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Electronic Distribution Channels of Airline Ticket

The rapid development of the Internet has provided travellers the opportunity to search and compare travel-related products. Meanwhile, airlines are adopting online pricing strategies to expand their target market shares. Nevertheless, limited attention has been paid on assisting airlines in gaining competitive advantages. This study identified all the electronic distribution channels to book airline tickets using Cathay Pacific Airway (CX) as an example. Main findings indicated that CX adopted 140 electronic distribution channels. Airlines are suggested to fully utilise diverse online pricing strategies but maintain a controllable number of online travel agencies (OTAs) to maximise revenue.

Key words: airline ticket, e-distribution channels, online travel agencies, Cathay PacificAirways

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Introduction

Unlike traditional communication channels, the expanding influence of electronic (e-) commerce on the airline industry brings opportunities and challenges for airlines. Business Wire (2019) indicated that the sales volume of airline tickets sold by US-based travel agencies in 2018 increased by 7.1% compared with that in 2017. The advanced e-commerce model has been expanding rapidly with innovation to open the new world and providing airline managers with the opportunity to handle a variety of activities, such as inventory control, reservation system and marketing. Presently, e-commerce platforms act as intermediary services between tourism suppliers and consumers. Law, Chan, and Goh (2007) stated that online travel agencies (OTAs) have become one of the major sources for travellers to arrange their travel. However, the emergence of OTAs poses challenges as well, such as controlling the diverse distribution channels (Demirciftci, Cobanoglu, Beldona, & Cummings, 2010). The competition amongst different types of OTAs is also becoming considerably fierce (Bilotkach, Gorodnichenko, & Talavera, 2010). Accordingly, consumers are occasionally overwhelmed by the huge amount of information online. Hence, the common method for consumers to make a final decision is to compare the prices of travel products or services in different online channels (Law, Leung, Guillet, & Lee, 2011). OTAs, such as Priceline and Expedia, are continuously expanding and promoting their business, thereby forcing tourism suppliers to compete with OTAs over prices (Demirciftci et al., 2010). Nevertheless, differentiating between air carriers or OTAs has become considerably difficult under such an intensely competitive online environment. Thus, air carriers should examine their e-distribution channel portfolio and find out the best practices of online pricing strategy with the ultimate goal of maximising revenue.

This study selected Cathay Pacific Airways (CX) as a case study because the Asia–Pacific region is one of the rapidly growing regions for e-commerce development. Additionally, CX acknowledges the importance of e-distribution channels and is continually striving to meet the needs of customers. CX is a full-service carrier and operates over 90 destinations in 35 countries (Oneworld, 2019). Correspondingly, the objectives of the present study are to identify all online distribution channels of CX, compare the airline ticket prices offered by OTAs in different regions, examine the online pricing strategy of CX amongst different distribution channels and provide practical implications for suppliers, OTAs and consumers. This research theoretically contributes to the online pricing mechanism assessment by providing empirical evidence. The results provide insights for suppliers to be informed of the best-practice pricing strategy, for OTAs to be competitive amongst different online distribution channels, for consumers to purchase their preferred products/services at the best price and with the possible establishment of a winning situation.

Literature Review

E-distribution channels

OTAs primarily act as an intermediary to assist tourism suppliers in selling their inventory, whilst e-distribution platforms provide significant financial contributions to airlines (Roma, Zambuto, Perrone, & Review, 2014). Hence, tourism suppliers, such as airlines, attempt to collaborate with third-party travel agencies to boost their sales (Leung, Guillet, & Law, 2014). Nonetheless, OTAs are currently becoming more ambitious than ever because they assist tourism suppliers sell products and receive commissions from suppliers (e.g. hotels) to improve hotel rankings when consumers search hotels on OTA websites (Roma et al., 2014). Such an evidence indicates that OTAs are occasionally powerful in controlling the prices of travel-related products (Guo, Ling, Dong, & Liang, 2013).

The current operating model of the majority of OTAs has already caused some conflicts between tourism suppliers and intermediaries, such as the monopoly of OTAs (Lu, Yang, & Yuksel, 2015). Additionally, the competition is considerably fierce because of the low entry barriers in the online environment (Law et al., 2007). However, large companies (e.g. Amazon and Google) progressively aim for unrelated diversification into tourism to attract clients for their own business. Google recently launched a meta-search website called 'FlightSearch', which contains such new functions as simultaneously searching flights to and from multiple airports to attract consumers (Schmidt, 2015). Thus, identifying online distribution channels for airline tickets and analysing the pricing strategy are beneficial to air carriers to adopt the best-practice pricing when collaborating with different types of OTAs.

