

# Spatial Price Discrimination in Airline Markets

## *Theory and Evidence*

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# Introduction (1)

- Spatial price discrimination and Airlines?
- Application H&S-carriers
- Indirect routings **via hub** vs. direct connection **from hub**
- Criterion for SPD:
  - Passengers location (starting point)

# Outline

- The theory of spatial price discrimination
- Some preliminary evidence
- Conclusion

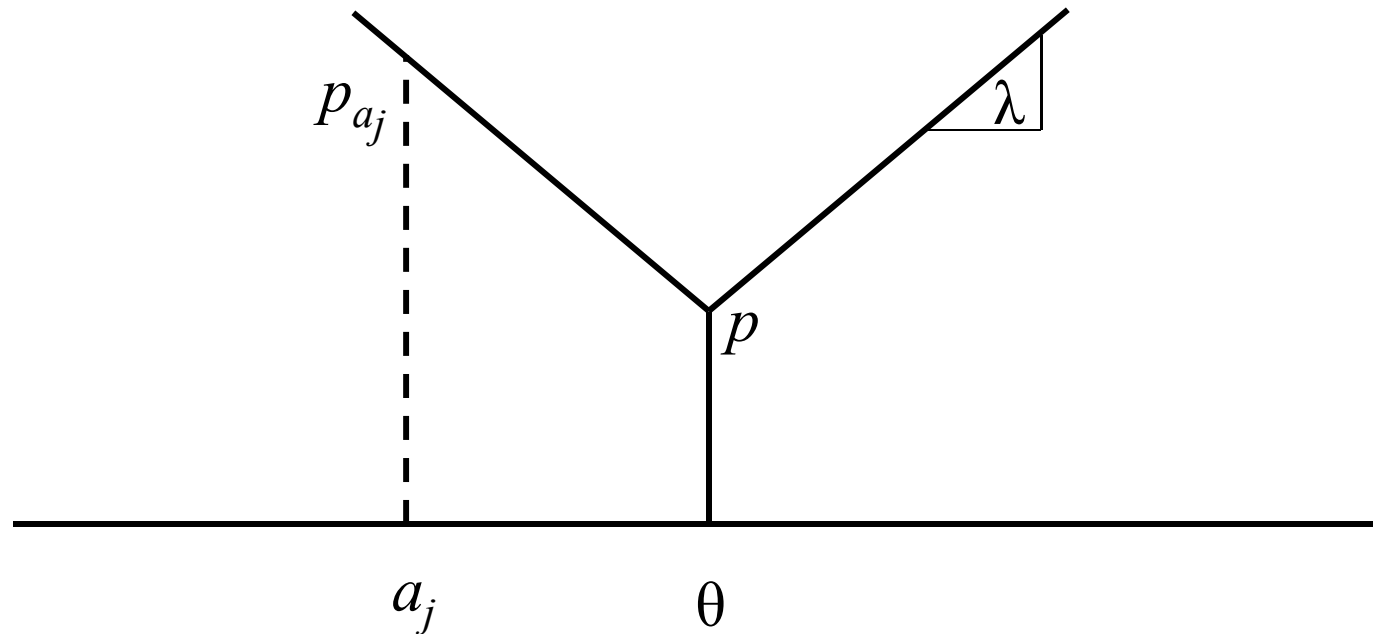
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# Theory of SPD

(1)

