



Real estate, factory outlets and bricks: A note on non-aeronautical activities at commercial airports

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ABSTRACT

Keywords:

Non-aviation airport businesses
Demand complementarity
Airport governance
Airport regulation

This note considers the degree of complementarity of non-aviation activities to airside activities at airports in relation to airport governance and regulation. A simple economic model of airport operations is employed to draw the distinction between complementary and non-complementary non-aviation activities by airports and the effect of these activities on aeronautical prices and competition.

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1. Introduction

Along with the global trend in airport governance towards market-driven commercial operations (usually via partial or full privatization), there has been a growth in non-aeronautical activities of airports. Consequently there are also some potentially important policy questions regarding the overall impact of non-aeronautical activities: how do non-aeronautical activities affect aeronautical pricing and competition? What role does governance play in defining and constraining the boundaries of airport corporations? Does the degree of complementarity between aeronautical and non-aeronautical activities matter?

This note considers some of the economic issues relating to the non-aeronautical side of the airport business, with particular attention to the degree of complementarity between aeronautical and non-aeronautical airport activities within an underlying governance structure.

2. Real estate, factory outlets and bricks

The growing importance of non-aeronautical airport business is illustrated by the newly build retail plaza at Hamburg airport, scheduled to open in November 2008. The plaza consists of 4450 m² of retail and 2630 m² of food and beverage space along with centralized security points designed to maximize passenger exposure to the concessions. With respect to Hamburg's retail investment, Hamburg CEO Michael Eggenschwiler states:

This business area is of great economic significance for us, as it strengthens our income considerably. The combined effect of landing charges and aviation revenues is that we are able to deliver the desired service quality and invest in airport

infrastructure to cope with future growth. Because airlines are demanding lower costs, airports have to open up new areas of business (Gebr Heineman, 2008).

In the case of Hamburg there is a clear connection between the airport's retail strategy and its aviation strategy, however in other cases, the scope of non-aeronautical airport activities has expanded to include less obvious businesses with little or in some cases no connection to aviation.

In Europe, Schiphol provides an example of an airport which actively promotes the concept of an airport city by engaging in a number of activities with low complementarity to air transport. Given the proximity and intermodal links to Amsterdam, the Schiphol airport shopping center, operating on the groundside of airport security, attracts city residents along with approximately 58,000 people who work in the airport business district. Schiphol has been described as an 'aerotropolis' – where the economic activities of the city and the airport are fused together (see Dobson, 2006). In addition to the shopping centre and hotels, Schiphol Group has its own commercial real estate division that invests in and manages commercial property not only at the airport but also around the airport.¹ The airport thus competes with other commercial real estate companies. Indeed Schiphol group appears keen to export the concept of airport cities to locations such as Cairo International Airport, where (under Schiphol management) plans include an international airport hospital that will compete in the regional market for medical treatments and operations.

In Australia, the privatisation of airports has led to a considerable expansion of non-aeronautical activities, some of which have a low or no complementarity to air transport or passenger volumes.

¹ Since the KLM-Air France merger in 2004, aeronautical revenues at Schiphol have declined while non-aeronautical revenues have risen as a percentage of revenue.

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Several airports have developed factory outlet retail stores on airport land, including Brisbane, Perth, Adelaide and Canberra. These outlets are not in the terminal building and principally attract members of the non-travelling public. Meanwhile, at Perth airport, where airport land development accounts for approximately 30% of total revenue, a 32 ha (0.32 km²) section of land has been leased to BGC (Australia) Plc. who propose to build a brick factory (Drummond, 2005). This has caused a significant amount of controversy over the environmental impact and the lack of local/regional control over the development. Indeed, an important aspect of airport governance in Australia concerns the ability of airports to side-step local constraints on development. While Australian airports are private businesses, they operate on land leased from the federal government. Consequently, all airport land development is subject to direct federal government approval via the Department of Transportation and Regional Services (DOTARS), thus bypassing state or local legislation or approval processes. During the privatisation process in Australia, it was made clear to bidders that non-aeronautical revenue-generating activities would be encouraged. For example, potential owners were assured in advance that the privatised airports would not be subject to a single-till price cap (meaning that there would not be a regulatory constraint on the level of revenues generated from non-aeronautical activities). This had the effect of increasing the commercial value of the airports in the bidding process. Nevertheless, some government officials have been genuinely surprised by the magnitude and scope of the non-aeronautical revenues being pursued. In a well publicized development application, Sydney airport proposed a AUS\$200 million shopping centre and cinema on airport land, spawning an intense debate over negative effects on local businesses and traffic congestion. In 2006, the Federal Minister responsible for DOTARS rejected the initial proposal and in 2007 rejected a revised proposal for the development on the basis of safety and traffic issues, given the proposed site's proximity to a runway (Sydney Airport Press Release, 2007).

