



Contents lists available at ScienceDirect

Journal of Air Transport Management

journal homepage: www.elsevier.com/locate/jairtraman

Entry patterns of low-cost carriers in Hong Kong and implications to the regional market

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ARTICLE INFO

Article history:

Received 29 December 2015

Received in revised form

17 May 2016

Accepted 1 August 2016

Available online xxx

Keywords:

Traffic volume changes

Route entry

Low-cost carriers

Hong Kong

ABSTRACT

This study aims to provide a better understanding of Asia's low-cost carriers (LCCs) by empirically analysing their route entry patterns in Hong Kong. Two alternative models have been tested, namely a standard probit model and a generalized least squares estimation. Consistent findings from the two models suggest that LCCs in Asia have a preference for large markets with big populations, high incomes and high traffic volume. On the other hand, the dominance of incumbent full service airlines (FSAs), fierce route competition and the lack of secondary airports are not critical to the growth of LCCs. However, government regulations and airport access are main impediment factors. Despite the adoption of long-distance low-cost models by the region's airlines, geographic distance still plays an important role in LCCs' entry decisions. For the growth of low-cost travel and associated benefits in the tourism industry and overall economy, it is important for governments in the region to liberalize aviation markets, provide sufficient airport capacity, and promote efficient allocation of airport slots.

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1. Introduction

Low-cost carriers (LCCs) have been playing a significant role in developing a country's aviation and tourism sectors, and the potential demand for low-cost air travel is huge across Asia (Koldowski and Yoo, 2006; Whyte, 2008; Chung and Whang, 2011; Duval, 2013). The LCC sector has achieved substantial growth in Asia, thanks to the growing groups of middle-income travellers, increasing urbanization, ongoing aviation liberalization and deregulation, and substantial improvements in key aviation infrastructures (Koldowski and Yoo, 2006; Homsombat et al., 2014). LCCs provide more affordable air travel, which is important in developing countries where the average income per capita is lower than those of developed economies (Connell and Williams, 2005; Chang and Lee, 2008; Yeung et al., 2012). With differentiated services and lower costs, LCCs are likely to pose serious challenges to the incumbent full service airlines (FSAs) in the region.

Many Asian carriers have emulated the low-cost business model

developed in North America and Europe, such as the use of point-to-point networks, one-way fares with few restrictions, direct sale and e-ticketing, single aircraft type, high aircraft utilization, no seat assignments, no-frill services, and simplified airport operations (Windle and Dresner, 1995, 1999; Gillen and Morrison, 2002; Gillen and Lall, 2003; Mason and Alamdari, 2007; Hofer et al., 2008; Mason and Morrison, 2008; Fu et al., 2011; Murakami, 2011; Zou et al., 2015; Fageda et al., 2015). Over time a few LCCs started to pursue diversified strategies and operations such as focus airport development, onboard amenity, loyalty program and enhanced services for business travelers. A few leading LCCs' average yields have also increased to the airline industry average. Still, the original low cost operations have been largely retained by many European and North American carriers. LCCs in Asia-Pacific have been able to achieve significant cost savings and substantial output growth over the past decade. Although similar development patterns have been observed in mature aviation markets, LCCs in Asia operate in different environments and exhibit some distinctive features in operation and management. Unlike the aviation markets in North America and Europe which are fully deregulated/liberalized, various legacy regulations are still present in both international and domestic routes in Asia (Homsombat et al., 2011; Lei and O'Connell, 2011; Fu et al., 2015b). In 2012, Qantas/Jetstar and China Eastern

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Airlines formed an equal joint venture, Jetstar Hong Kong, with an aim to tap into the high growth market in the region particularly in Greater China. However, the Hong Kong Government rejected the airline's application for operation in 2015 on the ground that the carrier is effectively controlled by a foreign airline. To bypass ownership regulations in the international markets, AirAsia and Jetstar established multiple subsidiaries in various Asian countries. With low fees and fast turnaround time, secondary airports have been attractive destinations to LCCs. However, only a few cities in Asia are served by multiple airports. A significant proportion of LCC services are provided out of hub airports, where capacities are quickly approaching limits. Moreover, the relatively high charges at hub airport may reduce LCCs' cost advantage over FSAs, because an identical increase in input price will have asymmetric effects on LCCs vs. FSAs (Fu et al., 2006; Oum and Fu, 2007). Leading LCCs in Asia, such as AirAsia, Cebu Pacific, Jetstar Airways, Tiger Airways, have extensive services out of major airports (e.g., Hong Kong, Singapore and Narita). With significant route overlap and (pending) airport capacity shortage, incumbent FSAs are expected to compete more aggressively to defend their market shares. The relatively low income per capita in Asia should make low cost travel attractive to consumers. However, there is preliminary evidence that travellers have high value of time and strong preference for flight frequency (see, for example, empirical study on the Chinese domestic market by Wang et al., 2014). Since incumbent FSAs have established networks and controlled most of the slots at major airports, they are likely to be better positioned on routes out of these hubs. In addition, long-haul LCC business model has been adopted by major LCCs in Asia (including Asia X, Jetstar and Scoot) to fly travellers across national borders, especially between metropolitan regions (Wensveen and Leick, 2009; Daft and Albers, 2012).

