

Product Differentiation in the Airline Business

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Outline

- Introduction
- Structure of thesis
- Applications and implications
 - Emergence of LCCs
 - Explaining airport choice
 - Emergence of HCs
 - Implications for airports
- Summary

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Introduction

- Motivation:
 - defining characteristic of market structure
 - essential for understanding how markets work
 - price discrimination is rather well researched
 - increasing importance in growing industries
- Can explain what has already happened
 - e.g.: LCCs
- Should also make predictions

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The structure of my thesis

- Economic theory of product differentiation
 - horizontal product differentiation
 - Hotelling, Salop and Lancaster
 - vertical product differentiation
 - basic model and some extensions
 - horizontal and vertical product differentiation
 - Launhardt and the ‘min-max principle’
- The parameters of differentiation for airlines
- Applications and implications

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The emergence of LCCs (1)

- Two pioneers:
 - Southwest in the USA and Ryanair in Europe
- Carriers offering a simple no-frills product
- Theoretically already explained by Reisinger (2005)
- Uses the model of (pure) vertical product differentiation

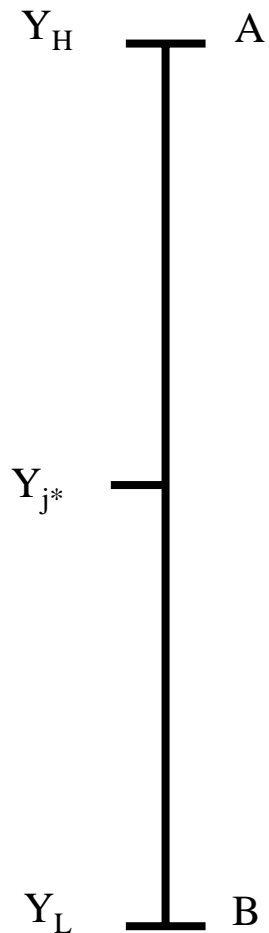
The emergence of LCCs (2)

The model of vertical product differentiation

- Products are differentiated only in terms of overall quality
- All consumers prefer high-quality goods over low-quality goods, if prices for all goods were the same
- Consumers are differentiated in terms of income / wtp for quality
- Thus, some consumers have to buy the low quality good

The emergence of LCCs (2)

The model of vertical product differentiation



- Equilibrium is achieved when both products are maximally differentiated
 - is only stable if consumers are heterogeneous enough, i.e. if $Y_H > 2Y_L$
- Profits increase in distance
- High-quality product makes higher profits

The emergence of LCCs (3)

The model of vertical product differentiation

- Quality of airlines is in terms of overall quality:
 - flight frequency, locations of airports, on-board service, airport service, flexible tickets, ...
- In a sequential setting the first mover always chooses to produce high-quality and second mover low-quality
- Cannot explain the profit situation:

The emergence of LCCs (4)

Profit and loss in the US market

	<i>Net income or loss in million US Dollar</i>					
	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>	<i>2006</i>
AMR/American	- 1,462	- 3,511	- 1,228	- 761	- 861	+ 231
UAL/United	- 3,357	- 3,212	- 2,808	- 1,644	- 21,176	- 23
US Airways	- 1,170	- 1,646	- 666	- 89	- 537	+ 304
Delta	- 1,027	- 1,295	- 896	- 5,198	- 3,836	n.a.
Northwest	- 423	- 798	+ 236	- 848	- 2533	- 2,835
Continental	- 95	- 451	+ 38	- 363	- 68	+ 343
America West	- 148	- 430	+ 57	- 90	n.a.	n.a.
Alaska Air	- 43	- 388	+ 8	- 15	- 6	+ 304
Southwest	+ 511	+ 241	+ 442	+ 313	+ 548	+ 499

Source: Doganis, 2007

The emergence of LCCs (5)