As the above examples illustrate, commercially run airports are willing to develop non-aeronautical businesses that lie outside the traditional boundary of activities that are complementary to the airside; but does the complementarity of these operations to the airside really matter?

3. Modelling dual-market airport operations²

Consider an unregulated commercial airport (unconstrained by capacity) with complementary aviation and non-aviation activities. Let x_1 represents the demand for representative air transport movements (RATMs). A representative air transport movement can be thought of as a weighted average over all the types of aircraft landing at the airport in proportion to their share of total ATMs.³ Let x_2 represents the demand for a representative non-aeronautical product sold at the airport, for which the principle consumers are enplaning and deplaning passengers. One can think of this representative product as a measure of average non-aviation spending at the airport by the passengers associated with each RATM. That is, the demand for x_2 depends not only on the price of the non-aviation product but also indirectly on the number of RATMs at the airport. Assuming that the airport incurs a constant marginal cost of producing x_1 and x_2 , the airport's operating profit function can be generally written as

$$\pi = (p_1 - c_1)x_1(p_1) + (p_2 - c_2)x_2(p_2) \quad (1)$$

If the airport is a for-profit entity, the airport sets p_1 and p_2 to maximise equation (1). Consequently the first order conditions yield the following statements about price-cost margins:

$$p_1 - c_1 = \frac{-x_1(p_1)}{\partial x_1 / \partial p_1} - (p_2 - c_2) \frac{\partial x_2 / \partial p_1}{\partial x_1 / \partial p_1} \quad (2)$$

$$p_2 - c_2 = \frac{-x_2(p_1, p_2)}{\partial x_2 / \partial p_2} \quad (3)$$

Since both equations (1) and (2) are true when the firm maximizes profits, by substitution we can rewrite the former as:

$$p_1 - c_1 = \frac{-x_1(p_1)}{\partial x_1 / \partial p_1} - \left[\frac{-x_2(p_1, p_2)}{\partial x_2 / \partial p_2} \right] \frac{\partial x_2 / \partial p_1}{\partial x_1 / \partial p_1} \quad (4)$$

The right hand side of expression (3) is positive indicating that the airport will set the profit maximizing price of its non-aeronautical product above marginal cost, however expression (4) cannot be signed positive. More generally, one can see from equation (2) that the effect of the demand complementarity between x_1 and x_2 is to decrease the profit maximizing aeronautical price below the price that would occur if prices were set independently. Intuitively, lowering the aeronautical price in this way enhances overall profits because lost profit on the airside is more than compensated by increased profit in the complementary non-aeronautical business.⁴ In theory, if the degree of complementarity was high enough, the profit maximizing aeronautical price could be set below marginal cost.

With respect to inter-airport competition, an implication of the model is that more intensive competition for air traffic between airports will create stronger incentives for profit-maximizing airports to develop complementary non-aviation activities. This is more obvious in the case of airports that are not subject to capacity constraints, however even capacity constrained airports can benefit from developing complementary businesses in the face of competition because lower airside prices help the airport to prevent the loss of air transport business to competitors.

4. Outcomes

4.1. Non-complementary, non-aeronautical activities

The incentive to develop businesses that are complementary to the airside does not exclude airports from also developing non-complementary businesses. Any airport has an endowment of land and other assets that define business opportunities some of which may have little or no relation to aeronautical markets. A private airport motivated only by profit would be expected to maximize the return to all assets.

In the model, if there is no complementarity between x_1 and x_2 , overall profitability is maximized when each price is set independently and consequently the aeronautical price (p_1) will exceed marginal cost in both markets. More importantly, the airport's involvement in the non-aeronautical market is no longer a source of downward pressure on aeronautical prices, unless the motives of the airport deviate from pure profit-seeking principals or the airport is subject to a regulation that creates such an incentive.

² Morrison (2008) contains a more fully developed version of this model.

³ As a simplified example, if 50% of ATMs were B737-700 aircraft with a capacity of 149 passengers and the remaining 50% of ATMs were B767-400ER aircraft with a capacity of 375 passengers, the representative ATM at the airport would be an aircraft with a capacity of 262 passengers.

⁴ In the case of an unregulated, capacity constrained airport, the profit-maximizing incentive to lower aeronautical prices evaporates as there is no offsetting positive effect on non-aviation revenues.

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