

## RESEARCH STATEMENT

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My main fields of interest are Empirical Industrial Organization, Econometrics, and Economics of Transportation.

My previous research primarily focuses on empirical methods applied to the airline industry. In two chapters of my dissertation, I specify and estimate a structural model to analyze how the design of airport charges affects the decisions of travelers and airlines, and its impact on congestion at airports. The third paper is a theoretical exercise that studies the incentives of competing airlines to ally with carriers operating in other markets. Below, I present further details about my papers and research plan for the future.

Flight delay is a serious problem in the US. If we look at data from the Bureau of Transportation Statistics, 22% of the flights arrived over 15 minutes late during the first semester of 2013. A large percentage of these late arrivals corresponds to congestion at airports. Delays are also costly. According to a report sponsored by the Federal Aviation Administration (NEXTOR (2010)), the total cost of delays for the whole US economy in 2007 was \$31.2 billion. In my job market paper, "*Congestion at Airports: Implementing a Two-Part Landing Fee at San Francisco International Airport*", I study the problem of congestion at airports. In particular, I discuss the modification in 2008 of the US policy that regulates airport rates and charges. Under the new regulatory framework, airports can charge a two-part landing fee to relieve congestion. Such a landing fee is the charge that aircraft pay for landing at airports. The new two-part landing fee scheme consists in the standard aircraft weight-based charge plus an operation charge applied in peak hours. Using data from San Francisco International Airport, I investigate the consequences of implementing such a charge scheme: changes in air-travel demand, ticket prices, size of aircraft, number of landings, and level of congestion at the airport. In order to perform the analysis, I use a structural model where air travel demand and carrier behavior are specified. Carriers not only decide on fares, as usual in previous literature, but also on the frequency of their flights. In addition, their decisions depend on the charges levied by the airport (landing fees and rental of the terminals). These charges are endogenously determined, since they depend on travelers demand and decisions of carriers. I extend the techniques developed by Berry, Levinsohn, and Pakes (1995) and Petrin (2002), and also recent advances in the estimation of two stage games (Fan (2012) and Villas-Boas (2007)) to estimate the structural parameters of the model. Our simulations conclude that implementing a congestion charge not only reduces congestion during peak-hours, as expected, but also total traffic at the airport. From a policy perspective, my paper is relevant because there is no empirical evidence on the effects of this new charge scheme. Moreover, my study is the first one that quantifies the consequences of its implementation. I also make some contributions in the area of empirical IO: I introduce correlation across markets, two decision variables for carriers, and space heterogeneity of travelers.

The paper "*Airline-Airport Agreements in the San Francisco Bay Area: Effects on Airline Behavior and Congestion at Airports*" analyzes the decisions of carriers and travelers in areas where there exist several airports. I take into account the contractual relationship between airports and carriers, and evaluate the effects of changes in the terms of such agreements. These contracts set the fees that airlines pay for landing and the rental rate for the terminal space that they occupy. I investigate how those charges are determined, and how they affect the behavior of carriers and level of congestion at the two main airports located in the San Francisco Bay: San Francisco International (SFO) and Oakland International (OAK) airports. The model specification is similar to the one used in the job market

paper. However, in this case we have two competing airports with different mechanisms to set the landing fees and terminal rental charges. Airlines take into account these differences when they decide on fares and frequency of their flights. Since SFO and OAK have different charge rules, the effects of changes in the terms of the contracts are also different. In both airports, an increase in landing fees is accompanied by a decrease in the total number of flights arriving at the airports, an increase in the size of aircraft, and a reduction in the level of congestion. Nevertheless, the effects are much stronger at SFO. In our application, we show that under certain conditions, implementing at SFO the contract proposed by OAK can be used as a tool to reduce congestion. Previous literature neither models how the fees and rental rates are determined, nor studies how the design of those fees affects the behavior of carriers. This is a relevant policy question, since an appropriate charge scheme can contribute to increase the competitiveness of one airport with respect to another operating nearby. Furthermore, it can be used as a tool to manage congestion. This paper is forthcoming in "Special Issue of Economics of Transportation: Airlines and Airports".

