			Performance		
	Ranking	Mean	SD	Ranking	Mean	SD
On-time performance	1	4.44	1.451	4	3.60	1.091
Baggage Handling	3	4.08	1.124	6	3.52	1.030
Check-in service	7	3.51	1.430	1	3.98	.761
Inflight Cleanliness	2	4.14	1.348	2	3.95	.867
Inflight Schedule	4	4.04	1.358	5	3.59	.859
Inflight Entertainment	10	2.74	1.769	9	2.34	1.396
Inflight Meal	9	3.04	1.783	10	2.10	1.459
Seat Comfortability	5	4.00	1.567	8	2.86	1.067
Crew attentiveness	8	3.13	2.101	7	3.31	.922
Booking/ticketing	6	3.86	1.450	3	3.64	1.021
Frequent Flyer Program	11	2.45	1.808	11	2.05	1.680

According to the Table II, the attributes that LCC passengers indicated as the most important was also on-time performance (mean = 4.44). The second and third attributes

were inflight cleanliness (mean = 4.14) and baggage handling (mean = 4.08) respectively. Meanwhile, the least three important attributes were frequency flyer program (mean = 2.45), inflight entertainment (mean = 2.74) and inflight meal (mean = 3.04). The ranking means that LCC passengers similarly most concerned with the on-time performance, inflight cleanliness and baggage handling. On the other hand, the top three satisfied attributes were check-in services (mean = 3.98), inflight cleanliness (mean = 3.95) and booking/ticketing (mean = 3.64). In particular, the performance scores reveal that four attributes, with mean score less than 3.0, which are generally not satisfied by the customers and they are namely, seat comfortability (mean = 2.86), inflight entertainment (mean = 2.34), inflight meal (mean = 2.10) and frequent flyer program (mean = 2.05).

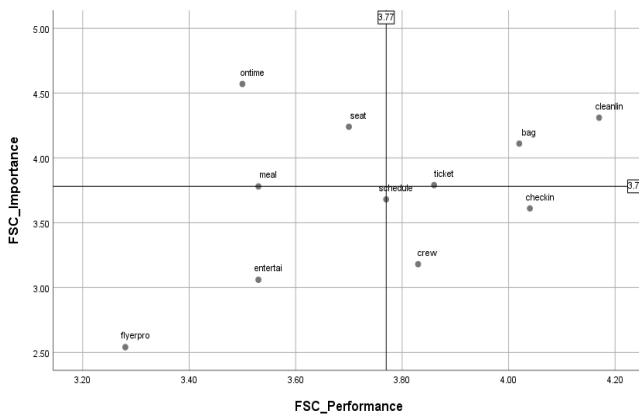


Fig. 2. Importance-performance grid of FSC.

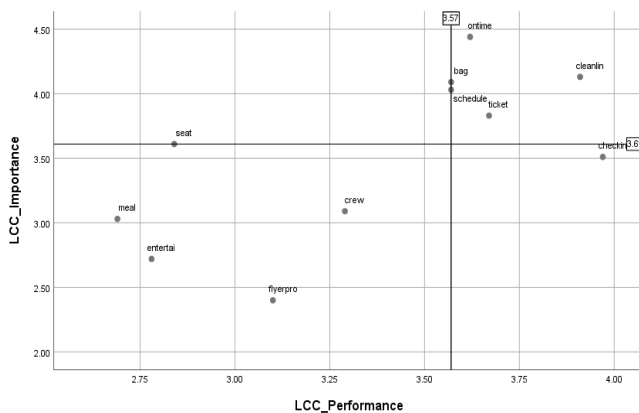


Fig. 3. Importance-performance grid of LCC.

This result indicates all airlines passengers including both FSC and LCC were most concerned with on-time performance and inflight cleanliness though FSC passenger also place emphasis on seat comfortability while LCC passenger put more emphasis on baggage handling. Meantime, both FSC and LCC customers are least concerned with frequency flyer program. Lastly, it should be noted that LCC passengers have four attributes with performance less than satisfactory while FSC passengers generally indicate all attributes are satisfactory.

Importance-Performance matrix is shown in Figures 2 and 3 where x-y axes are based on the overall median values as a true interval scale may not exist. Subsequently, four quadrants were identified that show the relationship between the importance and performance of the airlines in relations to the eleven attributes.

As shown on Fig. 2 Importance-performance grid of FSC, the on-time performance and seat comfortability were in Quadrant I where they are of paramount importance to passengers and considered as less satisfied. Crew attentiveness and check-in services were located in Quadrant IV where they could be overdone.

Based on the Fig. 3 Importance-performance grid of LCC, the IPA did not reveal any attributes in the Quadrant 1 that needs to be concentrated while check-in was located in the Quadrant IV. As a result, this result does not indicate any key improvement area for LCC while check-in was slightly overkilled.

VI. CONCLUSION

Based on the findings, the most important attributes were on-time performance and inflight cleanliness and the least importance attributes was frequency flyer program for both FSC and LCC. As on-time performance and seat comfortability were in quadrant I while crew attentiveness and check-in were in quadrant IV in FSC, FSC operator should take immediate measure to improve its on-time performance as well as seat comfortability may be by means of reallocating resources from check-in service and crew attentiveness to these attributes. Besides, the overall performance of FSC seems to be generally satisfied by its customers.

Regarding LCC, as there is no attribute located on the quadrant I, this is no concentration suggested by IPA. However, it should be noted that four attributes are found to be unsatisfied by the customers and they are seat comfortability, inflight entertainment facilitates, inflight meal and frequent flyer program. Among the four less satisfied attributes, LCC operator may consider addressing the seat comfortability first as it scores a higher importance rating than others (mean = 4.0). Finally, the effort and resources placed on check-in service may be re-deployed to seat comfortability as it seems to be overdone.

Of course, the generalization of these results should not be overstated as the sample size is limited and non-random sampling is chosen. Future work could consider assessing other service quality attributes as predictors of customer satisfaction, such as terminal tangibles [16]. This is particularly relevant to some countries which have different terminal locations and facilitates for FSC and LCC.

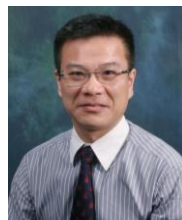
ACKNOWLEDGMENT

The author would like to thank the Airport Authority Hong Kong for providing the annual LCC passengers' figures.

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Ching Ming Kei obtained his BA (Hons) in business studies from Hong Kong Polytechnic University and D.B.A. from University of Newcastle.

He is a chartered member of the Chartered Institute of Logistics and Transport in Hong Kong (CILTHK) and has been served as a member of the Quality Assurance Committee and Education & Training Committee for a number of years.

Currently, he is a lecturer of the Hong Kong Community College. His research interests focus on logistics and supply chain management