



Airport choice and flight connectivity among domestic and international passengers – Empirical analysis using passenger movement survey data in Japan



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ABSTRACT

This paper presents an empirical analysis of airport choice and passenger movement on international flights from local cities in Japan to Narita and Haneda Airports in the Tokyo metropolitan area. This is the first study to evaluate airport choice behavior in Japan empirically by using the micro data collected by Japan's Ministry of Land, Infrastructure, Transport and Tourism in 2010 (i.e., when time slots for international long-haul flights were first assigned at Haneda). The analysis confirms that flight connectivity is a crucial element in airport choice. Further, Japanese airlines and their associated alliances are able to attract passengers arriving from local cities by using Haneda airport. Above all, we find that the introduction of long-haul international flights from Haneda has met the needs of a number of passengers arriving from local cities in Japan owing to the convenience of the domestic flight network, especially for business purpose passengers.

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1. Introduction

Competition among airports is increasing at both a global and a regional level and many airports are actively expanding their capacity or upgrading their facilities to establish themselves as a hub airport. Once established as a hub, a great deal of passenger and cargo traffic flows into an airport, creating opportunities for economic development in the local area. This phenomenon may be even more pronounced in Asia, where rapid economic growth over the past two decades has led to increased air traffic. This, in turn, has led to both the expansion and the upgrade of existing runways and facilities as well as the construction of new airports.

One such new airport in South Korea, Incheon International Airport in Seoul, has become a strong competitor to the more established Narita International Airport. Beginning in the late 1990s, the South Korean government initiated a program of construction and support for the airport sector, adopting an “open sky” policy that enabled the country's air travel industry to expand its

networks. Consequently, Korean airlines have greatly increased their flights between local cities in Japan and Incheon and have begun routing passengers from local areas in Japan through Incheon rather than through Narita.¹

Because of the expansion of Incheon, a significant change was made to Tokyo's dual airport policy, which has been in place since the opening of Narita International Airport in 1978. The policy of the Japanese government had long been to divide the function of the two Tokyo airports, with Tokyo International Airport (Haneda) dedicated to domestic flights and Narita to international flights. However, a significant issue with this policy was the poor domestic flight network, which required many passengers traveling within the local area on domestic flights to transfer to Narita from Haneda, a distance of approximately 90 km. (Narita's poor domestic network has been highlighted as one reason why many local

¹ As of September 2013, five Korean airlines, namely Korean Air, Asiana Airlines, Jeju Air, Easter Jet, and Jin Air, traveled from Incheon to 26 airports in Japan: Narita (Tokyo), Haneda (Tokyo), Nagoya, Osaka, Sapporo, Asahikawa, Hakodate, Aomori, Akita, Sendai, Shizuoka, Niigata, Toyama, Komatsu, Okayama, Hiroshima, Yonago, Takamatsu, Matsuyama, Fukuoka, Oita, Nagasaki, Kumamoto, Miyazaki, Kagoshima, and Okinawa.

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passengers prefer Incheon International Airport.) In addition, slot constraints and restrictions on operating hours made it difficult for Narita to expand its volume of both international and domestic connecting flights.

These constraints initially came about because of strong opposition to airport construction by local communities, requiring the government to construct inadequate facilities in an effort at a compromise. At Narita, this led to the existence of only one runway (4000 m) until 2002, when another runway (2180 m) was opened. The second runway was extended to 2500 m in 2009, but problems with the taxiway prevented slot expansion until early 2013. In addition, since its opening, Narita's operating hours have been restricted to between 6:00 a.m. and 11:00 p.m. The accessibility of Narita from downtown Tokyo has also been poor in terms of mode of transportation, time, and cost. However, while the government was aware of these inconveniences, it allowed them to continue by prohibiting Haneda from accommodating international flights.

As demand for international flights increased, the government made efforts to expand capacity at Narita; however, the airport's capacity remained insufficient to accommodate the increasing volume of air traffic and the problem of poor connectivity between local cities and Narita persisted. At the same time, other Asian countries adopted strategic policies to build hub airports to cater for international air traffic in the region, Incheon being a prime example. The increase in hubs in other regional countries led the Japanese government to amend its policy and designate Haneda as a second international hub airport. In 2002, the government allowed international flights from Haneda to Gimpo International Airport in Seoul in order to accommodate increased demand during the FIFA World Cup. Subsequently, flights began between Haneda and Shanghai Hongqiao International Airport in 2007, Hong Kong in 2008, and Beijing in 2009. In October 2010, Haneda was allowed to operate international flights for long-haul destinations at late night and early morning hours; since March 2014, long-haul services have been permitted 24 h a day.

