Factors Influencing Passenger Choice in a Multiple Airport System

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ABSTRACT

The purpose of this article is to examine factors that influence passengers' decision in selecting an airport in a multiple airport system (MAS). This article focuses on a MAS in China consisting of two airports that directly compete with each other in serving domestic and international passengers in the same area. A survey was conducted in the Beijing area to collect the data, and a logistic regression was used to test the effects of these factors on the passenger choice. The results indicate that airfare is the most significant determinant of Beijing passengers' airport choice, followed by flight delay.

KEYWORDS

Airline Management, Airport Selection, Multiple Airport System, Passenger Choice

INTRODUCTION

As the demand for travel continues to grow substantially airports in large cities suffer from constrained capacity and limited potential for expansion. Multiple airport system (MAS) is a solution to ease the tension between the growing travel demand and limited airport capacity (Martín & Voltes-Dorta, 2011). While MAS has been studied extensively in North America and Europe, it has not received the same attention in Asia. MAS is a relatively new phenomenon to Asian air transportation market since air transport deregulation in many Asian countries has been a slow process.

MAS has attracted great attention from the academia. Existing studies have focused on issues such as airline network design in MAS, airport capacity expansion within MAS, and passengers' airport preference in MAS (Windle & Dresner, 1995; Hess & Polak, 2005, 2006; Martín & Voltes-Dorta, 2011; Takebayashi, 2012). Nevertheless, many studies were mainly focused on MAS serving different areas, or multiple airports with different sizes and functions serving the same area (Hess & Polak, 2006; Loo, 2008; Civil Aviation Authority, 2011). In addition, a majority of these studies examined MAS in North America and Europe due to the market maturity in those regions. MAS in Asia-Pacific markets, in general, and in China, in particular, are not adequately studied. Most studies of MAS in Asia focused on two airports offering domestic and international travel services. However, since these airports are not direct competitors the results may not be useful for airport executives in improving the competitive advantage.

This paper aims at filling that gap by examining factors that influence passenger choice for an airport in Beijing area. In Beijing, the Beijing International Airport is the main airport that provides travel services to passengers. It is located in the eastern part of the city, about 30 kilometers from the city center (Beijing Capital International Airport, 2017). In 2015, the airport was the world's second busiest airport by total passenger traffic, serving about 90 million passengers (Airports Council International, 2016). To meet the growing travel demand, the Beijing government recently decided

to build a second airport in the city, which is set to be completed by 2019 (Zhao, 2016). The new airport will be located in the southern part of the city, 46 kilometers away from the city center and will be used as an international hub with the expected capacity of 72 million passengers a year by 2025 (Chen, Huang, Yan, & Zhang, 2012; National Development and Reform Commission, 2014). As the new airport will become an international airport serving domestic and international passengers, it will compete directly with Beijing International Airport. Accordingly, it is important for airports and airlines to understand how passengers choose one airport over another for travel purposes.

The relevant literature and research gaps will be discussed in the next section. Then, the research methodology and data collection process are described and explained, followed by result presentation and interpretation. Finally, result discussion and implications of the paper are provided.

LITERATURE REVIEW

MAS Studies in North America

A typical MAS features a major international airport that serves as an established hub for full service carriers and one or more secondary airports serving domestic, regional and commuter traffic (Martín & Voltes-Dorta, 2011). Early studies have been conducted in the United States for understanding airport choices in a MAS, which highlighted the importance of airport access and flight frequency in passengers' choice behaviors (Skinner, 1976; Harvey, 1987; Windle & Dresner, 1995). In a recent study, Luken and Garrow (2011) investigated the multiple airport choice using airlines' online ticketing database. The study focused on travelers choosing from three major airports located in the New York City area. Results indicated that passenger decisions were influenced by airport accessibility and level of service provided by the airports. Capacity constraints, such as sold-out flights and higher fares, may also affect the use of airport in the New York area. Another study of MAS was performed by Parrella, Evaluation and Training Institute, and Design (2013) in the United States, focusing on airline business strategies and passengers' selection of an airport within a multi-airport region. Five regional case studies were reviewed and analyzed. The results suggested that factors such as airport and airline services, price, and accessibility were key drivers of the airport choice (Parrella et al., 2013).

The San Francisco Bay area has been frequently studied for passenger choices in multiple airport markets (Loo, 2008). Harvey (1987) showed that access time and flight frequency strongly affected passenger choice for airports. Hess and Polak (2005) examined airport choice behaviors of different groups of travelers, suggesting that leisure travelers were more sensitive to fares while business travelers paid more attention to airport access time. Finally, studies by Pels, Nijkamp, and Rietveld (2001), Basar and Bhat (2004), and Ishii, Jun and Dender (2009) showed that flight frequency, airport access time, traveler demographics, trip characteristics, availability of particular airport-airline combinations, and airport delay had significant effects on passenger choice for airports.

MAS Studies in Europe

A MAS in Europe also includes one major international airport serving hub-based network carriers and one or more secondary airports serving domestic, regional and commuter traffic. These secondary airports serve as bases for low-cost carriers that run point-to-point network (Martín & Voltes-Dorta, 2011). Ashford and Bencheman (1987) studied passenger choice for airports in Central England and found three major impact factors: travel time to the airport, airfare, and frequency of service. The results also showed that travel time to airports had a higher influence on business passengers, while airfare was a more important factor for leisure passengers. Additionally, Ndoh, Pitfield, and Caves (1990) indicated access time as the most influential factor to passenger choice for airports.

London, like San Francisco, has received substantial attention from researchers. Heathrow airport (LHR), Gatwick Airport (LGW), and Stansted Airport (STN) are the major airports in London. Hess and Polak (2006) found the significant influence of access time, access cost, flight frequency,

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