



Assessing the Non-Aviation Performance of Selected US Airports: An initial Assessment¹

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Abstract

Due to the growing importance of non-aeronautical revenues at airports, there is a need to fully understand the determinants of non-aviation revenues and rent payments generated from these revenues. This study provides some background for this issue by focusing on Specialty Retail and Food & Beverage (F&B) services, which are two of the major non-aviation activities at US airports after parking and car rental. The factors affecting performance of Specialty retail and F&B are identified to illustrate how Specialty Retail and F&B revenue drivers differ in their contributions to an airport's non-aeronautical revenue. These determinants include on the demand side the number and characteristics of passengers – in particular, domestic vs. international, origin & destination (O&D) vs. transfer passengers, leisure vs. business and the emerging role of low-cost passengers. Important factors on the supply-side are how much space the airport provides, and the kind of management structure employed for non-aviation .

Key words: Airports, Commercial revenues, Panel data analysis, Specialty Retail, Food & Beverage (F&B)

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Introduction

Over the last decades significant transformations have occurred in the airport industry, including changes in the ownership structure, increased competition with impact of new market players, like Low Cost Carriers (hereafter LCC) and the understanding of an airport's mission in this new environment. These transformations shift the focus of airport management to the growing role of non-aeronautical, or non-aviation revenue. Some airports have already successfully integrated non-aviation activities into their overall revenue generation strategy and others are now following the existing trend (Graham, 2009).

There are many publications dealing with airport efficiency and the role of non-aeronautical revenue, however most of them are descriptive in nature³. Due to data limitations, previous studies have paid little attention to modeling and identifying the underlying relationship of non-aviation revenue and the factors affecting it. In this paper, we focus on the identification of these factors, thanks to access to very detailed data from a sample of 74 US airports for the years 2000-2008⁴. Using this sample we could identify the determinants of non-aeronautical revenues and model their impact. Since Retail and Food & Beverage (F&B) revenues comprise a big share in total non-aviation revenues, we examine the airport characteristics that determine these specialties. The first stage of analysis reveals that the most important factors are number and characteristics of passengers, size of the corresponding retail or F&B space and presence of LCC. The second stage of analysis considers the rent payments an airport receives from non-aviation activities.

What are the determinants of non-aviation revenue? Some answers from the literature

Based on the literature and preliminary data analysis we identify three main characteristics affecting the revenue generation from non-aviation activities. These factors include: (1) volume of passenger traffic as an indicator of size of the airport, (2) passenger characteristics, such as type of passenger or dwell time, and (3) LCC terminal performance.

Volume of passenger traffic

The volume of passengers has several effects on the non-aviation revenues. First, as was shown in Graham (2006), airports with larger volume of passenger traffic tend to have a larger share of non-aviation revenues as more specialized shops can then be supported by the larger volume. Graham (2009) concluded that large airports offer a much wider range of services, including shops and Food & Beverage outlets, whereas smaller airports do not reach the critical mass to sustain such stores. Large airports also tend to have more international (and especially

³ See for example Freathy and O'Connell (1999), or The Moodie report: The Airport Retail Study 2006/2007.

intercontinental) passengers, who spend more money in terminal Specialty Retail and F&B stores. Consequently, this part of non-aviation revenue should increase more than proportional with increase in passenger volumes⁵.

Passenger characteristics

There are different classifications of passengers. Each passenger type has its own spending pattern that affect non-aviation revenues. First, let us look at international versus domestic passengers. Tovar and Rendeiro (2009), using data from Spanish airports, showed that non-aviation commercial revenue increases with growing international passenger volume, and that hubs and large tourist airports usually have more international passengers than small airports. International passengers usually arrive earlier at the airport and have more time for shopping as well. This greater dwelling time should also lead them to consume more F&B as a result of a longer stay. International passengers also tend to spend more money for their ticket and probably belong to a wealthier socio-economic group. This feature may also imply larger spending.

Another important classification of passengers is between LCC and Full Service Airlines (FSA) passengers. Castillo-Manzano (2010) concludes from a survey of seven Spanish regional airports that there is no statistically significant difference between LCC and traditional FSA passengers. In other words, they have the probability to make a purchase or consume food and beverages before a flight. However, once passengers decide to spend money, LCC passengers spend 7 percent less than those who fly with a traditional airline.