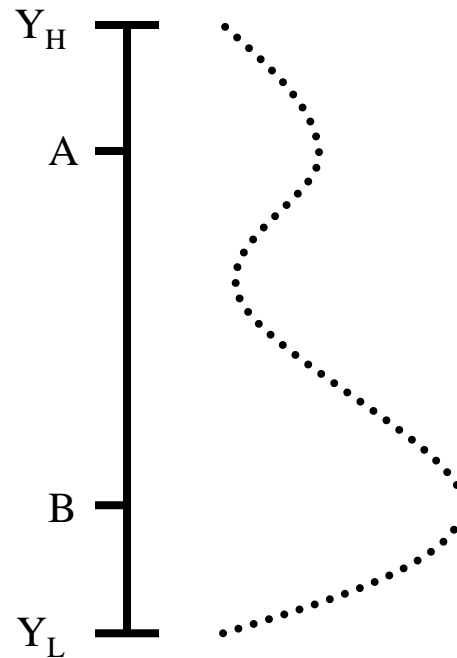
Profit and loss in the EU market

	<i>Net income or loss in million US Dollar</i>				
	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>	<i>2005</i>
Lufthansa	- 567	+ 681	- 1,120	+ 551	n.a.
Air France	+ 137	+ 120	+ 110	+ 2,048	+ 1,112
BA	- 81	+ 112	+ 237	+ 656	+ 785
KLM	- 140	- 416	+ 28	(merged with Air France)	
Iberia	+ 48	+ 152	+ 118	+ 229	+ 469
Alitalia	- 813	- 248	- 587	- 1,000	- 199
Swiss	- 203	- 659	- 527	- 122	- 140
SAS	- 103	- 14	+ 241	- 220	+ 32
Ryanair	+ 135	+ 240	+ 243	+ 344	+ 370
easyJet	+ 55	+ 72	+ 52	+ 74	+ 75

Source: Doganis, 2007

The emergence of LCCs (6)

- Prediction about profits does not imply that model is not applicable:



The emergence of LCCs (7)

- Model of pure vertical product differentiation explains why LCCs entered with a low-quality product
- To avoid direct price competition LCCs differentiated sufficiently far away from the established flag carriers in terms of their overall quality
- Model is only applicable if a flight on the same route is considered

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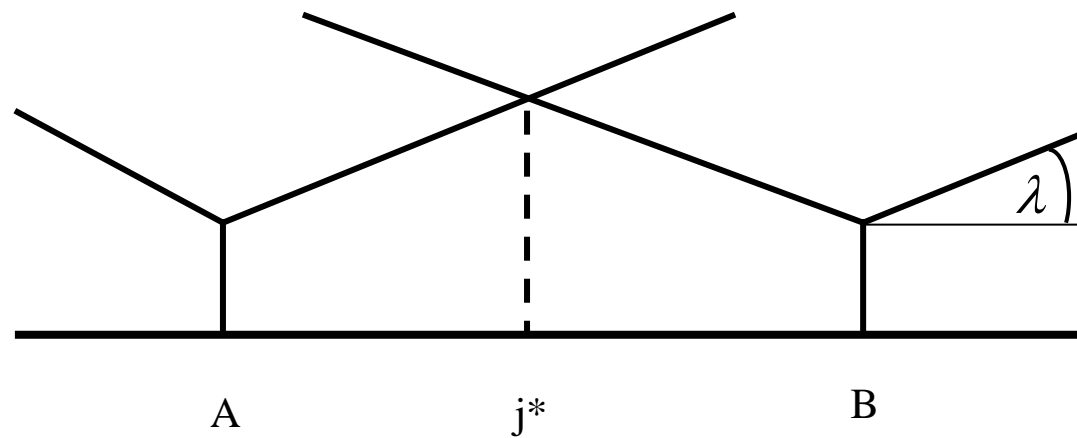
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Explaining airport choice (1)

- LCCs are generally more concerned with travel markets than particular routes
- LCCs fly from remote airports
- If LCC and FSA fly between same region, but from different airports the model is no longer purely vertical
- A horizontal dimension must be added
- Launhardt model