Online pricing strategy

Dynamic pricing, which enables a business to set reasonable flexible prices based on current market demands, is considered as one of the most important strategies of organisations that enable them to maximise their profits (Moreno-Izquierdo, Ramón-Rodríguez, & Ribes, 2015). That is, dynamic pricing is regarded as an effective strategy to adjust prices in response to constantly changing market demands and to consider the perishable nature of travel-related products as well (Zhao, Tian, & Li, 2012). Given the increasingly intensely competitive online distribution channels for airline tickets, merely adopting dynamic pricing is insufficient to stand out amongst all competitors. Hence, airlines also formulate complex pricing strategies to maximise profits (Chi & Koo, 2009). As such, airlines proactively employ multi-channel distribution to sell airline tickets to succeed in the fierce online competition. Chen (2006) found out that the airline ticket prices sold by official aircraft carrier websites and OTAs do not have much disparity. Buhalis and Law (2008) also believed that transparent online information eventually results in price consistency when air

carriers build their official websites to compete with OTAs. Hence, exploring the distribution channels of airlines and determining the pricing strategy that airlines should adopt can be considered for air carriers to maximise revenue.

Methodology

CX has acknowledged the importance of e-distribution channels to increase airline ticket exposure. Hence, CX is superior to its rivals in terms of selling inventory. According to Skytrax World Airline Awards (2018), CX is one of the four five-star airlines in the Asia–Pacific region listed on 'The World's Top 10 Airlines of 2018'. Hence, exploring the leading Asian airlines can provide a good understanding of the e-distribution approaches in Asia. Additionally, Chi and Koo (2009) mentioned that distance of flight can be an influential factor on airfares. Hence, data retrieval contained two segments: short-haul service (i.e. Taipei: TPE) and long-haul service (i.e. New York: NYC). For short-haul service, Taipei was chosen as a sample destination because CX has the most frequent flights from Hong Kong to Taipei. This flight route is between 15 and 17 flights daily. In terms of long-haul service, flights to North America contribute to the substantial revenue of CX. Amongst all destinations in North America, New York was chosen because this city is included in the most popular routes for Hong Kong residents (Law & Huang, 2006).

Data were collected recently through the search engine 'Google' to retrieve all the e-distribution channels selling CX airline tickets. The reason for selecting 'Google' is its reputation as the most commonly used search channel during consumers' travel planning (Law & Huang, 2006). Such keywords as 'lowest airfare', 'air ticket', 'airfare', 'airline ticket', 'Hong Kong to *city name* flights', 'cheap tickets to *city name*', 'Cathay Pacific *city name*', 'Cathay Pacific cheap fares', '*city name* flight tickets', 'flights from Hong Kong to

city name' and 'online travel agency' were used to search for all channels that CX adopted for its e-distribution of airline tickets. This study excluded price comparison sites or meta-search engines. That is, only websites that allow consumers to directly purchase CX airline tickets online were included. All data were retrieved manually. The mean value of the lowest airfares in different e-distribution channels was calculated. Thereafter, a comparison was conducted for all the lowest airline ticket prices offered by different e-distribution channels.

Findings

Profiles of the e-distribution channels

Table 1 summarises the e-distribution channels of airline tickets of CX. A total of 140 websites (or channels, including direct channel) were retrieved for each flight during the data collection process. The findings showed that CX used a variety of e-distribution channels to extend its consumer pool beyond its consumers within Hong Kong or nearby regions. The collaborations facilitate the exchange of travel service amongst suppliers, OTAs and consumers in an efficient manner. For example, online travel agents are allowed to access CX's real-time inventory, schedules and fares. Although only TPE and NYC were typed to search, Google automatically filtered out e-distribution channels from other regions, such as Europe and Oceania. Amongst the 140 e-distribution channels, the majority of OTAs sold both destinations of CX tickets, whilst 23 OTAs sold the set flight route. For the HKG–TPE route, two direct channels were retrieved, namely, the CX and KA websites (CX is a parent company of KA), because both companies offer a codeshare service to all Taipei flights.

