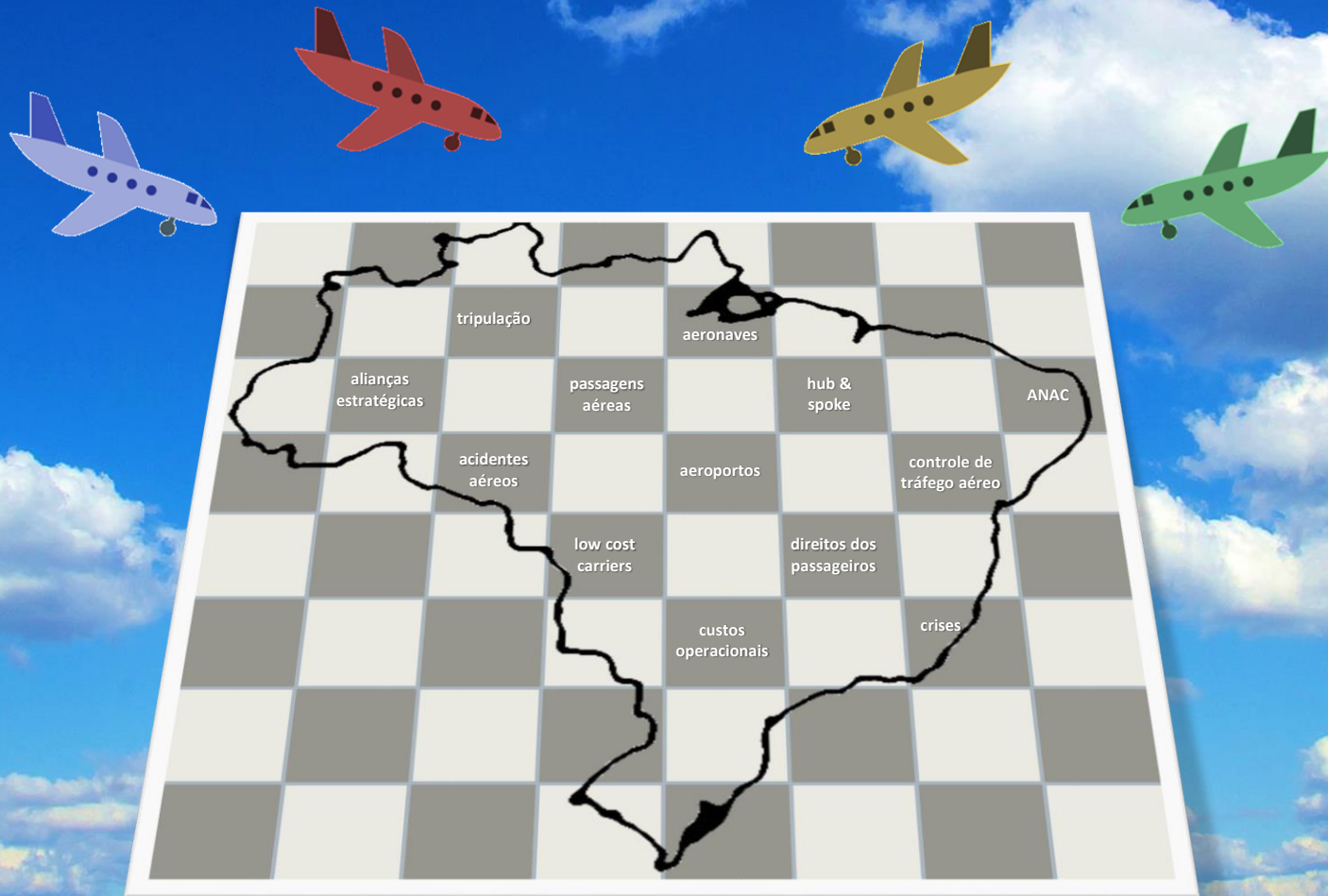


# Estudos internacionais de economia do transporte aéreo

## - *estado da arte e brechas da literatura*

Alessandro V. M. Oliveira



# Estudos internacionais de economia do transporte aéreo

- Caso: literatura de cobrança de bagagem despachada



# Cobrança de bagagem despachada: motivação

- Final dos 2000
  - aumentos consideráveis nos preços do petróleo (2008 a 2014)



