



Bypassing the hubs - The potential of secondary European airports in the long haul sector

Sven Maertens / DLR

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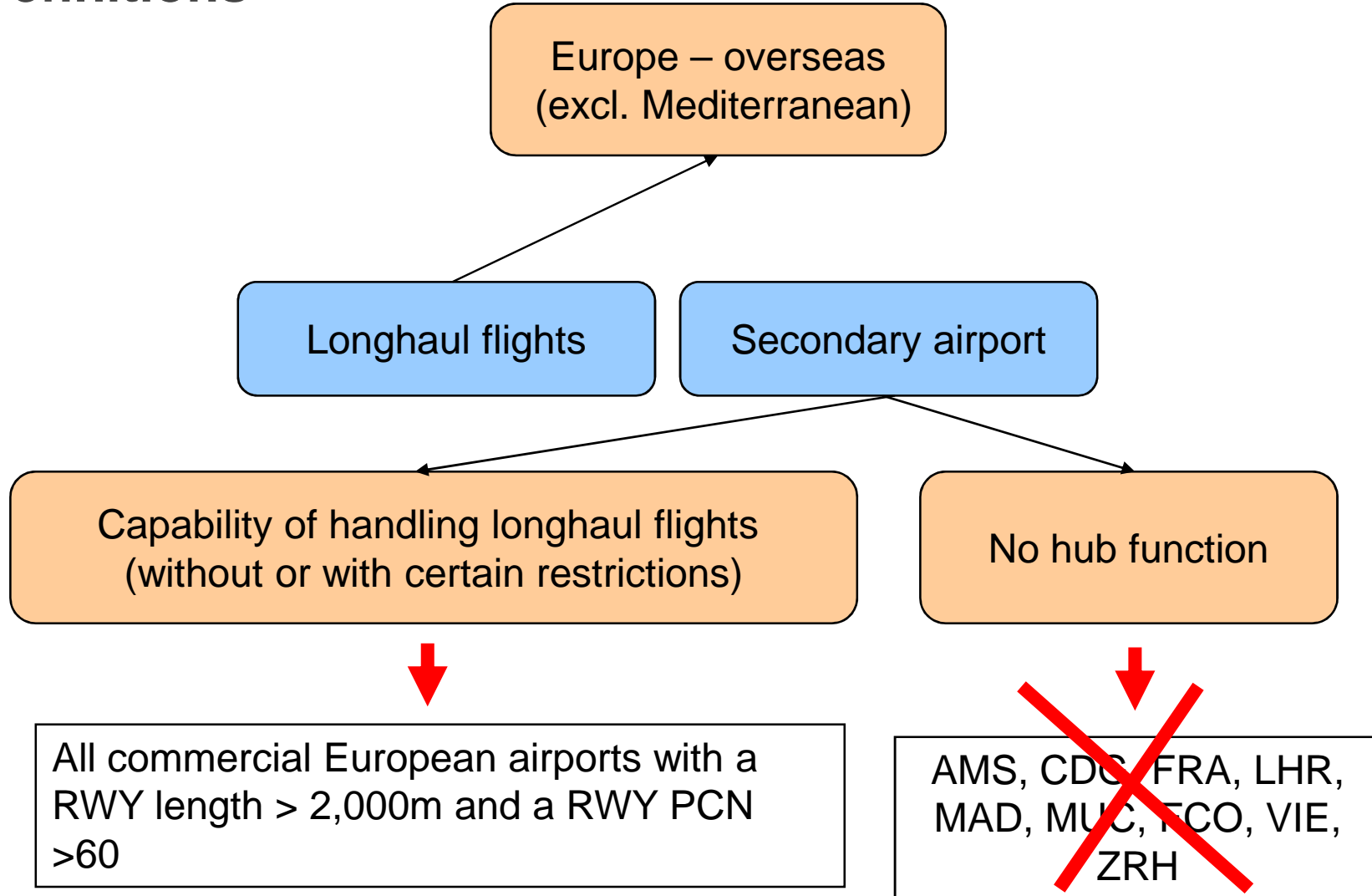


Structure

- Definitions
- Research Background & Question
- Factors influencing airport choice on long haul flights
 - Explanation of airline route and network choice
 - Possible factors on long haul flight supply at secondary airports
 - Empirical test
- Conclusion