Table 1. Number of online airline ticket distribution channels of CX

Regions	Short-haul service	Long-haul service
Asia	31	32
Europe	44	44
North America	51	52
Others (Oceania, Middle East, Africa)	12	11
Direct online channel	2	1
Total	140	140

Comparison of airfares on OTAs in different regions

In total, there were 923 airline ticket prices for short-haul flight (Hong Kong → Taipei). Specifically, 217 airline ticket prices were found from "Asia" OTAs, 351 were found from "North America" OTAs, 281 were found from "Europe" OTAs, and 74 were from "Others". Results showed that for the short-haul flight airline tickets, "Asia" OTAs offered the least expensive airline ticket price (USD $500.22); whereas OTAs in "Others" region charged the most expensive airline ticket price (USD $637.70). On the othe hand, there were little differences of airline ticket prices between "North American-based" and "European-based" OTAs. Significant differences of the average airline ticket prices were found in different regions through ANOVA tests (Table 2). Results indicate that $F (3, 919) = 41.87$, $p = 0.000$. Games-Howell post hoc test was run to further identify the differences among each of the regional OTA groups. In other words, airline ticket price charged by "Asia" OTAs is significantly cheaper than that charged by "North America", "Europe", and "Others" OTAs. Only the airline ticket prices charged by "North America" and "Europe" OTAs are not significantly different from each other.

Table 2. ANOVA tests of airfares for short-haul flight among different regions

Region(i)	Region(j)	Mean Difference (i-j)	Sig.
Asia (USD $500.22)	North America	-93.55	.000*
	Europe	-83.40	.000*
	Others	-137.48	.000*
North America (USD $ 593.77)	Asia	93.55	.000*
	Europe	10.15	.478
	Others	-43.93	.000*
Europe (USD $583.62)	Asia	83.40	.000*
	North America	-10.15	.478
	Others	-54.08	.000*
Others (USD $637.70)	Asia	137.48	.000*
	North America	43.93	.000*
	Europe	54.08	.000*

On the other hand, results indicated that there are 1,017 airline ticket prices for long-haul flight (Hong Kong → New York). Specifically, there were 229 prices from "Asia" OTAs, 400 from "North America" OTAs, 308 from "Europe" OTAs, and 80 from "Others". Overall, findings revealed that "Asia" OTAs provide significantly lower airline ticket prices than those of "North America", "Europe", and "Others" region OTAs. In particular, "Asia-based" OTAs offered the lowest average airline ticket price at USD$3012.9; wheras "Others" OTAs charged the most expensive airline ticket price at USD$3633.21. Significant differences of the airline ticket prices are found among different regions through ANOVA tests (Table 3). Results indicate that $F (3, 1013) = 28.80$, $p < 0.05$. Games-Howell post hoc test was run to further identify the differences among each of the regional OTA group. In other words, airline ticket price offered by "Asia" OTAs is significantly cheaper than that charged by "North America" , "Europe", and "Others" OTAs. The findings are consistent

with that of the study of Law et al. (2010), and confirmed that at present, regional OTAs in Asia provided the lowest airline ticket prices for both short-haul and long-haul flights.

Table 3. ANOVA tests of airfares for long-haul flight among different regions

Region(i)	Region(j)	Mean Difference (i-j)	Sig.
Asia (USD$ 3012.99)	North America	-425.05	.000*
	Europe	-318.98	.000*
	Others	-620.22	.000*
North America (USD$ 3438.04)	Asia	425.05	.000*
	Europe	106.07	.043*
	Others	-195.17	.000*
Europe (USD$ 3331.97)	Asia	318.98	.000*
	North America	-106.07	.043*
	Others	-301.24	.000*
Others (USD$ 3633.21)	Asia	620.22	.000*
	North America	195.17	.000*
	Europe	301.24	.000*

Analysis of online pricing practice of CX

The CX online pricing practice was analysed using three steps. First, the mean value of the price of airline tickets sold by individual distribution channels was calculated. Thereafter, the mean value was compared with the price sold by the official website of CX. Second, the mean value of the price of airline tickets sold by regional OTAs was calculated to investigate the price differences across different geographic regions. Lastly, price discrimination on code-share flights was assessed. Similar to the findings of Law, Guillet, and Leung (2010), airline ticket price sold by regional OTAs was the lowest compared with the official website of CX and e-distribution OTAs in different regions. An interesting finding is that some OTAs continue selling low-price airline tickets compared with those sold

by the official website of CX because logically, OTAs typically sell airline tickets to customers with additional service charges. The reason may be the special deals between OTAs and the airline company.