The comparison of business and leisure travelers also shows different spending patterns for the two groups. Torres et al. (2005), who interviewed Asturias Airport travelers, suggested the average business traveler spends less than vacation travelers. However, if the dwell time is less than 45 min, business travelers tend to consume more than vacation travelers. Thus, the likelihood of a passenger making a purchase is also affected by the time available to the potential shopper.

With respect to the distinction between Origin & Destination and transfer passengers, we expect transfer passengers to spend more on F&B and shopping because of longer journey time. At the same time a transit passenger's time is limited and could not be enough for both shopping and consuming F&B.

LCC terminal performance

Low cost carriers' influence on traditional airlines and airports is becoming an increasingly discussed topic. Papatheodorou and Lei (2006) indicate that LCC passengers' contribution to

⁵ Of course there should be some airports size after which the size effect will be reduced, but this tendency is to be determined empirically.

non-aeronautical revenue is smaller for the large airports (with more than 3 million passengers) than for the small airports.

The figure below illustrates the differences in the performance of terminals dominated by LCC⁶ and terminals dominated by full service airlines (FSA) or a mix of full service and LCC. Even though low cost airlines do not offer food on board, F&B revenue per passenger is still lower in LCC terminals than in terminals which serve only full service airlines or a mix of LCC and full service airlines (Fig.1).

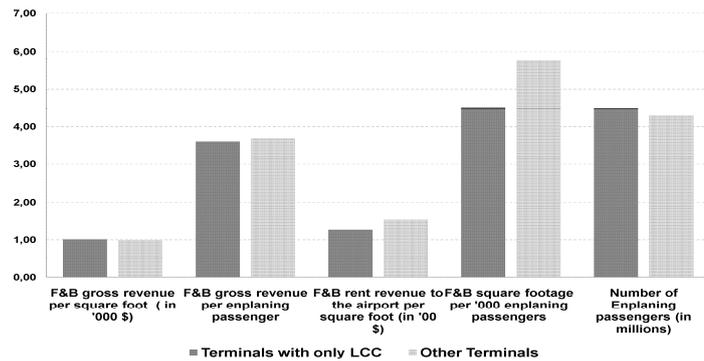


Fig. 1. F&B in LCC terminals and terminals with a mixed presence of airlines (averages for 142 terminals in 2008)

Since F&B outlets have less square footage per thousand enplaning passengers in LCC terminals, F&B revenue per square foot is higher in LCC terminals than in terminals that serve only FSA or where LCC are present but do not dominate.



Fig. 2. Specialty Retail in LCC terminals and terminals with mixed presence of airlines (averages for 142 terminals in 2008)

We also found that Specialty Retail shops in fully LCC terminals generated less revenue both per square foot and per enplaning passenger and consequently paid less rent payments to the airport (Fig.2).

⁶ AirTran, Frontier, JetBlue, Midwest and Southwest were treated as low cost carriers

More precise numbers from the 2008 sample show that terminals dominated by LCC generated 11% less revenue from each square foot, 34% less revenue per each enplaning passenger and 7% less in rent payments than other terminals. Even though Specialty Retail performs the worst in LCC terminals, it only paid 7% less in rent payments compared to other terminals where specialty retailers generate higher revenue.

For F&B this situation was different in our sample. F&B from terminals dominated by LCC generated 2% higher revenue from each square foot and only 2% less revenue per each enplaning passenger. But it also generated 17% less in rent payments than terminals which serve full service airlines or where LCC are present but do not dominate⁷.

Statistical results

Based on his review of literature, we are able to formulate four models which can then be estimated on the basis of our sample. The first two models are used to find out which of the identified factors have the biggest impact on the revenues for F&B and Retail specialties respectively. The second set of models estimates the effect of the revenues for airports 'rent payments for each of the specialties.

Table 1: Empirical results obtained for the first set of models.