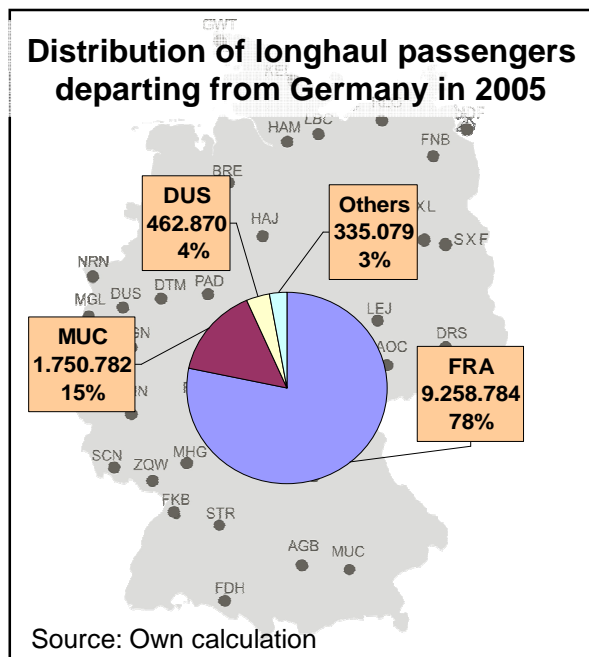
Definitions





Research Background & Question

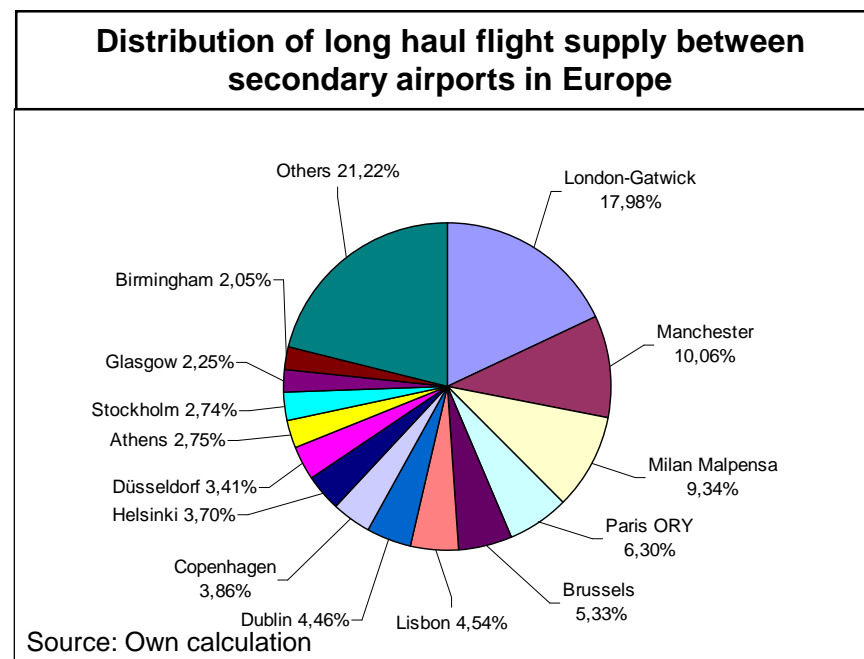
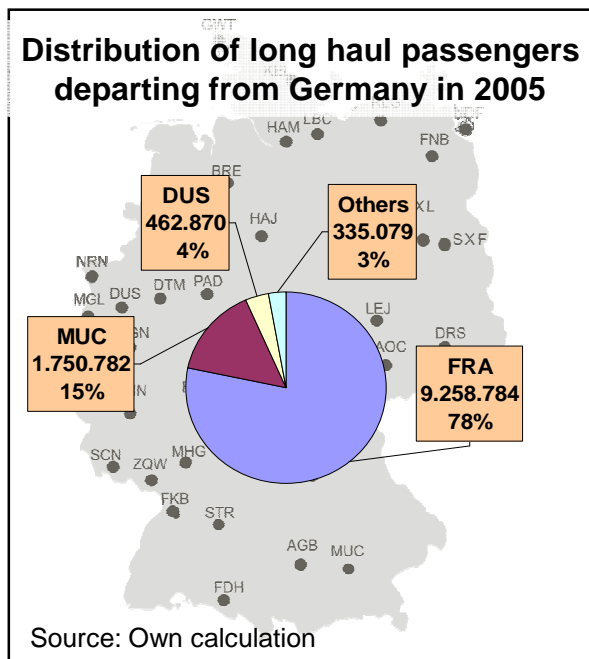
- Long haul flights require superior airport infrastructure
 - Long runway
 - High PCN → **>115 airports in Europe have runways designed for long haul services (>2,700m)**
- Concentration of long haul flight supply at the main hubs and at larger secondary airports





Research Background & Question

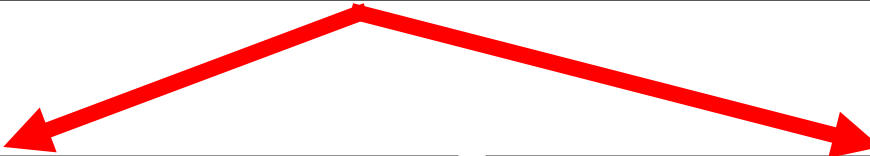
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Research Background & Question

Misallocation of airport (runway) infrastructure



Many secondary airports handle almost no long haul flights although they possess a sufficient infrastructure.

