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# Estimating strategic responses to the march of a low cost carrier to primary airports

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ABSTRACT

We empirically investigate the capacity responses of major incumbent airlines facing the entry of a new low cost carrier in a secondary airport of a multiple airports region. We develop an empirical model that allows for time-varying strategic responses, aiming at identifying possible degrees of route entry threat. We consider the case of the entry of Azul Airlines in the densest conurbation in Brazil. Our results suggest that the incumbents preemptively fortified their flight frequency positions on threatened routes to deter the anticipated march of the newcomer from the secondary airport toward the existing primary airports.

## 1. Introduction

"*Almost any airport that we don't fly to is talking to us across Europe. (…) Increasingly in the future there's going to be a spread of bigger airports, as well as secondary ones.*"

Ryanair Chief Executive Officer Michael O'Leary - 2010. ("*Ryanair considers shift to major European airports to attract business passengers*" – centreforaviation.com, Sep 23, 2010.)

Worldwide, low cost carriers (LCCs) have become a pervasive powerhouse in the airline industry, bringing price competition and market expansion, with relevant economic welfare implications. In addition to the notable direct impacts of head-on competition with a new cost-efficient player, the airline literature has suggested that the presence of an LCC may also produce spillover price effects on adjacent routes and in markets in which they exert potential competition with incumbents - Morrison (2001), Goolsbee and Syverson (2008), and Brueckner et al. (2013, 2014).

This paper contributes to the literature by inspecting the impacts of different degrees of LCC entry threat on the capacity setting of incumbent carriers. As far as we are aware, this is the first attempt to investigate whether the increasingly common situation of a "march" of LCCs from secondary to primary airports in regions of multiple airports may serve as a motivation for established carriers to strategically respond in capacity. That anticipated movement may be a result of an expected shift from a niche orientation, essentially targeted on leisure-related passengers, to an LCC business model more focused on operations at major, more congested and costly airports targeting the attraction of high-yield business passengers from major carriers. That shift may be regarded as an effort

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of product repositioning in differentiated product markets in the sense of Sweeting (2013). Among the LCCs that have initiated such movement, some of the most prominent cases are the entries of Ryanair at Barcelona El Prat, Brussels Zaventem, Copenhagen Kastrup, Glasgow and Rome Fiumicino airports in Europe, and Southwest Airlines at Los Angeles International and Washington Dulles airports in the US market, among others - Jimenez et al. (2017), Dobruszkes et al. (2017), and Wit and Zuidberg (2012). The key contribution of our paper lies in the integration of the models of Morrison (2001) and Goolsbee and Syverson (2008), to produce an empirical framework of the dynamic effects of the potential entry strategies of an LCC in a region of multiple airports. We propose a novel concept of "degrees of entry threat" to investigate the possible dynamics associated with incumbent preemptive behavior in airline markets when product repositioning by low cost rivals is imminent.

We develop an econometric model of flight frequencies to investigate if incumbent airlines preemptively add flights in competing airports before actual competition with an LCC materializes. We study the case of the São Paulo multiple airports region - the largest urban agglomeration in Brazil - during a sequence of route entries by the low cost newcomer Azul Airlines from 2008. We inspect whether the adjacent competition with the new LCC at the secondary Viracopos/Campinas Airport (VCP) has stimulated the major incumbent airlines Tam and Gol to add flights at the primary airports of São Paulo/Congonhas (CGH) and São Paulo/Guarulhos International (GRU). The newcomer has ultimately entered both airports a few years later. The motivation for the study is the potential service quality improvement caused by the amplified portfolio of flights that may have benefitted passengers at the studied primary airports. In contrast, such strategic movements in capacity may also have allowed the strengthening of the competitive advantage of incumbent carriers and prevented earlier entry at these airports, with important airport regulatory and public policy repercussions. Our empirical strategy therefore aims at inspecting the possible preemptive behavior of incumbents in response to an anticipated business model hybridization of an LCC[1] engaging in a march to primary airports within a multiple airports region.

This paper is divided into four sections. Section 1 addresses the phenomena of LCC marching toward primary airports as well as a review of the literature on the entry deterrence strategies of incumbent airlines. Section 2 presents our application - the air travel market in the São Paulo multiple airports region. Section 3 describes the empirical model, including data description, model design and estimation issues. Section 4 contains our presentation of results, which is followed by the conclusions.

## 2. Restrictions to LCC growth and incumbent preemptive behavior

### 2.1. LCC march towards primary airports

The dynamics of competition in the airline industry has progressively pushed the low cost carriers (LCCs) away from their founding mantras. A hybridization process of LCCs adapting their business models to the reality and adversities of local markets has been observed in many markets worldwide - Klophaus et al. (2012) and Wit and Zuidberg (2012). Consequently, full-service carriers (FSCs) and LCCs have battled more directly for the same passengers, with a number of operating and marketing strategies once restricted to one type of carrier becoming common practice, in a clear movement of business model convergence. Francis et al. (2006), Klophaus et al. (2012), and Wit and Zuidberg (2012) argue that the cost-efficient operations obtained through the exploitation of density economies are increasingly challenging for LCCs. Attempts to densify secondary airports by means of adding new flights and new destinations appear to have hit a ceiling - Wit and Zuidberg (2012) and Dziedzic and Warnock-Smith (2016).

An important strategic movement adopted by LCCs to avoid the lower traffic growth-decreasing profitability trap has been to shift operations from secondary to primary airports (Dobruszkes et al., 2017). Indeed, a "march" towards primary airports has been perhaps one of the most distinguished aspects of the strategy guiding many LCCs in recent times. The most prominent cases of such an approach have been Ryanair in Europe and Southwest Airlines in the United States. Ryanair has increased and started novel operations at traditional airports such as Barcelona El Prat, Brussels Zaventem, Copenhagen Kastrup, Glasgow and Rome Fiumicino. In most of these cases, the airline had previously operated at the corresponding secondary airports of the same region.[2] In 2016, Ryanair announced it was about to reach more operations at primary than secondary airports for the first time.[3] On the other side of the Atlantic, in the US market, Southwest Airlines has trailed a similar progress, for example, with the addition of flights from Los Angeles International and Washington Dulles. Southwest has also developed in fast pace operations out of Atlanta Hartsfield, the world's busiest airport.

### 2.2. Potential entry and the dynamics of incumbent responses in the airline industry

Whinston and Collins (1992) examine the behavior of incumbent carriers after the entry of People Express in the US airline market. They find that incumbents on entered routes lowered their prices in response to entry by approximately 35%, with smaller price reductions of 15% on the adjacent routes in the same city-pair. In contrast to Whinston and Collins (1992), more recent airline studies have suggested that LCC entry at either nearby airports or primary hub airports does not have the effect of triggering increases in flight frequency as a competitive response of major incumbent airlines. Goolsbee and Syverson (2008) find that incumbent airlines do respond in prices, but not in flight frequencies, to the threat of entry of Southwest airlines in the US airline market. They also do

[1] Klophaus et al. (2012) and Wit and Zuidberg (2012).

[2] Girona, Charleroi, Malmo, Prestwick and Ciampino, respectively. Note that Ryanair has reintroduced operations at Malmo airport in early 2017.

[3] "*Ryanair CEO Plans 50% of Growth at Primary Airports*" - www.bloomberg.com, Nov 3, 2014. "*Ryanair continues move towards primary airports*" - Business Traveller, Nov 7, 2016. See Jimenez et al. (2017), Dobruszkes et al. (2017), and Wit and Zuidberg (2012) for a discussion.