Determinant	Effect on the Revenue per square foot	
	Retail	F&B
Size of the corresponding airport space		
Volume of passengers		
Share of international passengers		
Share of O&D passengers		
Share of business passengers		
Dominance of LCC airlines		

Source: author's representation

Legend:

-  positive effect
-  negative effect
-  no significant effect
-  largest influence

⁷ The cause of the inequitable revenue conversion into rent payments for F&B in LCC terminals could be related to the higher fixed part and lower variable part of the lease contracts typical for F&B operators. If this is the case, the correction of the typical lease contract structure to a more incentive compatible contract could increase LCC terminals' revenue from F&B activities.

Specialty retail revenue determinants

According to Table 1, the factors having the largest impact on the specialty retail revenues are size of the airports retail space⁸ and the volume of passengers. However, the direction of their influence is different. Size of retail space acts as an inhibitor of retail revenues, while passenger volume acts as a driver. This means that the larger the passenger volume is, the higher the corresponding revenues are, while with an increase in the retail space, non-aviation revenues per square foot from specialty retail decreases.

The most important revenue drivers for Specialty Retail are international passengers⁹. Business passengers, on the contrary, purchase less from Specialty Retail at airports. One reason for this is the fact that business passengers, flying more often and being more familiar with airport environment, arrive to the airport later and just have less time for shopping.

Both O&D passenger classification and the dominance of LCC airlines were not found to be statistically significant as drivers for specialty retail revenues.

F&B revenue determinants

Similarly to the drivers for specialty retail, the size of the airports' F&B space and the volume of passengers are the major factors influencing F&B revenues.

Business passengers show the same spending pattern on F&B as they do with shopping for specialty retail. They tend to spend on F&B less than leisure passengers do. This could be due to the fact that business passengers, who are mostly flying business class, have food on board or can use a business lounge at the airport. Another group of passengers, transfer passengers also contributes significantly to F&B revenues. The higher the share of O&D passengers as opposed to transfer passengers, the lower is F&B revenue per square foot.

F&B performance is different in terminals dominated by LCC compared to the terminals that serve FSA or terminals with non-dominant LCC. In terminals dominated by LCC airlines F&B revenue per square foot is on average higher. There is a tendency for US legacy carriers to abandon free food service on domestic flights. Nevertheless, this effect is not captured in our results, due to the fact that our sample started in 2000 when this tendency wasn't dominant. For instance, the major US legacy carrier Continental airlines stopped providing snacks for domestic flight only at the beginning of 2011.¹⁰ Consequently, the result of lower F&B revenue per square foot in terminals, which are dominated by LCC airlines, most probably could be explained by absence of free meals on board of LCC airlines.

⁸ Measured as Ln(Square Footage) – natural log of total Specialty Retail/F&B square footage in a terminal

⁹ But we must remember that international passengers are not a large important groups at US airports.

¹⁰ No more free pretzels on Continental by Danielle Paquette, Special to CNN March 4, 2011

Specialty Retail and F&B rent payments to the airport

Our empirical results show that 67% of the variance in Specialty Retail rent payments to the airport is due to differences across terminals, for example with respect to the dominance of LCC, the size of the terminal or other unique features of a particular terminal. Consequently, the deviations from the average airport rental income from Specialty retail are explained by individuality and specific characteristics of the terminal. For F&B, on the contrary, any deviation from average rental payment can be explained by our drivers and seem to be due to random factors.

Conclusion

The better an airport understands how revenue from non-aeronautical activities like Specialty Retail and F&B are generated in its terminals; the better it can reflect these determinants through providing space at the optimal location and by implementing more profitable lease contracts.

This study shows, that for retail the individuality and characteristics of the terminal play an important role for rental payments, while in case of food and beverages random factors come into play.

At the same time there are various drivers and inhibitors for retail and F&B revenue generation. International passengers are the most important group of passengers for Specialty Retail, while transfer passengers spend more on F&B. Although being important for F&B, LCC dominance in a terminal and transfer passengers may not be considered as a major driver for specialty retail. At the same time a higher share of business passengers acts as an inhibitor for both specialties.

Although this paper may have not identified all drivers and inhibitors for non-aviation revenue generation, our results can already be applied for the airport strategic policies.

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