
Competition in Air Transport

Is competition possible
in the airline industry ?

N. LENOIR

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Plan of presentation

- Introduction: what can economic theory tell us ?
- I- History of competition: regulation and deregulation of the air transport markets
- II- The characteristics of competition in the air transport industry
- III- The competing actors
- IV- Conclusion: future of competition and the role of the Authorities

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Plan of presentation

- **Introduction: what can economic theory tell us ?**
 - **What is competition and why do we need it ?**
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What is competition ?

- After defining a market, we look at the number of firms (private or public) serving demand on that market
 - The definition of the market can be tricky
 - Ex of market : sodas, colas ? Are they substitutes?
- There is (some amount of) competition as long as there is more than one firm on that market
- If there is only one firm, it is called a monopoly
 - = no effective competition on that market !

Why do we need competition ?

- Competition puts pressure on firms to
 - lower their costs, increase their productivity
 - do better than others: innovate
 - lower their prices
- For customers
 - larger choice
 - lower prices
 - better products, better quality for services

Perfect competition

- A theoretical paradigm : an ideal case
 - does not really exist
- There is perfect competition in a market when there is a large number of (small) firms, and a large number of customers
 - no single firm has an influence on price
 - price emerges as a result of confronting supply of many firms and demand from many customers
- Competition drives prices down to marginal cost
- Social welfare (sum of consumers and producers surpluses) is maximized

No competition : the monopoly

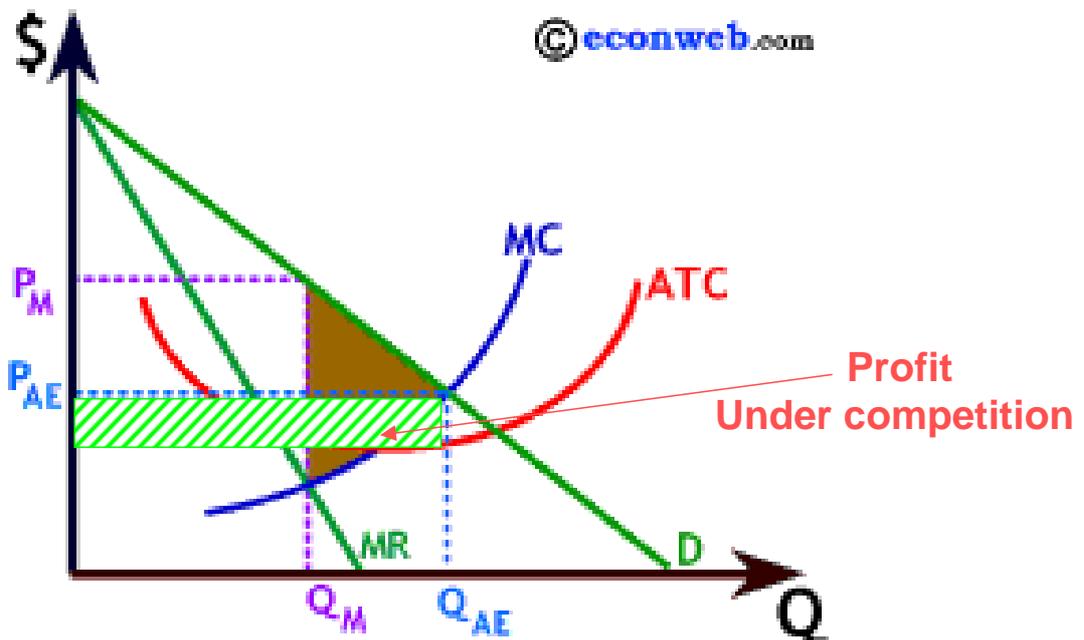
- Higher prices than under perfect competition
 - Price chosen by monopolist to maximize profit
 - Monopolist can price above marginal cost without losing its clients
- Lower output than under perfect competition
 - Since price is higher, demand is lower !
 - Some potential customer are priced out of the market
- Insufficient incentives to lower costs and innovate
 - Unless there is a strong “potential” competition