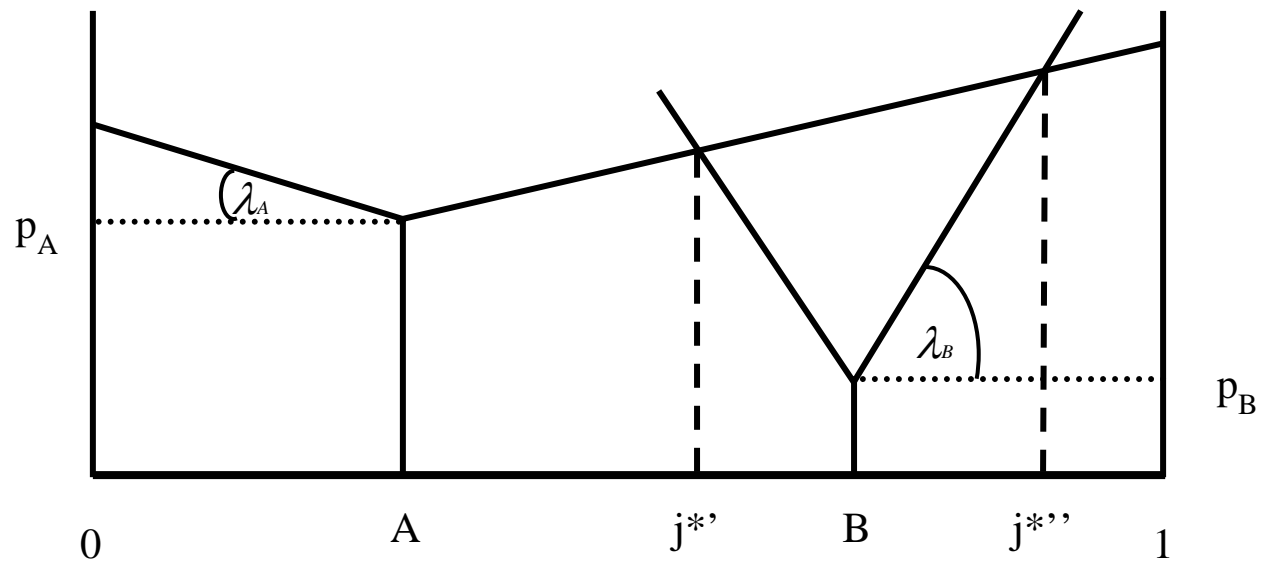
Explaining airport choice (2)

