



Contents lists available at ScienceDirect

Journal of Air Transport Management

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

Cargo market competition among Asia Pacific's major airports

Jinn-Tsai Wong, Yi-Shih Chung*, Pi-Yuan Hsu

Department of Transportation and Logistics Management, National Chiao Tung University, Taipei 10012, Taiwan

ARTICLE INFO

Article history:
Available online xxx

Keywords:
Air cargo
Centrality
Asia Pacific
Competitiveness

ABSTRACT

Globalization and the ensuing changes in the supply chain network have strengthened competition among airports. For this study, we selected 13 primary airports in Asia Pacific, and investigated their competition, airport hierarchy, and competitive potential in cargo markets in terms of demand and supply. Specifically, we examined indicators including flight frequency, route distributions, composition of flag carriers, international trade, and centrality of the selected airports. The results revealed that Taiwan Taoyuan International Airport (TPE), Hong Kong International Airport (HKG), Shanghai Pudong International Airport (PVG), and Incheon International Airport (ICN) had the greatest competitive advantage of distinct developmental patterns. Compared with TPE and ICN, which are national-carrier-oriented airports, HKG and PVG have been developed efficiently in the network of both national and foreign carriers. Although TPE and ICN perform well in the networks of conventional carriers, PVG is competitive in the network of all-freight carriers, and HKG performs efficiently in both the networks of the conventional and all-freight carriers. Overall, Hong Kong International Airport has been prominent in the Asia–Pacific air-cargo market. Nevertheless, considering the networks of the integrator carriers, Chinese airports have the most potential in this region.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

Competitiveness is a critical issue in airport management. Previous studies have primarily focused on passenger markets, not on cargo markets. Unlike passengers, air cargo is closely associated with international trade and industrial activities. Kasarda and Green (2005) indicated that air cargo was a reliable leading indicator of trade and GDP growth. According to the demand from global supply chain operations concerning cargo volumes, freight origin and destination, and commodity types, various types of cargo operations (e.g., freight integrators and all-freight carriers) have been developed. Globalization and the ensuing changes in the supply chain network have further strengthened the prominence of the air-cargo sector, increased competition among airports, and influenced airport-network development since 2000s. Therefore, examining the competitiveness of airport cargo operations in a dynamic market environment is critical for airport management and market economies.

Airports in the Asia–Pacific region are of particular concern in this study because they are in one of the fastest growing regions

worldwide in terms of airfreight markets. Regarding air cargo volume, 13 of the leading 30 airports worldwide are located in this region. Airports, including HKG and PVG in China, ICN in South Korea, and Narita International Airport (NRT) in Japan, were ranked in the leading 10 cargo airports worldwide. The air cargo sector is critical for developing these airports; moreover, severe competition between Asia–Pacific airports is evident.

Among the few studies that have investigated the competitiveness of cargo markets among airports (Bowen, 2012; Chao and Yu, 2013; Gardiner et al., 2005; Ohashi et al., 2005; Schwieterman, 1994; Zhang, 2003), Chao and Yu (2013) may be unique in having focused on Asia–Pacific airports. They investigated air cargo competitiveness among major Asia–Pacific airports by examining their internal factors (e.g., airline transport capacity, airport facilities and operations, such as landing fees and opening hours) and economic development (e.g., annual cargo growth of airports). Although these factors are useful, certain other factors may also warrant consideration, particularly external factors such as location, which are expected to have a more considerable effect on airport competitiveness compared with internal factors (Doganis, 1992). The current study examines cargo market competition among major Asia–Pacific airports, and a conceptual framework of airport competitiveness in cargo markets and corresponding measures are developed.

* Corresponding author.

E-mail address: yschung@nctu.edu.tw (Y.-S. Chung).

