



Non-aviation revenues and their implications for airport regulation

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ABSTRACT

This paper analyzes a non-congested private airport that possesses market power in providing aeronautical services. We find that the profit-maximizing landing fee decreases in the degree of complementarity of aviation and non-aviation. Furthermore, our model implies that airports will not take advantage of their market power if non-aviation revenues, or the degree of complementarity of aviation and non-aviation, exceed a critical threshold. In this case, a dual-till regulation will be unnecessary. A single-till regulation, on the other hand, will always result in lower landing fees than laissez-faire.

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1. Introduction

Privatized airports are typically regarded to have persistent market power in providing aeronautical services. Due to the danger that airports can take advantage of this market power and increase prices to achieve excessive returns, airports usually face some form of price regulation. Raises in the charges for aeronautical activities, i.e., the provision of landing, take-off, gangway and parking capacity for aircraft and passengers, normally have to be approved by regulatory authorities in order to minimize welfare losses. In general, regulation takes place according to principles of cost relatedness or by setting price caps.

In contrast, charges for commercial services that are often provided by franchises and other commercial operators, such as retail, car parking, banking, and catering are usually not subject to any direct form of regulation. The reason for this lies in the fact that although airports might have some market power in the non-aviation business and might earn profits by providing commercial services or by renting property, they could be disciplined by potential competition. However, non-aviation revenues can be indirectly considered if regulators opt for applying the single-till approach while approving aeronautical charges. In this case, aeronautical charges are approved in anticipation of the revenues and costs from aeronautical and commercial activities. The dual-till approach, on the other hand, confines regulation to the aviation business where persistent market power is presumed. The adoption of the EU directive on airport charges (Directive 2009/12/EC of the European Parliament and of the Council), whose aim is to establish a common EU framework regulating the essential features of airport charges, has resulted in a political debate on the single-till and dual-till approach within the EU Member States. That is because the application of a single-till or dual-till has to be decided at Member State level while transposing the directive into national law.

As many countries have moved – or are currently moving – towards privatization of some of their public airports (Baso, 2008), the non-aviation business has become increasingly important to airports within the last two decades. On average, non-aviation revenues now account for around half of all revenues (Graham, 2009). With regard to this fact, one

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could doubt that airports actually have an incentive to abuse their market power. High charges for aeronautical activities guarantee high profits in the aviation business; however, lower charges would increase the number of flights, thereby increasing the number of passengers who can make use of the commercial services offered, as well as the derived demand for rented property.

In this study, we demonstrate that non-congested airports with market power in providing aeronautical services have an incentive to restrain aeronautical charges (hereafter also referred to as “landing fees”) when they generate additional non-aviation revenues. Landing fees are lower the higher the degree of complementarity of aviation and non-aviation at an airport. However, the presence of non-aviation revenues does not necessarily imply that profit-maximizing airports will not take advantage of their market power. Our analysis shows that at airports with market power in the aviation business a single-till regulation will always result in lower landing fees than *laissez-faire* if there is excess capacity for both aviation and non-aviation activities. A dual-till regulation, on the other hand, may become needless if non-aviation revenues – or the degree of complementarity of aviation and non-aviation – exceed a critical threshold. This is due to the fact that profit-maximizing airports may voluntarily accept aviation losses resulting from landing fees below the cost-covering dual-till level if the induced rise in traffic generates sufficiently high non-aviation revenues, so that non-aviation profits overcompensate aviation losses.

The remainder of the paper is organized as follows. Section 2 provides a literature review, while the model is presented in Section 3. Section 4 analyzes airport pricing in the absence of regulation, that serves as a benchmark for the following analysis of single-till and dual-till regulation in Section 5. Finally, Section 6 presents a conclusion of the study.

2. Literature review

Starkie (2001) was the first who questioned the necessity of an *ex-ante* price regulation of airports. Based on a graphical analysis, he argues that airports are unlikely to abuse their market power whenever complementary commercial activities exist. Since these retailing and property activities gain superior locational rents owing to their superior location, increases in traffic volumes at an airport will often produce significant increases in their profitability. However, the profitability of those non-aviation activities would be negatively affected when aeronautical charges are set too high. Similarly, Gillen and Morrison (2004) find that profit-maximizing airports have every incentive to stimulate demand – and revenue – via lower charges on the aeronautical side if airports are not capacity constrained. In contrast, Zhang and Zhang (2003) as well as Oum et al. (2004) point out that although an unregulated profit-maximizing airport has an incentive to suppress aeronautical charges, it would not set them at a socially optimal level so that a price regulation may be necessary. Hence, Brueckner and Pels (2007) conclude that it is not completely clear that airports will actually abuse their market power, in which case the regulation of charges would be inappropriate.

Single-till and dual-till regulation has been sparsely analyzed using analytical tools and empirical methods. Investigating the capital input productivity and total factor productivity at major airports around the world, Oum et al. (2004) provide empirical evidence that dual-till price cap regulation dominates single-till regulation in terms of economic efficiency. Lu and Pagliari (2004) analyze the potential impact of single-till and dual-till regulation on social welfare by employing the concept of “potential loss of social welfare” developed by Starkie (1998) and a model revised from Zhang and Zhang (1997). They find that the dual-till approach should be applied when aeronautical capacity is fully utilized or over-utilized while the single-till is desirable when excess capacity for aviation and non-aviation activities exists. Similarly, single-till regulation is proposed by Czerny (2006). Based on a model where a non-congested airport possesses market power in both the aviation and the non-aviation business while airlines are in perfect competition, it is shown that the single-till approach is preferable to the dual-till from a welfare point of view.

The existing literature does not consider the relationship between the level of non-aviation revenues, or the degree of complementarity of aviation and non-aviation, and the need for regulating aeronautical charges. Thus, the paper on hand is the first that investigates analytically when a single-till or dual-till regulation of landing fees will become unnecessary because a profit-maximizing airport will voluntarily abstain from taking advantage of its market power in the aviation business.

3. The model

Based on the analysis of Sieg (2010), we consider a profit-maximizing private airport that possesses market power in providing aeronautical services. The airport is approached by N symmetric airlines. In order to be allowed to land on the airport and to use the airport facilities, air carriers have to pay a landing fee.¹ Furthermore, we assume that there is excess capacity for both aviation and non-aviation activities, i.e., the airport does not face actual or potential congestion.

Aggregate demand for tickets is represented by

$$X = D - \alpha P_c, \quad (1)$$

¹ This is a simple version of the vertical structure approach initiated by Brueckner (2002) and used by, among others, Pels and Verhoef (2004), Zhang and Zhang (2006, 2010).

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