The Launhardt model



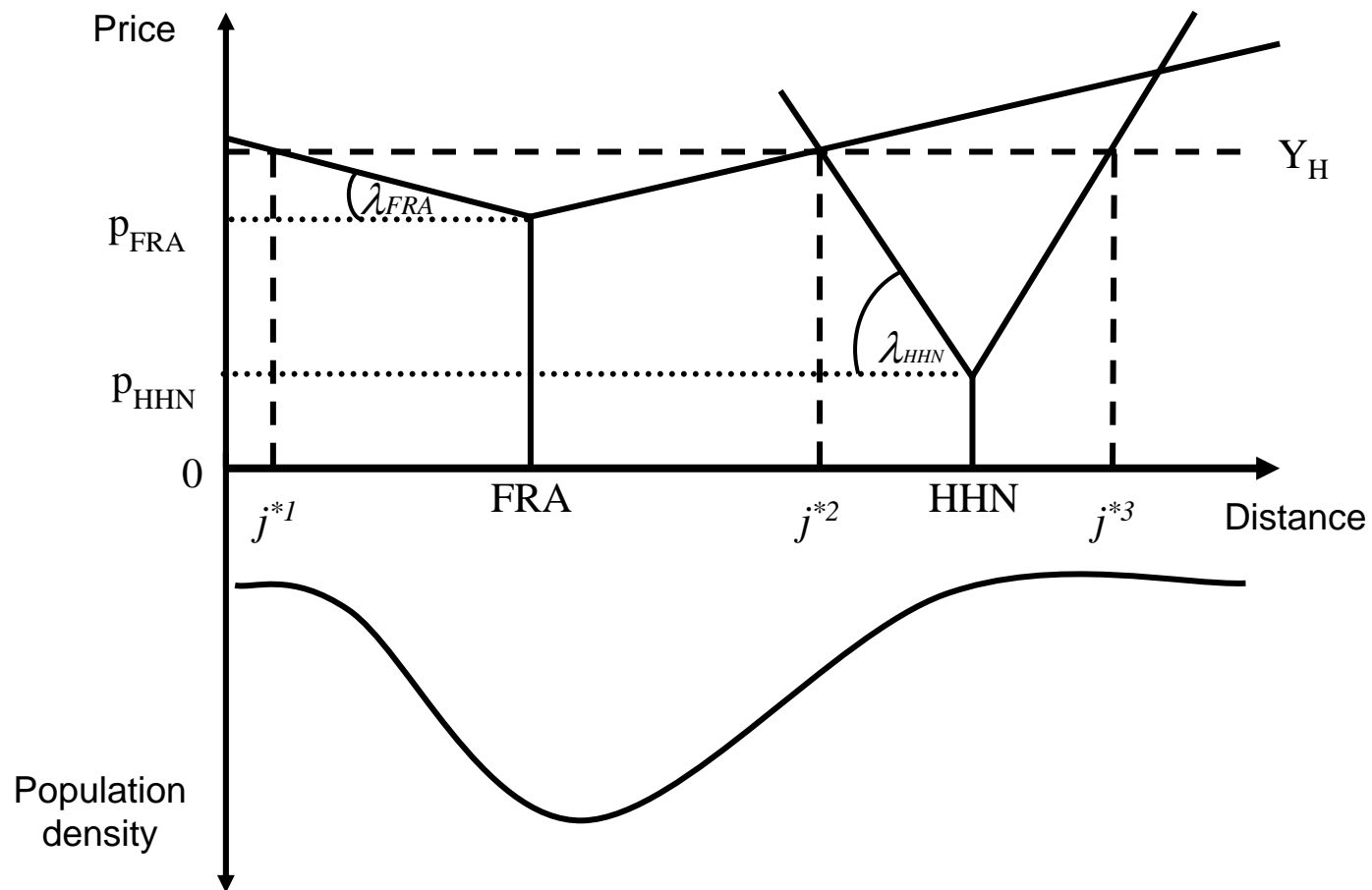
Explaining airport choice (3)

The Launhardt model



Explaining airport choice (4)

The Launhardt model



Explaining airport choice (5)

- The farther away the remote airport from the population centre, the lower its prices must be
- Cannot explain overlapping catchment areas
 - biggest shortcoming of the Launhardt model: does not consider income
- Also implies that remote airports will always stay smaller than their the main airports
- Should foster differentiation among airlines