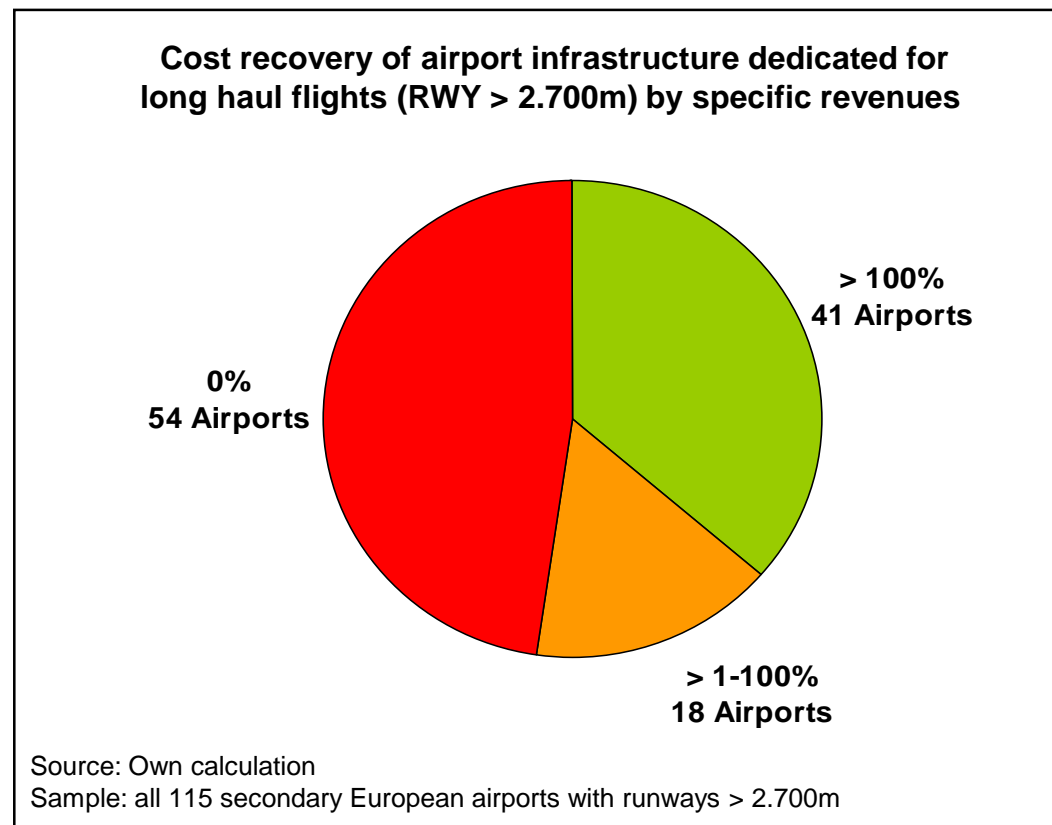
Others would possibly welcome additional long haul services if their runways were extended.

→ **What factors determine the supply of long haul flights at Europe's secondary airports?**



Research Background & Question

- Inefficient allocation of such infrastructure between secondary (non hub) airports in Europe:





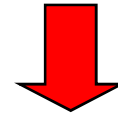
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Explanation of airline route and network choice

Network must be profitable



Which network strategies are applied in the long haul sector by different airline types?

„classic“ scheduled traffic

leisure traffic

ethnic traffic

low-cost traffic


Hub & Spoke

Point-to-Point



Explanation of airline route and network choice

Scheduled airlines: Hub-and-Spoke Networks

	Advantage	Disadvantage
Production view	<ul style="list-style-type: none"> ➤ Economies of Density Concentration of given air travel demand on a small number of flights means higher load factors ➤ Economies of Scale Larger aircraft help the airline achieve cost (per seat) degression ➤ Economies of Scope Overhead cost synergies (stations, maintenance, backup aircraft...) 	<ul style="list-style-type: none"> ➤ Higher coordination costs ➤ Lower aircraft utilization longer aircraft waiting time ➤ Congestion and delays Wave structure at hubs
Strategic view	<ul style="list-style-type: none"> ➤ Market development Large product range achieved with few flights, possibility of adding new markets with low demand ➤ Hub as entry barrier (Hub dominance) ➤ Hub premium 	<ul style="list-style-type: none"> ➤ Longer flight times detour factor ➤ Risk of selling seats at marginal cost



Explanation of airline route and network choice

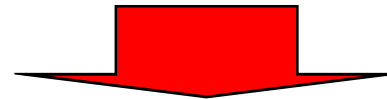
Hub-and-Spoke is a superior business model for (scheduled) longhaul carriers

In all market segments (business, VFR, holiday), long haul flight passengers are more flexible with regard to total flight time and frequency than short haul travellers.