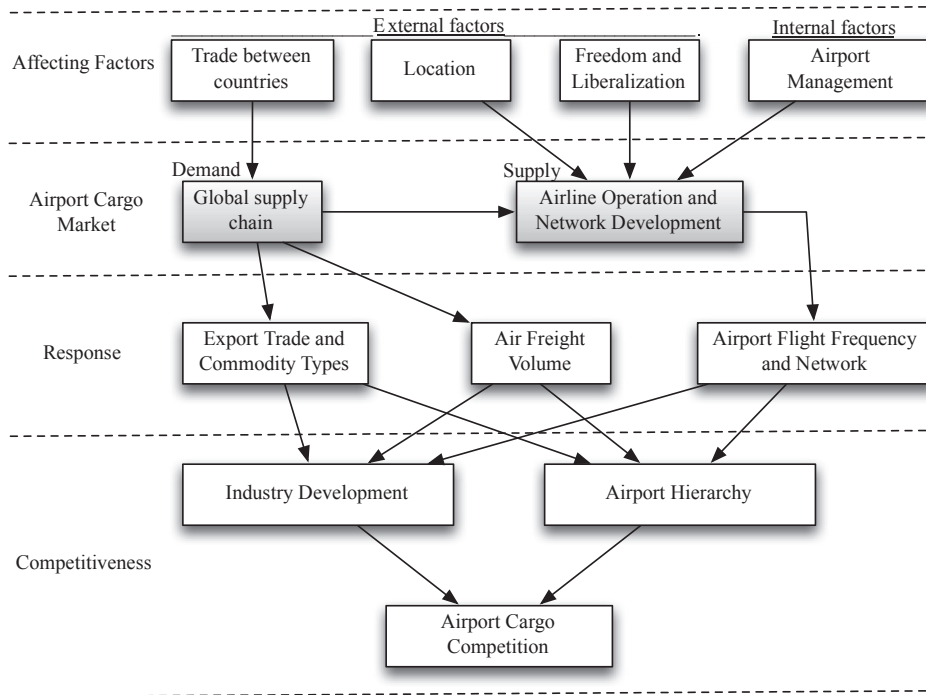


Fig. 1. Conceptual framework of airport competitiveness in cargo markets.

The remainder of this study is organized as follows. Section 2 outlines the methodology and proposed conceptual framework of airport competitiveness in cargo markets and the rationale for the selected airports. Section 3 introduces a summary of the factors affecting cargo market competitiveness in the selected airports. Section 4 provides the analytical results regarding the airport hierarchy considering both internal and external factors. Section 5 offers a discussion on the results and concluding remarks.

2. Methodology

2.1. Conceptual framework of airport competitiveness in cargo markets

Air-cargo markets are driven by demand (global supply chain operations) and supply (airline operation [capacity] and network development), which are affected by international trade, airport location, freedom and liberalization, and airport management. Of these, the first three factors can be considered external factors that are either less- or not controlled by airports, whereas airport management can be considered an internal factor. The market can be analyzed using the following demand and supply indicators: international trade (e.g., imports and exports of goods regarding monetary value and commodity types), air freight volume, flight frequency, and network development (e.g., connectivity) (Burghouwt and de Wit, 2005; Burghouwt et al., 2009; Chao and Yu, 2013; De Wit et al., 2009; Park, 2003; Zhang, 2003). All of these indicators reflect the development of economic activities in the mentioned regions or countries, and illustrate the hierarchy of airports regarding competitiveness. The conceptual framework of airport competitiveness in cargo markets is illustrated in Fig. 1.

In this study, cargo markets were defined in two dimensions: cargo type and geographic area. We referred to Bowen (2004) and categorized cargo delivery services into three types: conventional carriers, all-freight carriers, and integrators. All-freight carriers and integrators are professional cargo airlines, whereas conventional

carriers are predominantly passenger airlines that use either a belly-hold capacity or freighters for transporting cargo. This study focused on conventional and all-freight carriers; integrators were excluded because of data availability. We selected 13 airports (Table 1) in the Asia–Pacific region with respect to the global supply chain to examine the competition among them based on the international trade of each country and cargo volume of the airports. In addition, another 43 airports from the Asia–Pacific region, Europe, North America, South America, Oceania, the Middle East, and Africa were included to form the representative global network for analysis. The Appendix presents a list and the geographical distributions of all the selected airports.

2.2. Methods for measuring airport competitiveness

This study examines the competitiveness of the selected airports in the following aspects: international trade, flight frequency, route distribution, national and foreign carrier distributions, and centrality. Clustering analysis was performed to investigate the hierarchy of the selected airports.

Table 1 Airports selected for competition analysis.

Region	Country	Airport	IATA code
East Asia	China	Hong Kong Intl. Airport	HKG
		Shanghai Pudong Intl. Airport	PVG
		Beijing Capital Intl. Airport	PEK
		Guangzhou Baiyun Intl. Airport	CAN
		Shenzhen Bao'an Intl. Airport	SZX
	Japan	Narita Intl. Airport	NRT
	Kansai Intl. Airport	KIX	
Southeast Asia	Korea	Incheon Intl. Airport	ICN
	Taiwan	Taiwan Taoyuan Intl. Airport	TPE
	Singapore	Singapore Changi Intl. Airport	SIN
	Thailand	Bangkok Suvarnabhumi Intl. Airport	BKK
	Malaysia	Kuala Lumpur Intl. Airport	KUL
	Indonesia	Jakarta Soekarno-Hatta Intl. Airport	CGK

Download English Version:

<https://daneshyari.com/en/article/5111558>

Download Persian Version:

<https://daneshyari.com/article/5111558>

[Daneshyari.com](https://daneshyari.com)