The entry of LCCs has changed the dynamics in Asia's aviation markets (Kumar 2006). However, due to the distinctive features of regulatory policy, passenger preference, market structure, and airport access as identified above, the operational practice and management strategy of Asian LCCs are yet to be fully understood. It is unclear whether the findings in previous LCC studies that were primarily carried out for North America and Europe can be directly applied to Asia. Other than the Australian domestic market which is fully deregulated, the development of Asian LCCs has been examined only by a few studies, and their conclusions have been mixed. Zhang et al. (2008) documented substantial price reductions on selected routes with LCC entry. For example, the ticket prices dropped substantially between Kuala Lumpur and Singapore with the entry of AirAsia, Jetstar Asia, and Tiger Airways. Adler et al. (2014) simulated the expansion of LCCs if the aviation market in Northeast Asia is deregulated, and predicted that LCCs would capture a significant market share in a liberalized market. Fu et al. (2014) simulated the effects of a substantial airfare reduction in the Japanese inter-city market based on the parameters estimated prior to the entry of major LCCs. They concluded that the entry of competitive LCCs would significantly increase air travel volume, but high-speed-rail (HSR) services would continue to dominate the routes among metropolitan regions. Hanaoka et al. (2014) simulated LCC service competition at the major hub airports when the ASEAN Single Aviation Market takes full effect. They predicted that the entry of an LCC on one route may affect the fare, frequency, and profitability of related routes in the entire network. The findings of the above studies are in general consistent with previous investigations for North America and Europe. However, other than the anecdotal evidences provided by Zhang et al. (2008), most of these studies are based on modelling and simulation instead of systematic empirical analysis. Fu et al. (2015a) investigated the route entry and airfare change patterns associated with Spring Airlines, the largest LCC in China, using the flight schedule and price

data in the Chinese domestic market. Their empirical results suggested that in the presence of various regulations, there does not always exist a sharp competition between FSAs and LCCs. An LCC may adopt a "cream-skimming" strategy to achieve high profitability without triggering price wars with incumbent FSAs. Based on descriptive network analysis of the aviation market in Northeast Asia, Fu et al. (2015b) found that international LCC services in Korea and Japan experienced healthy growth, but the market penetration of LCCs in mainland China remains very low. In summary, few empirical studies have systematically examined the performance and business strategies of Asian LCCs, especially in international markets. The key determinants for the growth of the region's low-cost sector remain to be identified and fully understood.

Our study aims to fill this gap in the literature by examining LCC entry pattern in Hong Kong. To the best of our knowledge, this is the first empirical study of Asia's international LCC markets. Its contribution to the literature are multi-fold: (1) Although the aviation market in Hong Kong is fairly liberalized, regulations on route entry, capacity and airline designation have only been progressively removed on routes to most Asian destinations. Our analysis thus provides valuable insights into the effects of regulation on LCC services. (2) Hong Kong is a hub airport with extensive connections in the region. Our study reveals how airport characteristics affect LCC entry decisions. (3) The empirical results obtained for the Hong Kong aviation market can assist stakeholders in formulating government policies and business strategies. As the aviation and tourism sectors play an important role in Hong Kong's economy, it is of great practical values to improve the performance in these sectors.

The rest of the paper is organized as follows: Section 2 reviews the development of LCC sector in Hong Kong. Section 3 specifies two econometric models of LCC entry. Section 4 reports our data and estimation results. In Section 5, we summarize empirical results and discuss possible improvements in future studies.

2. Growth of the low-cost sector in the Hong Kong aviation market

The aviation industry in Hong Kong has been more liberal than most Asian economies. As of 2015, Hong Kong has signed a total of 64 bilateral air service agreements (ASAs) with foreign sovereignties (Hong Kong Government, 2015).¹ It should be noted, however, Hong Kong still adopts a passive approach on its international aviation strategy compared to well liberalized international aviation markets such as the U.S. and European Union. Until now, Hong Kong has not signed any Open Skies Agreement (OSA). Restrictive bilateral ASAs are likely to hinder LCC entry into this market. Airline designation, capacity and tariffs are subject to bilateral negotiation and regulation, which usually favor incumbent FSAs, especially flag carriers or dominant airlines with large market shares. Hong Kong's established reputation of 'Shopping Paradise' attracts millions of tourists every year for shopping and sightseeing (Lew and Mc Kercher, 2002). There were a total of 12.85 million of visitor arrivals to Hong Kong by air transport in 2014, including 1.35 million of tourists from North Asia, 2.31 million from South and Southeast Asia, 1.23 million from Taiwan, and 4.94 million from mainland China, respectively (Hong Kong Tourism Board, 2014). The total tourism expenditure from inbound visitors was approximately HK\$3320.47 billion in 2013 (Hong Kong Tourism Board, 2013). The relatively liberal aviation policy and huge tourism demand make Hong Kong an ideal market for LCCs. Fig. 1 presents a

¹ For a detailed list of Hong Kong bilateral service agreements, please refer to the Hong Kong Government website at <http://www.doj.gov.hk/eng/laws/table1ti.html>.

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