These improvements in the customer offering at Haneda have given passengers in the Tokyo metropolitan area as well as passengers arriving from local cities in Japan the choice between two airports for international flights. However, given the continued poor connectivity from local cities to Narita, it is important to understand the profiles and motivations of passengers when choosing a connecting airport. This information will provide insight into how to best utilize both Tokyo's airports and how Japan can compete with Incheon for international travelers.

Of the vast body of research on airport choice, most has focused on passenger choice in a multi-airport region. For example, many studies have examined this topic by using data from a survey conducted by the Metropolitan Transport Commission in the San Francisco Bay area (San Francisco, San Jose, and Oakland) of the United States. Pels et al. (2001, 2003), Basar and Bhat (2004), and Hess and Polak (2005) conducted empirical analyses of airport choice. In Asia, Loo et al. (2005) and Loo (2008) examined the Pearl River Delta area (Hong Kong, Guangzhou, Shenzhen, Zhuhai, and Macau). Loo (2008) used a stated preference methodology to assess the factors driving airport choice based on surveys conducted in Hong Kong International Airport. In these studies, travel time to an airport, fare, flight frequency, number of airlines, and personal attributes were used as independent variables. However, these studies did not focus on passengers on incoming domestic connecting flights from other local cities. In Japan, Hanaoka (2002) examined the airport choice issue in the Greater Osaka area (Itami and Kansai) based on passenger movement data collected by Japan's Ministry of Land, Infrastructure, Transport and Tourism (JMLIT). This research, however, focused primarily on the

relationship between airport choice for domestic flights and access problems for passengers living in the region.

Of the research on connectivity for multi-airport cities, Derudder et al. (2010) focused on four major cities (London, New York, Los Angeles, San Francisco) and found that there were functional divisions among these airports, in terms of both their geographical scale and their specific role in the airline network. Hess (2010) examined passenger preferences for specific types of airports by using a multinomial logit model to demonstrate that the ability of passengers, especially business travelers, to reach their final destination with minimum transfers is crucial. Hess et al. (2007) examined airport and airline choice based on stated preference survey data and a multinomial logit model, finding that minimizing the number of connections is crucial for business travelers. Marcucci and Gatta (2011) examined regional airport choice in Italy (Bologna, Forli, Ancona, and Rimini airports) by using multinomial logit modeling and found that connection capability is an important factor for airline passengers. Hess (2008) examined air travel choice in a survey using a stated preference method, showing that the number of connections is an important determinant when choosing a flight.

Given the previous functional division of the two airports in the Tokyo metropolitan area, no works have thus far empirically analyzed the airport choice issue between Narita and Haneda as international points of departure, either for passengers living in the region or for passengers arriving from local cities in Japan. Based on this gap in the literature, this study investigates how Narita and Haneda are functioning as international connection airports since long-haul international flights became available from Haneda and examines how to maximize the number of passengers served by both airports. Although Incheon International Airport might also be an alternative for passengers departing from local airports in Japan, we exclude Incheon from this research because of the lack of available data on the flights and destinations of passengers traveling beyond this airport. Further, not all local airports in Japan necessarily have daily connections to Incheon, whereas such airports have at least one daily flight to either Haneda or Narita. Indeed, if there are no direct flights to Narita from a local airport, a passenger is still able to travel to Narita from Haneda by ground transportation. On the contrary, passengers cannot use Incheon if no flights are available from their nearest airport. In this context, whether a passenger chooses Incheon as a connection point depends on the availability of direct flights, meaning that the issue of airport choice between Haneda and Narita is fundamentally different from that of Incheon.

This is the first study to evaluate airport choice behavior in Japan empirically by using the micro dataset collected by JMLIT in 2010. We also provide policy implications for airports by way of an alternative to the airport policy adopted by the Japanese government of separating airport function in the Tokyo metropolitan area (i.e., Narita for international flights and Haneda for domestic flights). This kind of policy has rarely been seen in major cities globally and the policy change in 2010 (i.e., when Haneda was re-internationalized) might be momentous for other major cities in Asian countries that wish to formulate a dual airport policy.

Above all, our main findings show that the introduction of long-haul international flights from Haneda has met the needs of a number of passengers arriving from local cities in Japan owing to the convenience of the domestic flight network, especially for business purpose passengers. On the contrary, Narita benefits passengers by providing international destinations that Haneda does not serve, especially for first and business class passengers since it uses newer and better aircraft with better cabin equipment for flights.

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