# Cobrança de bagagem despachada: motivação

- Final dos 2000
  - aumentos consideráveis nos preços do petróleo (2008 a 2014)
- Uma das respostas das cias a esses aumentos nos custos
  - cobrança de serviços que antes eram fornecidos gratuitamente
    - introdução da cobrança sobre a bagagem despachada (2008)
- Consequências
  - aumento das receitas das cias aéreas
  - US GAO (2010)
    - algumas cias tiveram queda de 40 a 50% no número de malas despachadas.
  - aparentemente evitou pressões de custos nos preços das passagens
  - mas virou “*the biggest complaint of the flying public*” (WSJ)
    - Setembro 2018: Congresso EUA derruba tentativa de regulação da matéria
      - “*Reasonable fee rule*”

# Estado da arte: Literatura

- Nicolae, Arikan, Deshpande, & Ferguson (2016)
- Henrickson & Scott (2012)
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## Would the social planner let bags fly free?

Working  
Paper



Northwestern  
University

### Would the Social Planner Let Bags Fly Free?

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August 29, 2011

Motivated by airline baggage fees, we consider a service provider offering a main service (e.g., transporting a person) and an ancillary service (e.g., transporting a checked bag) that an individual customer may or may not need. We ask whether the firm should bundle the two services and post a single price or unbundle them and price the ancillary service separately. We consider two motivations for unbundling the services. The first focuses on altering consumer behavior to lower the firm's costs. We assume that providing the ancillary service is costly but consumers can exert effort in order to reduce the rate at which the ancillary service is needed. We show that the firm unbundles and sets the fee for the ancillary service at the same level the social planner would. Profit maximization thus results in social efficiency. The second rationale for unbundling is segmentation. We assume that there are two segments that differ in the rate at which they use the ancillary service. The optimal contracts impose higher ancillary service fees on those less likely to use the service. In the airline setting, this would imply that business travelers would face higher baggage fees than leisure travelers. We conclude that the way in which airlines have implemented baggage fees is more consistent with attempts to control consumer behavior than segment customers.

#### 1. Introduction

Describing what a service business does should be simple. Restaurants provide food while airlines transport passengers. Reality, however, is a little more complex. Restaurants serve multiple courses and a variety of beverages in addition to providing a place for conversation. There are also supporting activities such as bringing out food or bussing tables. Airlines move passengers' belongings as well as their bodies while issuing documents to clear airport security. Airlines may also offer a variety of in-flight amenities ranging from internet access to restrooms. The multidimensional nature of services raises the question of how they should be priced and sold. Specifically, should a service be sold as an inclusive bundle or should it be unbundled with each component priced separately?

The airline industry exemplifies the possibilities of unbundling. Traditionally, the basic ticket price incorporated many "ancillary" services such as checking a bag, an in-flight meal, and printing a boarding pass.

# Setup

- Modelo matemático
  - Uma cia aérea com dois serviços
    - serviço principal: transportar uma pessoa
    - serviço auxiliar: transportar bagagem despachada
      - ✓ o pax pode ou não precisar do serviço auxiliar
  - Duas decisões da firma
    - "empacotar" = oferta agrupada dos serviços, um preço único
    - "desempacotar" = oferta separada dos serviços, preços separados
  - Duas motivações para "desempacotar"
    1. Redução de custos
    2. Segmentação de mercado

# Problema do Planejador Social

- O benefício social referente ao serviço auxiliar depende de
  - $\varepsilon$  = "esforço" exercido pelos pax para evitar o serviço
  - $c(\varepsilon)$  = custo ao consumidor referente ao "esforço",  $c'(\varepsilon) \geq 0$
  - $\alpha(\varepsilon)$  = probabilidade do pax precisar do serviço,  $\alpha'(\varepsilon) < 0$
  - $k_a$  = custo da cia em prover o serviço ao pax

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- O planejador que interfere no mercado tem que encontrar o "esforço ótimo"
  - aquele que maximiza o bem-estar social
  - balancear
    - o custo do esforço de evitar o serviço (pax) com o custo de provê-lo (cia)