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Monopoly pricing

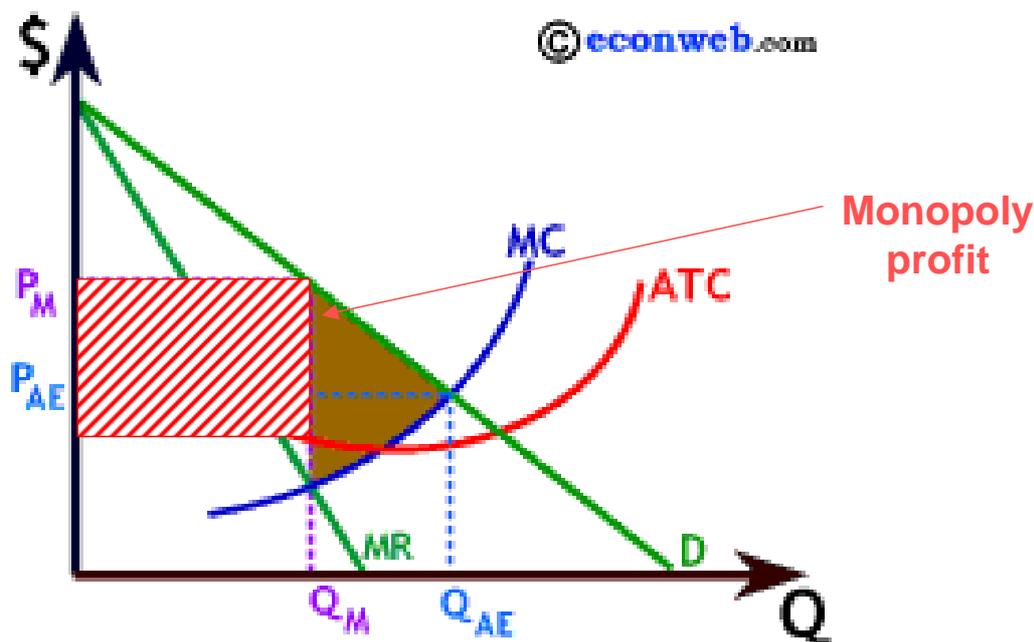


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Monopoly pricing



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Imperfect competition

- Closer to reality
- Often the number of firms on a market is small
 - Oligopoly (a few firms)
 - Each firm has some price fixing power
 - Firms engage in strategic behaviors and interactions with each others
- It can lead to higher prices on the market or on the contrary to predatory pricing
 - To drive competitor(s) out of the market

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Imperfect competition better than no competition ?

- In the short run better some competition than none
 - lower costs, lower prices, more choice
- In the long run problems of dynamics
 - destructive competition can lead to no competition at all
 - markets tend to concentrate
- Finally the problem is to maintain some competition
 - possibility of regulating the markets to some amount

Competition in the airline industry : broad features

- The airline industry is an oligopoly
 - Potential problems as in all oligopolistic markets
- It has a complex competition structure
 - What is a market ?
 - Different types of airlines
 - Different levels of competition depending on markets
- It has been largely deregulated
 - Free competition on several markets

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 - 1- the regulated period
 - 2-the deregulation years
 - 3-an evolving situation
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Part I - History of competition

Economic regulation of the air transport
market : the conditions of competition

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Part I - History of competition

- 1 - The regulated period
 - 1-1 Why was the industry regulated ?
 - 1-2 International traffic
 - 1-3 The domestic US market
- 2 - The deregulation years
 - 2-1 The US deregulation
 - 2-2 International traffic
 - 2-3 The European single market
- 3 - An evolving situation

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1- The regulated period : a historically regulated industry

- Domestic traffic in the USA regulated until 1978
- European “Domestic” traffic liberalized between 1987 and 1997
- International traffic still regulated by bilateral agreements between countries
 - limited competition : some freedom in prices and frequencies but limitations in numbers of airlines
- In most cases regulation meant practically no competition

1-1 Why was the industry regulated?

- Different reasons for international and domestic traffic
- International traffic :
 - Geopolitical reasons (context of international tensions)
 - Protection of national airlines and national economies
- Domestic traffic :
 - Economic justifications
- For both : safety preoccupations