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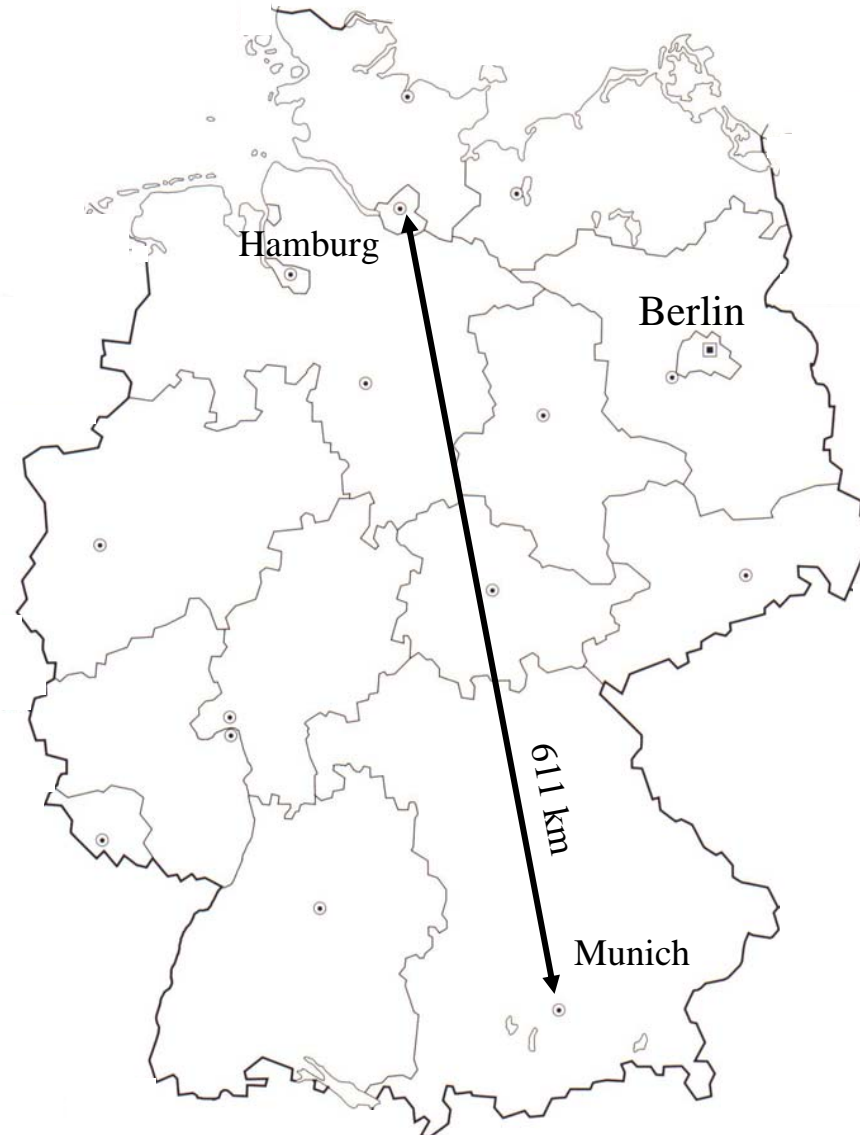
The emergence of HCs (1)

- Some carriers have departed from the business models of Southwest and Ryanair
- These airlines offer higher frequencies, increased on-board and airport service, tend to fly from major airports
- Have a hybrid business model
 - Hybrid Carriers (HCs)

The emergence of HCs (2)