Lin, Chen and Song (2009) explained that price differences across different OTAs vary based on the level of airline involvement. The findings of the present study indicated that CX is likely to employ different online pricing strategies across different channels, thereby providing cheap airline tickets to a limited number of regional travel agencies within the Asia–Pacific region. Specifically, the price of airline tickets sold by OTAs, such as eLong, Anytour, Zuji and Ctrip (all head offices are located in Mainland China or Hong Kong), was considerably cheaper than that sold in other regions or the official website of CX. The reason that CX chooses to sell cheap airline tickets on regional websites may be that consumers in different countries or regions prefer to use their regional OTAs that they are familiar with or they use frequently when to search and buy travel-related products online (Law et al., 2010).

For airlines to boost their sales, collaborating with OTAs is necessary beyond a dynamic pricing strategy. Local residents or consumers within a certain region are quite familiar with the Hong Kong–based CX, even though this airline may be new to consumers in other continents. Hence, when airline companies plan to expand their current target market or introduce new flight routes for long-haul destinations in Europe and North America, such as Zurich and Dusseldorf, collaborations with their regional OTAs can be considered for promotion purpose. Even placing advertisements on regional OTAs and calculating the click rates can be considered for an effective pre-marketing or the attractiveness testing for the upcoming flight routes. Toh, Raven, and DeKay (2011) emphasised that the platform of

OTAs is useful and effective to promote a new product. Special promotion in the initial stage can also be considered. Moreover, maintaining a certain number of 'quality OTAs' that can generally contribute to revenue generation should be considered.

Implications

Theoretical implications

*Theoretically, t*he present study found on the basis of pricing strategy that CX adopted dynamic pricing strategy to effectively control its inventory. The findings also reveal that CX utilises different pricing strategies on the basis of the profile of customers. For example, airline tickets for business travellers appeal to fully adhere to strict schedules without any restriction. However, the promotional price and bundling sale of CX stimulate the demands of leisure customers, who tend to be more price-sensitive. Given that depending only on dynamic pricing strategy is insufficient to maximise the revenue, the results showed that CX collaborated with different e-distribution channels as an expansion to target different segments. Nevertheless, the findings of this study indicated that 140 e-distribution channels were found for CX. Hence, the manner of maintaining a certain number of 'qualified OTAs' that contribute to the revenue of CX should be considered to reduce the operation cost. Given that consumers in certain areas prefer to use regional OTAs (Law, Guillet, & Leung, 2010), selling airline tickets in destination regional OTAs can be considered when introducing new flight routes to gain additional exposure in the initial stage and for further expansion in the later stage. After the establishment of a loyal customer base, the number of collaborating OTAs can be reduced.

Practical implications

For airlines to reduce their operation costs, the number of OTAs that airline companies collaborate with should be reduced to a controllable figure. Before choosing OTAs to collaborate, the market demand in a certain region and characteristics of consumers in a certain country or region should be considered. Given that numerous channels simultaneously offer the same products in the online distribution channel, the air carrier should constantly monitor airline ticket prices on OTA websites to avoid price erosion and disparity because high price dispersion negatively affects consumer perception of price fairness. As such, the business will eventually lose customer trust and brand value (Demirciftci, Cobanoglu, Beldona, & Cummings, 2010). To avoid this issue, the key point is to keep track of a range of airline ticket prices offered by different OTA websites. Furthermore, airline companies should choose to collaborate with 'quality OTAs' (i.e. contribute to the sales of airline tickets) that can contribute to the revenue of the airlines.

To entice numerous travellers to buy airline tickets from their official websites, airline companies should charge similar prices with OTAs if possible or even slightly higher. In the majority of cases, consumers will not calculate a minor discrepancy of the airline ticket price because if consumers book from the official website of airlines, flight ticket change/cancellation would be considerably easier and cost less compared with that of OTAs. However, a few consumers may recognise price as the decisive factor when booking airline tickets. In this circumstance, consumers may switch back to OTAs if OTAs charge a cheaper price of airline tickets compared with that sold from the official websites of airlines. Even though airline companies occasionally offer the lowest price on their own websites, consumers continue to search until they can ensure that the airline ticket price they get is the lowest. Hence, indicating 'Best Rate Guarantee' on the official websites of airlines and

keeping the promise can be considered. Accordingly, more repeating consumers will book the airline tickets through the official websites of airlines.