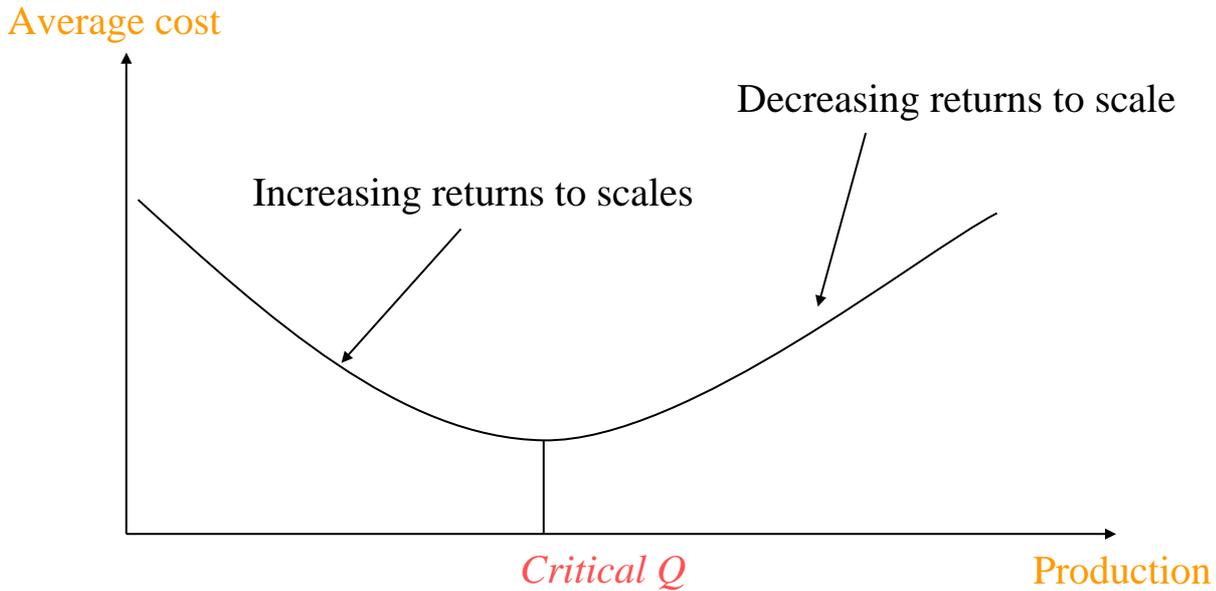
Economic justifications

- Context : a new and fragile industry
 - beginning of commercial airlines (1920)
 - many bankruptcies (great depression 1929)
 - subventions given to many airlines
- Market failures in the air transport industry
 - increasing returns to scale and natural monopoly
 - imperfect and destructive competition
- Development of global national networks
 - system of cross subsidies

Returns to scale (1) : size matters

- There are increasing returns to scale in an industry if the average production costs (or unit costs) decrease when production increases
- In other words:
- “bigger is better”, or “size matters”

Returns to scale (2)



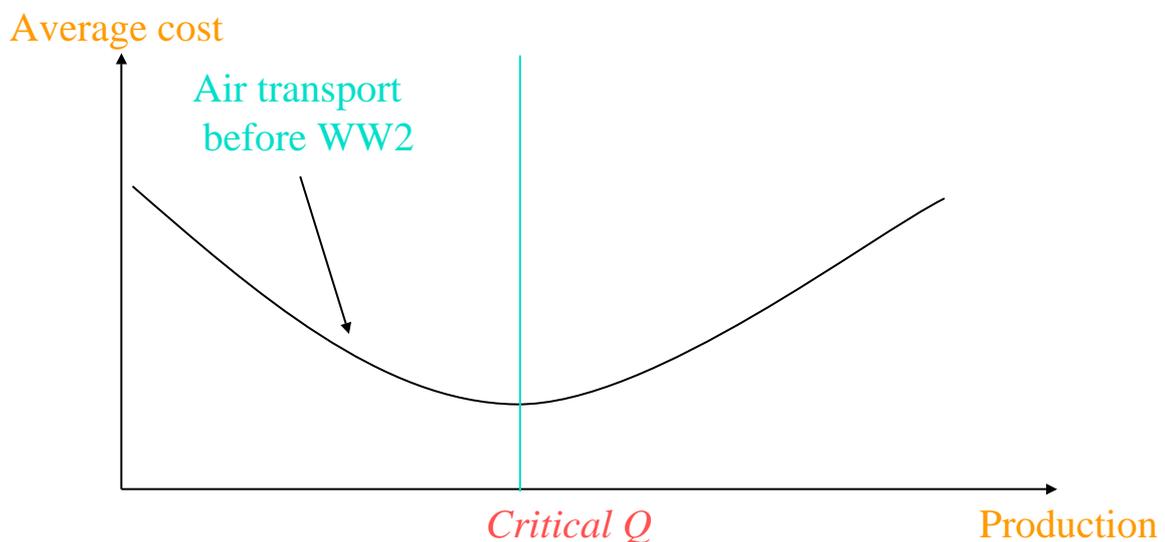
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Returns to scale (3)