In a separate paper, "*Immunized International Alliances: a Sequential Game of Alliance Formation in the Airline Industry*", I consider a sequential game where a leader airline decides if it wants to establish a complementary alliance with another carrier operating in a different country. Then a competitor determines whether to ally with another carrier operating in the other country is its best response to the action taken by the leader. Several equilibria arise depending on the markets characteristics, the strength of the brand loyalty of travelers, the economies of density and other synergies derived from the international alliance. Welfare analysis suggests that when forming an international alliance belongs to the set of equilibria, total surplus does not always increase. In some cases the leader decides to coordinate even if the alliance creates negative synergies, with the objective of deterring the alliance formation of the follower. In this scenario, competition authorities should be concerned about granting antitrust immunity to the alliance. Previous theoretical work focuses on the welfare benefits, or loses, of establishing alliances with other carriers, and only few papers study the effects on competing alliances (Zhang and Zhang (2006) and Brueckner and Whalen (2000)). However, none of them considers the incentives of airlines in forming agreements. For instance, in my model carriers may not find profitable to ally if both airlines are too different. In this situation, the costs of an alliance may be greater than the benefits derived from it.

I have two research projects in my agenda. First, I want to study how the design of charges levied by airports operating in the same area may affect their investment decisions and their traffic capacity. The question is relevant because airport charges can be used to divert traffic from congested airports to underutilized ones, reducing the pressure on the congested airport to increase capacity. I plan to develop a dynamic model of two competing airports with lumpy capacity and lumpy investment decisions. The model will help me analyze the investment decision path and capacity of airports as a function of variables such as: degree of substitution between airports, initial conditions, and airport charge schemes.

To conclude, in a joint work with Professor Marc Ivaldi, we want to exploit an original data-set to analyze the effects of the service expansion of US Airways at Ronald Reagan National Airport. This expansion is the result of the agreed swap of takeoff/landing rights with Delta in exchange for rights at La Guardia Airport. Consequently, US Airways opened new routes in the summer of 2012. Using scraping techniques, we collected daily fare data from a popular travel search engine before and after the entry of the airline in the routes. We want to study the consequences of the entry of US Airways, if any, and explore the causes that may explain them. There exist papers studying how prices evolve over time for the same flight (see, for instance, Escobari (2009, 2012) and Lazarev (2013)). However, we are not aware of any paper discussing the impact of the entry of a new competitor on the pricing path.

## References

- [1] Alcobendas, M. (2013): "Congestion at Airports: Implementing a Two-Part Landing Fee at San Francisco International Airport", Job Market Paper
- [2] Alcobendas, M. (2013): "Airline Competition and Airline-Airport Agreements in the San Francisco Bay Area", Revise and Resubmit at the "Special Issue of Economics of Transportation: Airlines and Airports".
- [3] Alcobendas, M. (2013): "Antitrust Immunity: a Sequential Game of Alliance Formation in the Airline Industry", Working Paper.
- [4] Berry, S., Levinsohn, J., and Pakes, A. (1995): "Automobile Prices in Market Equilibrium", *Econometrica*, 63(4):841-890.
- [5] Brueckner, J., and Whalen, T. (2000): "The Price Effects of International Airline Alliances", *Journal of Law and Economics*, 43(2):503-545.
- [6] Escobari, D. (2012): "Dynamic Pricing, Advance Sales, and Aggregate Demand Learning in Airlines", *Journal of Industrial Economics*, 60(4):697-724.
- [7] Escobari, D. (2009): "Systematic Peak-Load Pricing, Congestion Premia and Demand Diverting: Empirical Evidence", *Economic Letters*, 103(1):59-61.
- [8] Fan, Y. (2012): "Ownership Consolidation and Product Characteristics: A Study of the US Daily Newspaper Market", *American Economic Review*, Forthcoming.
- [9] Lazarev, J. (2013): "The Welfare Effects of Intertemporal Price Discrimination: An Empirical Analysis of Airline Pricing in US Monopoly Markets", Working Paper.
- [10] NEXTOR (2010): "Total Delay Impact Study A Comprehensive Assessment of the Costs and Impacts of Flight Delay in the United States", The National Center of Excellence for Aviation Operations Research.
- [11] Petrin, A. (2002): "Quantifying the Benefits of New Products: The Case of the Minivan", *Journal of Political Economy*, 110(4):705-729.
- [12] Villas-Boas, S. (2007): "Vertical Relationships between Manufacturers and Retailers: Inference with Limited Data", *The Review of Economic Studies*, 74(2):625-652.
- [13] Zhang, A., and Zhang, Y. (2006): "Rivalry between Strategic Alliances", *International Journal of Industrial Organization*, 24(2):287-301.