- Spatial uniform pricing



# Theory of SPD

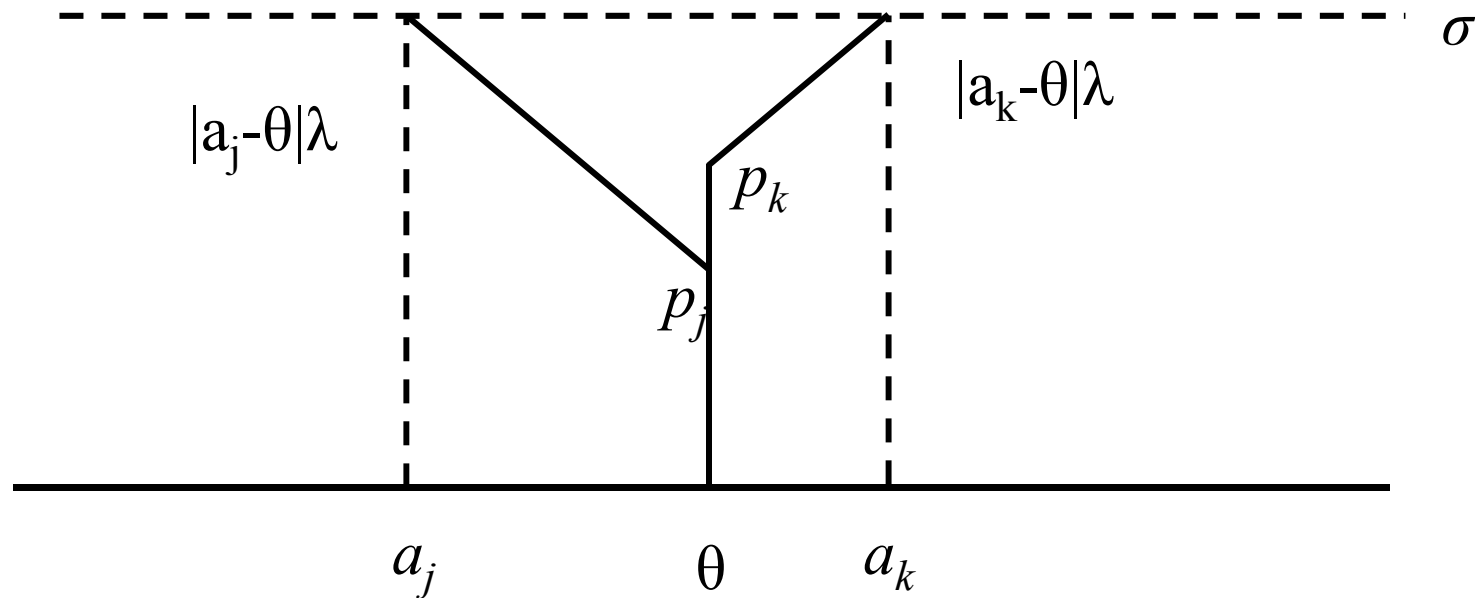
(2)

- Profit maximizing mill price depends on:
  - Length of the street
  - Reservation price
  - Transportation costs

# Theory of SPD

(3)

- Spatial price discrimination



- $p_j = \sigma - (|a_j - \theta| \lambda)$

# Theory of SPD

(4)

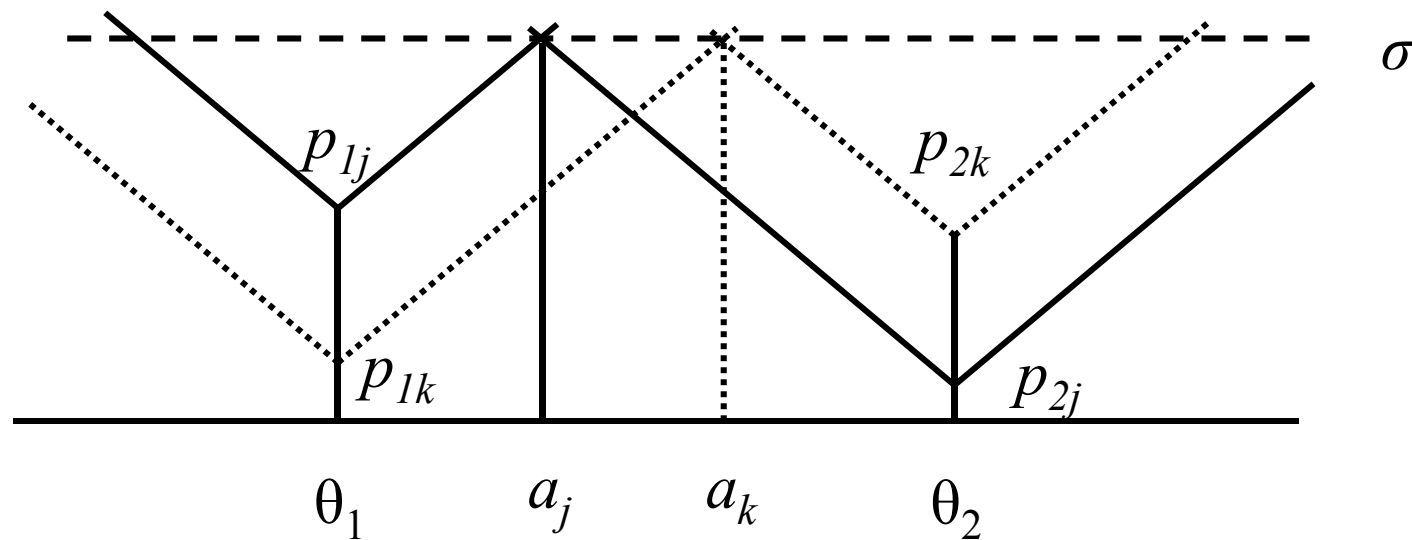
- Catchment area and profits increases
- Consumer surplus is transferred into producer surplus and becomes zero



# Theory of SPD

(5)

- Spatial price discrimination under competition



# Theory of SPD

(6)

- Consumers are indifferent between all firms
- Competition makes all consumers pay their reservation price at all firms
- Firms were better off not engaging in SPD, form of prisoners' dilemma