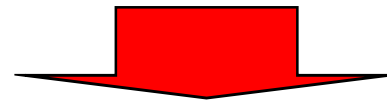
Many O&D combinations with low point-to-point demand

Long aircraft range necessary

Competition and low prices



Spatial and temporal concentration of passenger demand necessary and accepted (widebody aircraft flying from and to hubs)

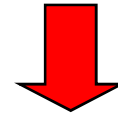


Limited prospects for long haul flights apart from the hubs (strong demand and willingness to pay, hub congestion, ...)



Explanation of airline route and network choice

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Explanation of airline route and network choice

Leisure and ethnic travel, LCC

- Sufficient local demand necessary for direct longhaul flights from secondary airports!
 - Not many longhaul destinations are typical places for package tours (Caribbean, Florida, Maldives, Thailand...)
 - Certain demand for ethnic longhaul flights from the UK (Africa, Pakistan, India) and France (Africa)
- The low cost model is not really compatible with longhaul air traffic because of a different cost structure





Possible factors on long haul flight supply at secondary airports

Classification of potential factors on long haul flights (the airport's perspective)

Airport-related factors (Marketing-Mix)				Non airport-related factors	Degree of external influence
Price	Promotion	Product	Place		
Airport charges Incentives (discounts, rebates)	Public relations Market research Airline marketing				Low
		Infrastructure Operational restrictions	Access		Medium
				Catchment area Competition by hubs Bilaterals	high

Source: Own production.



Empirical test of the identified factors

Conduction of multiple regression (OLS) analyses

- Sample size: $n = 224$ secondary airports in Europe
- Dependent variable: capacity (MTOW) offered on direct passenger long haul flights from European secondary airports in 2007
 - OAG data
 - own collection of charter traffic
- Separate analysis for cargo traffic



Empirical test of the identified factors

Definition und quantification of the variables

Variable		Indicator
external	Airport competition	Dummy COMP (larger airport within 1 hour?)
	Hub congestion	Dummy HUBCAP
	Economic Power in the catchment area	GDP04 (total GDP of all NUTS 2/3 regions accessible within 60 min.)
	Political importance of the catchment area	Dummy CAPITAL
semi-external	Airport Infrastructure	RWYLENGTH (in m)
internal	Airport Charges and fees	Dummy LCAIRPORT
others	Airport Size (all flights)	PAX06 (passenger numbers in 2006)



Empirical test of the identified factors

Results: Passenger Traffic

- Double log models lead to best results
- Significant variables:
 - LNGDP04 (+) and CAPITAL (+)
or alternatively LNPAX06 (+) and SPAIN (-)
 - UK (+)
 - LNRWY (+)
 - COMP (-)