Conclusion

The rapid development of the Internet provides extensive opportunities for OTAs to enter the e-distribution platforms, whilst easy accessibility makes the competition considerably fierce. Hence, for airline companies to be competitive in the online environment and to maximise the revenue, the present study used CX as an example to identify all of its e-distribution channels and examine its online pricing strategies by calculating the lowest airfares across all the different e-distribution channels.

The findings of this study indicated that price disparity remains across approximately 140 online channels. On the basis of the analysis of 1,967 airfares, CX offered the cheapest airline ticket price to local OTAs. Hence, the airline is assumed to have a good relationship with selected local-based OTAs to leverage the presence of the brand through digital intermediaries. By offering the cheapest airline tickets to local OTAs, CX can retain local customers and maintain the existing market share. To further expand the market, collaborating with OTAs in other regions is necessary, particularly when introducing new flight routes. That is, collaborating with regional OTAs of the flight route destinations can be considered. The present study has several limitations. Firstly, even though the researchers exerted their best effort to search e-distribution channels of airline tickets, because of the use of keyword searching, it might be possible to disregard some OTAs. Secondly, only the lowest airline ticket prices were retrieved without considering other factors, such as late night or early morning flights or identical flights (e.g. code sharing). Thirdly, the impacts of some power airlines on airline pricing are not taken into consideration for the present study. Hence,

future studies are suggested to extend the tracking period and cover more flight routes to investigate e-distribution channels of airline tickets of the dominant airline in other countries or regions or to conduct a comparative study on the situation in different countries or regions so as to provide more detailed implications. Future studies are also suggested to consider the impacts of on airline pricing on airline pricing.

References

Albers, P. C., & James, W. R. (1988). Travel photography: a methodological approach. *Annals of Tourism Research*, 15, 134158.

Cohen, S. A., & Gössling, S. (2015). A darker side of hypermobility. *Environment and Planning A: Economy and Space*, 47(8), 166-1679.

Djerf-Pierre, M., Ghersetti, M. & Hedman, U. (2016). Appropriating Social Media. *Digital Journalism*. 4 (7): 849-860.

Dorn, J. (2015) On the Road with the Vanlife Community: The Art of Storytelling in the Age of Instagram, Claremont McKenna College Masters thesis.

Gretzel, U. (2017). #travelselfie: a netnographic study of travel identity communicated via Instagram. In Carson, S. & Pennings, M. (Eds.), *Performing Cultural Tourism: Communities, Tourists and Creative Practices*, pp. 115-128. New York: Routledge.

Hardy A., Bennett A., & Robards B. (2018). *Neo-Tribes*. Palgrave Macmillan: Cham, Switzerland.

Hardy, A., Gretzel, U., & Hanson, D. (2013). Travelling neo-tribes: Conceptualising recreational vehicle users. *Journal of Tourism and Cultural Change*, 11(1-2), 48-60.

Hardy, A. & Robards, B. (2015). The Ties that Bind: Exploring Neo-Tribal Theory's Relevance to Tourism. *Tourism Analysis*. 2 (4): 443-454.

Kozinets, R. V. (2015). *Netnography*: Redefined. London: Sage.

Müller, A. (2016). The digital nomad: Buzzword or research category?. *Transnational Social Review*, 6(3), 344-348.

Paris, C. M. (2012). Flashpackers: An emerging sub-culture?. *Annals of Tourism Research*, 39(2), 1094-1115.

Reichenberger, I. (2018). Digital nomads–a quest for holistic freedom in work and leisure. *Annals of Leisure Research*, 21(3), 364-380.

Statista (2018). Number of monthly active Instagram Users. Accessed Sept. 3, 2019: https://www.statista.com/statistics/253577/number-of-monthly-active-instagram-users/.

Stepchenkova, S., & Zhan, F. (2013). Visual destination images of Peru: Comparative content analysis of DMO and usergenerated photography, *Tourism Management*, 36: 590-601.