# Problema do Planejador Social

- O benefício social referente ao serviço auxiliar depende de
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  - $k_a$  = custo da cia em prover o serviço ao pax
- Estabelecer o esforço  $\varepsilon$  de modo a minimizar:

$$c(\varepsilon) + \alpha(\varepsilon)k_a$$



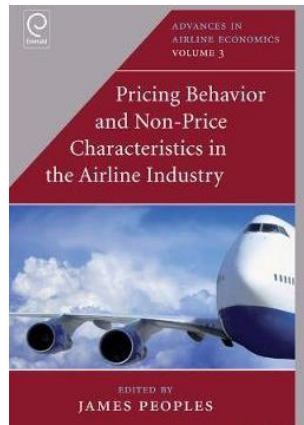
# Conclusão

- Se o objetivo da cia for
  - controlar o comportamento do pax para reduzir custo do serviço auxiliar
    - Então, o livre mercado leva à firma a desempacotar...
    - ... e estabelecer uma tarifa para o serviço auxiliar ao mesmo nível que um planejador social o faria
      - ✓ ie, o livre mercado resulta em eficiência social
    - tb analisam o caso quando o objetivo da cia for de segmentação
- *"So would the social planner let bags fly free?  
We would argue no."* (ABL, 2011, p23).

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## Baggage fees and changes in airline ticket prices



### CHAPTER 8

### BAGGAGE FEES AND CHANGES IN AIRLINE TICKET PRICES

Kevin E. Henrickson and John Scott

#### INTRODUCTION

The past several years have seen dramatic increases in oil prices, which have adversely impacted airlines, with the average price of jet fuel increasing from \$1.34 per gallon between 1995 and 2005 to \$2.81 per gallon between 2006 and 2009. As a partial response to these increases in costs, many airlines have introduced fees for services that were previously provided to their customers free of charge. One such charge is a fee on checked baggage, which most airlines introduced in 2008. These charges have been successful in increasing airline revenues, so successful that many airlines have increased their fees multiple times over the past two years. Baggage fees have also enabled airlines to avoid dramatic increases in their airfares, which may result in significantly fewer customers, as these additional fees generate revenues, but since they are not collected when passengers book their tickets, the cost of air travel on these airlines appears lower than it actually is. The most notable exception to this pattern of charging baggage fees is Southwest Airlines, which has launched a “Bags Fly Free” advertising campaign in an attempt to differentiate their product from that of fee charging airlines. In this chapter, we use a spatial autoregressive model to analyze what impact the increase in fuel costs, and the introduction of baggage fees have had on ticket prices. Our results suggest that increases in jet

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**Table 5.** Estimation Results.

	OLS	Spatial Autoregressive Model
Change in jet fuel costs	0.129*** (0.004)	0.016*** (0.006)
Change in baggage fees	-0.725*** (0.057)	-0.243*** (0.051)
Change in baggage fees on routes served by Southwest	0.657*** (0.064)	-0.004 (0.060)
Change in mean bag fees * Southwest Airlines	0.814*** (0.092)	0.793*** (0.076)
Change in Herfindahl index	0.002*** (0.0003)	0.0002 (0.0003)
Change in market share	0.009*** (0.001)	0.002** (0.001)
Change in seat capacity	-0.001*** (0.0001)	-0.0003*** (0.00004)
Change in departures offered	0.042*** (0.006)	0.030*** (0.005)
Change in on-time performance	-0.007 (0.043)	-0.004 (0.036)
Weighted change in average ticket price of spatial competitors		0.856*** (0.038)
Constant	-2.502*** (0.317)	0.070 (0.285)
Adjusted $R^2$	0.20	0.46
Observations	9,656	9,656

*Notes:* The dependant variable is the year-over-year change in quarterly average ticket prices by origin-destination pair. Standard errors are in parentheses.

\*Significant at 10%.

\*\*Significant at 5%.

\*\*\*Significant at 1%.

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Aumentos nos valores das tarifas de bagagem reduziram os preços das passagens de todas as cias (não apenas as que cobravam tarifa)

aparente substituição da perda de receitas com passagens mais competitivas pela receita auxiliar.