# Outline

- The theory of spatial price discrimination
- **Some preliminary evidence**
- Conclusion

# Preliminary evidence

(1)

- Generally ticket price independent of living place
- For long-haul destinations
  - Compare prices of indirect routings vs. direct routings
- Intuition: prices for indirect routings should be lower than direct routes since H&S airlines compete for transfer traffic

# Preliminary evidence

(2)

- Assumption:
  - there must not be a direct routing from a non-hub origin point
  - e.g.: BRE – FRA – JFK
  - or: BRE – LHR – JFK
  - or: BRE – CDG – JFK
  - vs.: FRA – JFK or LHR – JFK or CDG - JFK

# Preliminary evidence

(3)

- Expectation:
  - All indirect routings are cheaper than direct routings, since competition drives prices down
- Data:
  - Destinations: JFK, PEK and MOW
  - Airlines: LH, BA, AF
  - Origins: FRA, LHR, CDG, BRE, MAN, LYS, MXP
  - Prices: offered online prices for one-way tickets for different departure dates measured over time period of eight weeks

# Preliminary evidence

(4)

- Findings:

Table 1 Averaged airline price data for JFK, MOW and PEK

		LH	AF	BA
Direct flights from respective main hub  (e.g.: FRA-JFK with LH)	JFK	2,845.97 €	2,715.51 €	638.27 €
	MOW	1,119.59 €	1,368.50 €	641.49 €
	PEK	2,024.11 €	3,976.75 €	1,100.15 €
Connecting flight departing in home country with home carrier  (e.g.: LYS-CDG-MOW with AF)	JFK	2,877.10 €	2,740.38 €	734.88 €
	MOW	1,196.20 €	1,406.65 €	740.17 €
	PEK	2,048.69 €	4,007.37 €	1,137.72 €
Connecting flight departing in country outside of home carrier  (e.g.: FRA-LHR-PEK with BA or BRE-CDG-JFK with AF)	JFK	1,664.32 €	1,717.16 €	1,545.15 €
	MOW	1,234.09 €	1,242.02 €	745.86 €
	PEK	1,492.36 €	1,540.42 €	2,242.41 €

# Preliminary evidence

(5)

Table 2 Detailed results for all origins, destinations and airlines

		FRA	CDG	LHR	BRE	LYS	MAN	MXP
JFK	LH	<i>2,845.97 €</i>	2,663.82 €	929.41 €	2,877.10 €	2,660.40 €	761.52 €	<b>1,306.47 €</b>
	AF	2,368.64 €	<i>2,715.51 €</i>	881.10 €	2,354.74 €	2,740.38 €	914.36 €	2,066.95 €
	BA	<b>2,073.21 €</b>	<b>1,078.46 €</b>	<b>638.27 €</b>	<b>2,107.49 €</b>	<b>1,097.31 €</b>	<b>734.88 €</b>	1,369.28 €
MOW	LH	<i>1,119.59 €</i>	1,229.90 €	1,248.76 €	1,196.20 €	1,270.57 €	1,278.12 €	1,143.11 €
	AF	959.85 €	<i>1,368.50 €</i>	1,485.73 €	974.83 €	1,406.65 €	1,576.40 €	1,213.29 €
	BA	<b>723.65 €</b>	<b>745.79 €</b>	<b>641.49 €</b>	<b>738.69 €</b>	<b>773.10 €</b>	<b>740.17 €</b>	<b>748.06 €</b>
PEK	LH	<i>2,024.11 €</i>	2,138.72 €	<b>733.85 €</b>	2,048.69 €	2,136.23 €	<b>726.61 €</b>	1,726.41 €
	AF	<b>1,666.94 €</b>	3,976.75 €	815.97 €	<b>1,692.87 €</b>	4,007.37 €	807.43 €	2,718.87 €
	BA	3,452.00 €	<b>1,333.58 €</b>	<i>1,100.15 €</i>	3,472.36 €	<b>1,270.00 €</b>	1,137.72 €	<b>1,671.19 €</b>

(Values per origin-destination (O&D) pair are averages over data collection period, cheapest airline per O&D pair in bold, direct flights in italics)



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# Conclusions

(1)

- Direct flights on average more expensive than indirect routings
- Not just a hub-premium, rather: “country premium”
  - Somewhat contrary to what was expected
- No arbitrage through “full and sequential use of flight coupon”-rule
- To some extent SPD might play a role in airline pricing

# Conclusions

(2)

- Limitations:
  - Passenger choice depends on a number of variables (including price)
  - Airline prices might be influenced by several factors: local competition, preferences, ...
  - Not a full-fledged econometric study, only suggestive
  - More routings, data and control variables needed to fully assess the issue

**Thank you very much!**

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