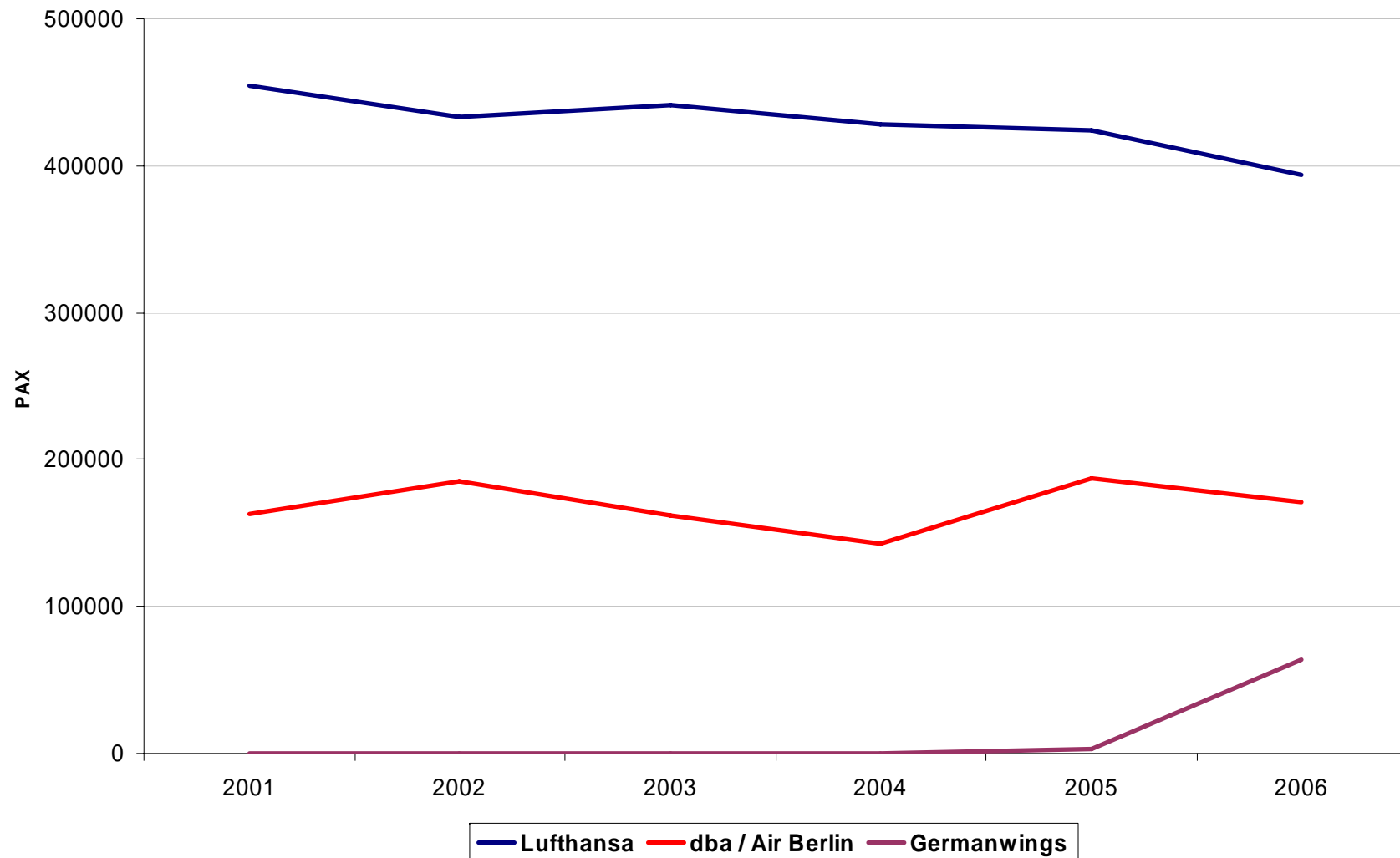
The Hamburg - Munich market

- Two important centres of economic activity
- Hamburg region: 4.3 million
- Munich region: 4.5 million
- Big share of business passengers



The emergence of HCs (3)