*Notes:* The dependant variable is the year-over-year change in quarterly average ticket prices by origin-destination pair. Standard errors are in parentheses.

\*Significant at 10%.

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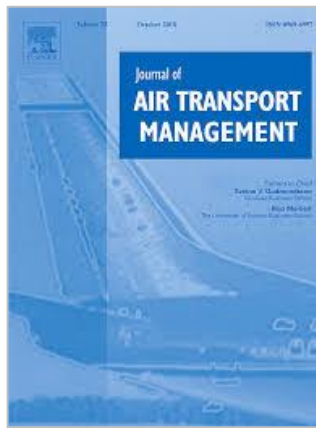
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## Baggage fees, operational performance and customer satisfaction in the US air transport industry



### Baggage fees, operational performance and customer satisfaction in the US air transport industry

Davide Scotti <sup>a,\*</sup>, Martin Dresner <sup>b</sup>, Gianmaria Martini <sup>a</sup>

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#### ABSTRACT

In recent years, there has been a “de-bundling” trend in the US airline industry, where specific services that used to be included in a ticket fare are now priced separately. Although a major reason for these fees is to raise revenues for the airlines, the fees may also impact the operations of carriers. Among the new fees implemented by most US carriers is a payment for checked baggage. This paper analyzes the association of baggage fees with airline operational service outcomes, as measured by flight delays, mishandled baggage rates and the rate of customer complaints. Using data from the US domestic air transport market over the period 2004–2012 and estimating a series of equations, our results show that, on average, an increase in baggage fees is associated with a decrease in the mishandled baggage rate and to a reduction in the percentage of delayed flights. No significant association is found between the fees and the rate of customer complaints.

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#### 1. Introduction

On May 21, 2008, American Airlines made an announcement that dramatically changed the revenue position of US airlines. American announced that as of June 15th, it would begin collecting a fee of \$15 per checked bag. Although American Airlines was not the first US carrier to charge a fee for a first checked bag, it was the first “legacy carrier” to do so. The other major legacy carriers, United Airlines, US Airways, Northwest Airlines, Continental Airlines and Delta Airlines, quickly followed with baggage fees of their own. Within two years, the fees had been raised to the \$20–\$25 range for the first checked bag, with some carriers charging even more for a second checked bag (Barone et al., 2012). As a result, baggage fees as a percentage of US carrier operating income

increased more than fourfold from 2007 to 2009 (Garrow et al., 2012). By 2010, US carriers were generating \$3.4 billion annually in baggage fees, up from less than \$500 million in the year before American’s initial announcement (Tuttle, 2012; US Government Accountability Office, 2010).

Although the imposition of the baggage fees had a dramatic impact on US carrier revenues, this is not the focus of the paper. Our aim is, instead, to analyze the association between the fees, the operational performance of US carriers, and customer satisfaction with their airline experience. As Michael O’Leary, the CEO of Ryanair, has stated (quoted in Allison et al., 2011, pp. 2–3): “Playing for checked-in bags... wasn’t about getting revenue. It was about persuading people to change their travel behavior – to travel with carry-on luggage only... This helps us significantly lower airport and handling costs.” In particular, we examine the association between the baggage fees and the rate of mishandled baggage reports, the percentage of delayed flights, and the rate of airline customer complaints.

If the baggage fees discourage passengers from checking their

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1 See, for example, Barone et al. (2012). Up until American’s initiative, only certain low-cost carriers (LCCs) (e.g., Spirit Airlines) charged fees on the first checked bag in the United States. Other LCCs, most notably Southwest Airlines and JetBlue, continued to offer “free” checked bags.

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# Efeitos em atrasos, extravios e reclamações de pax

**Table 3**


Estimation results (t-statistics in parentheses).