Empirical test of the identified factors

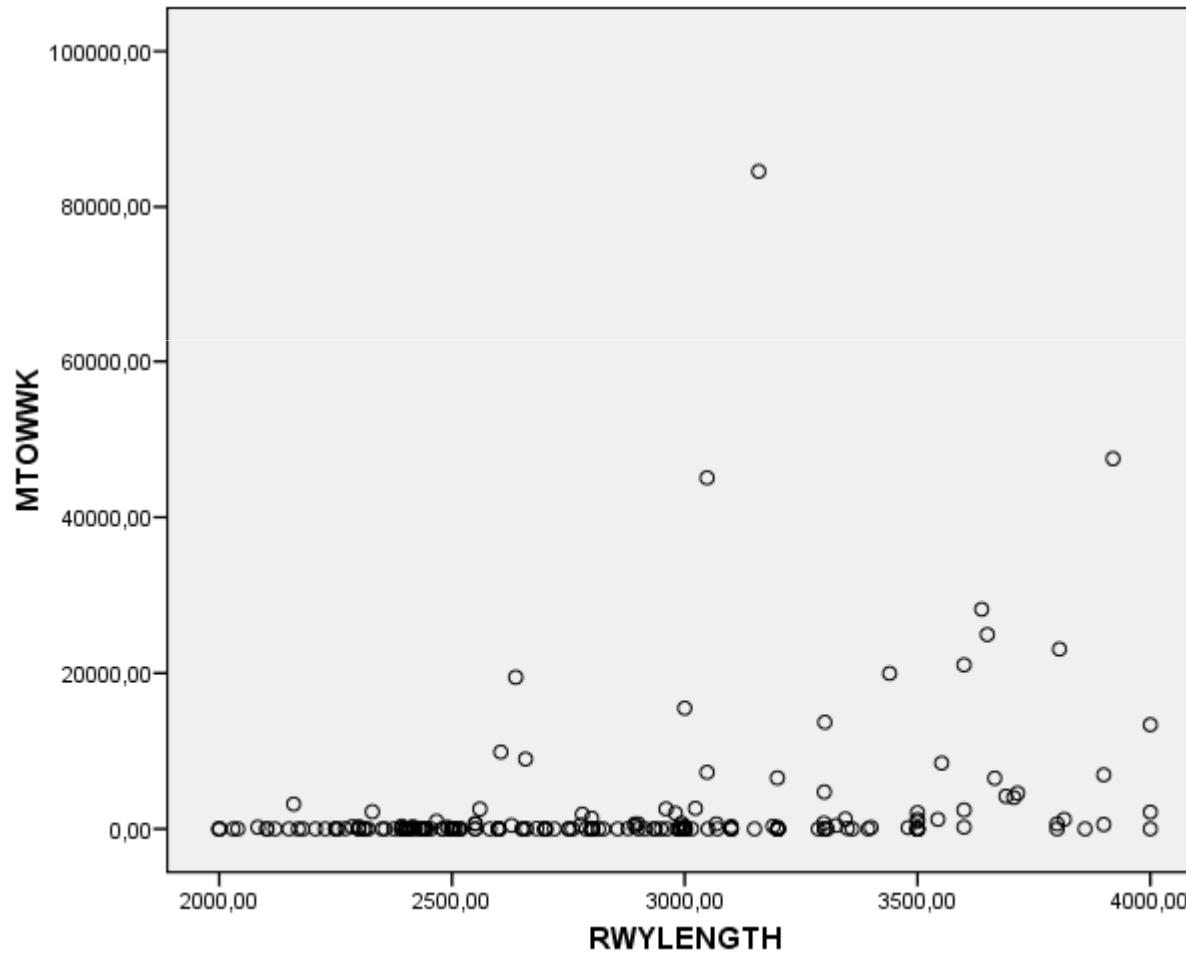
Impact of the discussed variables on direct long haul flight supply in the passenger segment (in total MTOW/week) at secondary European airports (stepwise double log OLS regression analysis)

Model	A		B	
N	224 (all secondary airports)		224 (all secondary airports)	
R ² / R ² adj.	0,636 / 0,626		0,551 / 0,541	
F-Value	63,103		53,612	
Coefficients	B	Beta	B	Beta
(constant)	-53,458***		-53,798***	
LNPA06	0,801***	0,390	n.i.	
SPAIN	-1,954***	-0,176	n.s.	
COMP	-0,952***	-0,113	-1,901***	-0,225
UK	3,299***	0,281	4,194***	0,357
LNRWY	5,596***	0,263	6,034***	0,284
LNGBI	0,403***	0,219	n.i.	
LNGDP	n.s.		0,815***	0,342
CAPITAL	n.s.		2,849***	0,274
Dependent variable: LNMTOWWK, n.s.: not significant at the 10% level, n.i.: not included in the estimation *)/**)/***) significant at the 10% / 5% / 1% level				



Empirical test of the identified factors

Long runways alone do not always yield in long haul flights





Empirical test of the identified factors

Results: Cargo Traffic

- Worse availability of timetable data
- thus no metrically scaled output variable
- Use of Logistic regression analysis
 - binary output variable “(No) long haul cargo flights”
- Significant variables:
 - Runway length (+)
 - GDP (90-minutes catchment area) (+)
 - CAPITAL (+)
- Night flight allowance not significant, but all big players in the long haul cargo market have no nightly restrictions



Conclusion

- Factors that might influence the supply of long haul flight supply at secondary airports have been discussed and empirically tested.
- Economic power, runway length and airport competition seem to have the highest influence, but runway length alone does not automatically yield in many (or any long haul services)
- Airports in the UK tend to attract long haul services easier (ethnic relations to North America and India/Pakistan?), while airports in Spain hardly receive any of such services.
- Results might be used to give recommendations to airport planners: Will a runway extension boost long haul flights at my airport? Is a runway extension (up to 3.600m) at FMO necessary? Does Berlin-BBI need two 4.000 m runways?



Thank you!