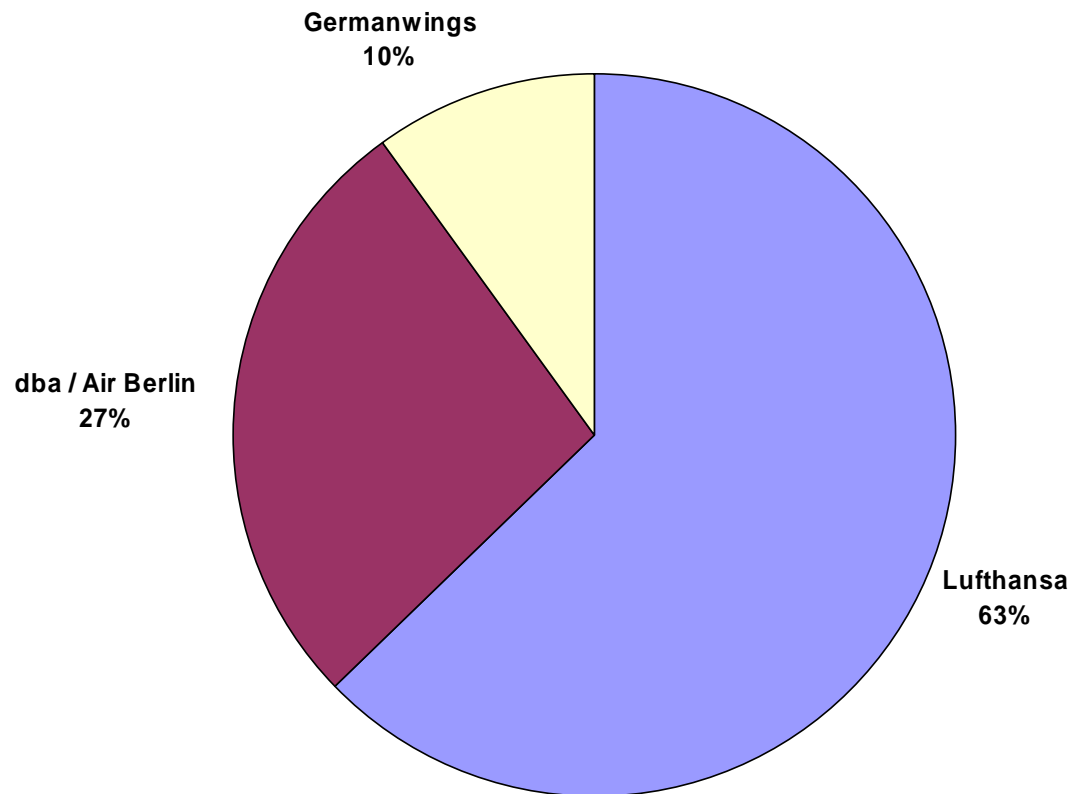
The Hamburg - Munich market



The emergence of HCs (4)

The Hamburg - Munich market

PAX shares in 2006



The emergence of HCs (5)

The Hamburg - Munich market

Basic product features

	Average price in Euros	Daily frequency ‡	Flexible tickets	Frequent flier program	Free of charge amenities †
Lufthansa	253.34*	Up to 15	Yes	Yes	Yes
Air Berlin	73.99*	Up to 9	Yes	Yes	Yes
Germanwings	46.59**	Up to 3	Yes	Yes	No

Source: own compilations

Notes: * Calculated from annual reports; ** DLR, 2006; ‡ frequencies are usually lower at weekends; † e.g. newspapers, snacks and drinks, on-board entertainment etc.

– Alternative modes

- rail: 119 EUR, 5.5 h car: 410 EUR, 6.5 h

The emergence of HCs (6)

- Differentiation in the market is mainly in terms of overall quality
- Model of vertical product differentiation
 - more firms can enter if consumers are sufficiently heterogeneous
- Additionally, Germanwings subsidiary of Lufthansa; multi-product firm
- Differentiation triangle
 - no, or little scope for differentiation in the low-quality segment

The emergence of HCs (7)

- Route connects two densely populated areas and centres of economic activity
- Available airport capacity on both ends of the market
- The vertical product differentiation among airlines is limited to the extent of available airport capacity in and the socio-economic idiosyncrasies of the market

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Implications for airports (1)

- Interplay between product differentiation among airlines and airports
- Multi-airport regions show that airports specialise on types of traffic
 - FSA, LCC or purely business
- relate to aeronautical business

- Also repercussions on the non-aeronautical business of airports

Implications for airports (2)

Why is there no McDonalds at LHR Terminal 4 ??