	Airline Delays	Mishandled Baggage Rep.	Customer Complaints
Baggage Fee	-0.006*** (-3.13)	-0.005*** (-4.27)	-0.003 (-1.08)
y2005	0.080 (1.46)	0.025 (0.67)	-0.009 (-0.09)
y2006	0.020 (0.37)	0.025 (0.66)	-0.060 (-0.64)
y2007	0.028 (0.51)	0.033 (0.86)	-0.057 (-0.61)
y2008	0.094 (1.57)	0.082** (1.98)	-0.006 (-0.06)
y2009	0.148** (2.03)	0.136*** (2.70)	0.063 (0.51)
y2010	0.140 (1.63)	0.164*** (2.78)	0.062 (0.42)
y2011	0.235*** (2.68)	0.183*** (3.03)	0.152 (1.02)
y2012	0.248** (2.48)	0.177** (2.57)	0.204 (1.20)
AS	-0.049 (-0.80)	-0.208*** (-4.92)	-1.060*** (-10.16)
B6	-0.165** (-2.57)	-0.469*** (-10.59)	-1.163*** (-10.65)
CO	-0.248*** (-4.02)	-0.312*** (-7.32)	-0.489*** (-4.65)
DL	-0.182*** (-3.00)	0.009 (0.20)	-0.050 (-0.48)
F9	-0.224*** (-3.45)	-0.338*** (-7.57)	-1.125*** (-10.20)
FL	-0.472*** (-7.70)	-0.564*** (-13.35)	-0.776*** (-7.45)
NW	0.187*** (2.76)	-0.348*** (-7.47)	-0.614*** (-5.34)
UA	-0.201*** (-3.31)	-0.115*** (-2.74)	0.032 (0.31)
US	-0.164*** (-2.70)	-0.030 (-0.71)	-0.014 (-0.14)
WN	-0.385*** (-5.39)	-0.295*** (-5.99)	-1.389*** (-11.44)
q2	-0.025 (-0.67)	0.026 (1.03)	0.015 (0.25)
q3	-0.006 (-0.17)	0.046* (1.72)	0.021 (0.32)
q4	0.007 (0.17)	0.024 (0.90)	0.042 (0.63)
Constant	1.174*** (19.10)	1.146*** (27.02)	1.523*** (14.57)
R-squared	0.31	0.53	0.60
Observations	357	357	357

\*\*\*p < 0.01; \*\*p < 0.05; \*p < 0.10.

# Efeitos em atrasos, extravios e reclamações de pax

A introdução de cobrança bagagem reduziu atrasos, extravios, mas não as reclamações



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# Balanço da literatura

- Estudos até aqui concluem que a cobrança pode permitir
  - atingir resultado de eficiência social
    - se o objetivo é reduzir custos
    - resultados ainda pouco claros se o objetivo é segmentar o mercado
  - melhor desempenho financeiro
    - maior arrecadação, com receitas auxiliares
    - maior competitividade aparente: preços de passagens menores
    - maior estabilidade e solidez financeira (compensação de receitas)
  - melhor desempenho operacional
    - menos atrasos de voo
    - menos extravios de bagagem
      - ✓ não se pode concluir sobre as reclamações de clientes

# Brechas na literatura

- Estudar o efeito de longo prazo da cobrança de bagagem
  - maior período amostral
  - efeito combinado de outras cobranças/estratégias de marketing
- Efeitos em preços, demanda, atrasos desagregados
  - pela distância/permanência
  - rotas mais turísticas/mais business/mais híbridas (segmentação)
  - períodos de crescimento baixo/crescimento alto
  - situações de preço do combustível baixo/combustível alto
  - rotas densas/densidade média/aviação regional
  - efeito moderador/intensificador da presença na rota/aeroporto

# Brechas na literatura

- Aprofundamento da possibilidade de diferenciação de produto
  - Modelos de negócio distintos, com políticas de cobrança distintas

Other airlines charge up to \$120 roundtrip.

ON SOUTHWEST AIRLINES®

**BAGS FLY FREE®!**

First and second checked bags. Baggage weight and size limits apply.

Golf bags

Travel bags

Skis

The advertisement features a blue background with white clouds at the top. It highlights Southwest Airlines' policy of allowing free checked baggage for specific items. Three circular icons illustrate the types of bags: a golf bag, a red travel bag, and a pair of skis. The text is clear and bold, emphasizing the 'FREE' aspect of the offer.



# Estudos internacionais de economia do transporte aéreo

- *estado da arte e brechas da literatura*

Alessandro V. M. Oliveira

## Obrigado!