Christian Dior

VERSACE

FORTNUM & MASON
PICCADILLY SINCE 1707

Harrods
KNIGHTSBRIDGE



Cartier

BOSS
HUGO BOSS

GARFUNKEL'S

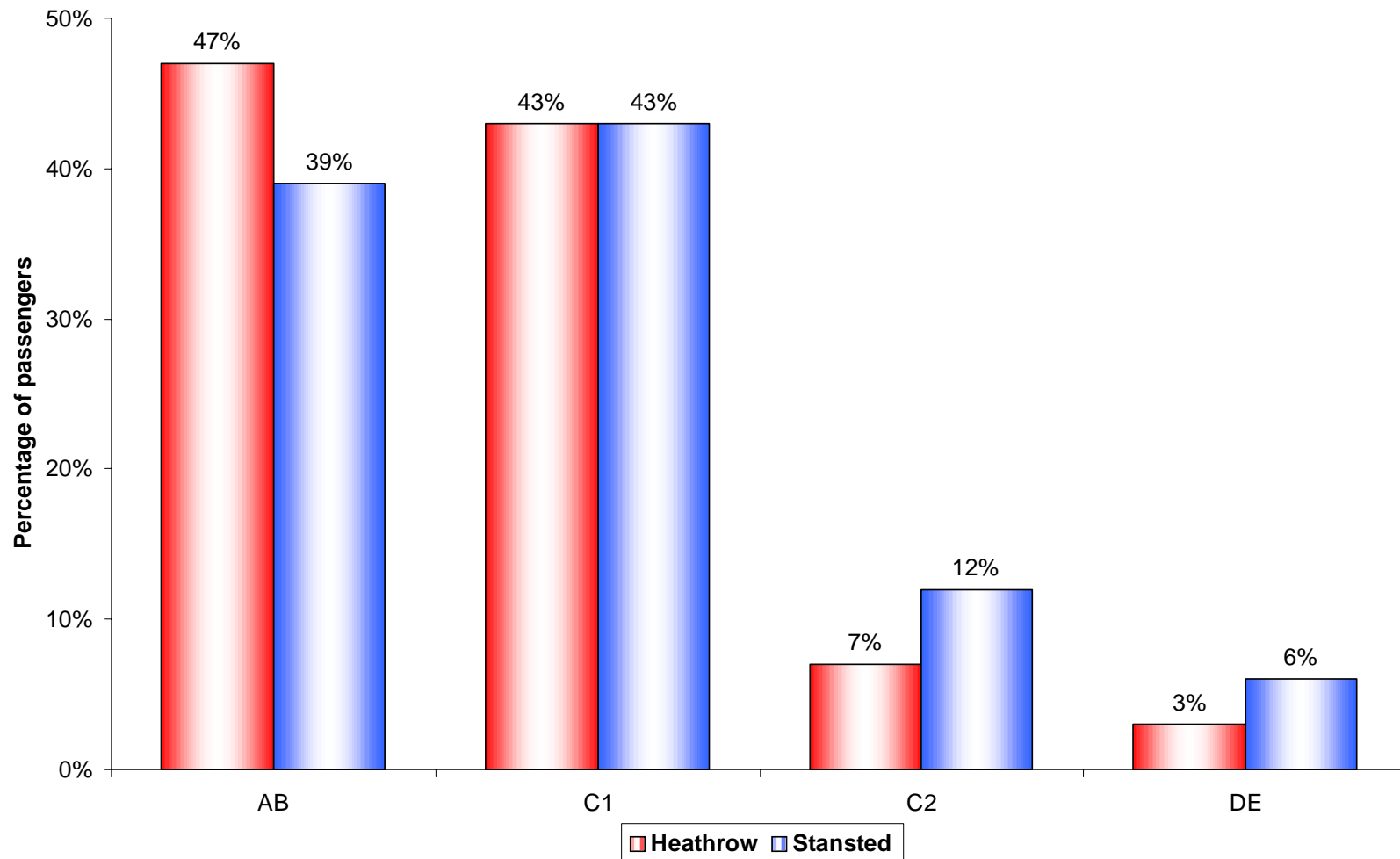


CHANEL

GUCCI

Implications for airports (3)

NRS Social Grades at LHR and STN



Implications for airports (4)

- LHR extreme example
 - unprecedented airport structure in Europe
 - can also be observed at other hubs, with largely FSA traffic
- Airports with a mixed airline structure might also have a more mixed tenant structure
- To avoid confusion airports should provide separate terminals for LCCs and FSAs

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Summary

- Economic theory of product differentiation is relevant
 - provides explanation and reasoning
- Vertical differentiation may vary in different markets
- Similar observations in Asian markets
- Further quality enhancements imaginable
- Vertical fragmentation will continue where possible

Thanks very much !

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