- Most “young” industries are in the first part of the curve



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Natural monopoly

- An industry where firms have increasing returns to scale is called a natural monopoly
 - larger firms absorb smaller ones or lead them to bankruptcy
 - at the end of this process, there remains one large firm in monopoly situation
- At the beginnings of air transport the airline industry was seen as a natural monopoly
 - Strong justification for regulation

Imperfect competition

- Even if not a natural monopoly, air transport is clearly not a perfectly competitive industry
 - not a large number of price-taking airlines
- Properties of perfectly competitive markets do not apply to air transport
 - in particular, prices set to marginal costs, and market efficiency
 - oligopolistic competition : strategic games between airlines, leading potentially to destructive outcome
- Today it does not lead to regulation automatically

Global networks and cross subsidies

- In a global network, some routes are more profitable than others
- One means of developing such a global network is to use cross-subsidies :
 - use profits from profitable routes to subsidize non profitable ones
 - possible only if there is no price competition on routes, when airline is in monopoly situation on the network or when prices are regulated
- Is regulation the best way to build a global network

1-2 International traffic

- 1918-1939 : the era of absolute national sovereignty
- 1944-1978 : the era of regulation : the Chicago-Bermudas organization
- 1978 ... : gradual liberalization of international relations

The era of absolute national sovereignty (1918 – 1939)

- Paris conference in 1919 : principle of national sovereignty
 - airspace above a country belongs to that country
- International relations based on reciprocity
 - much haggling (commercial bargaining)
 - much distrust and political considerations
 - little efficiency
- System not favorable to the development of international trade

The era of regulation : 1939-1978

- The Chicago conference (November 1944)
 - Creation of ICAO
 - Definition of air freedoms
 - Framework of bilateral agreements
- The IATA organization and the price fixing conferences
 - International air transport association created in 1945
- The bilateral agreements :
 - The UK-US agreement “Bermuda” in 1946
 - How it worked until 1978

The Chicago conference : conflicting positions

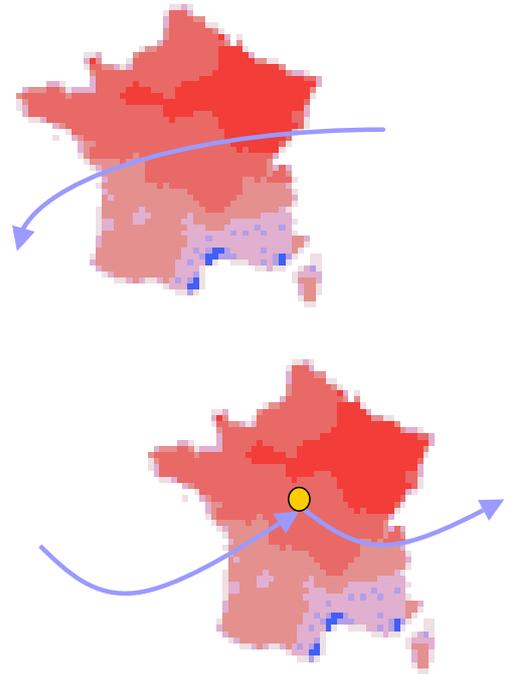
- The USA proposes a bilateral framework for negotiations
 - in a liberal context (prices, frequencies...)
- The UK proposes a world authority to allocate traffic rights and manage all regulations
 - economic regulation (prices, frequencies...)
 - other areas (security, standards...)
- The choice is of a bilateral framework
 - with possibilities of regulating prices and capacities

The results of the Chicago conference

- Creation of ICAO
 - world authority, establishing standards in terms of transport, security, air traffic control...
 - no powers of economic regulation
- Definition of “freedoms of the air”
 - “exhaustive” list of what kind of routes an airline can do
 - definition of 5 “freedoms”
- Framework of bilateral agreements

The technical freedoms

- First freedom : right to fly over a territory
 - The British carrier BA overflies France
- Second freedom : right to make technical stops in a foreign country
 - BA stops in France without taking passengers



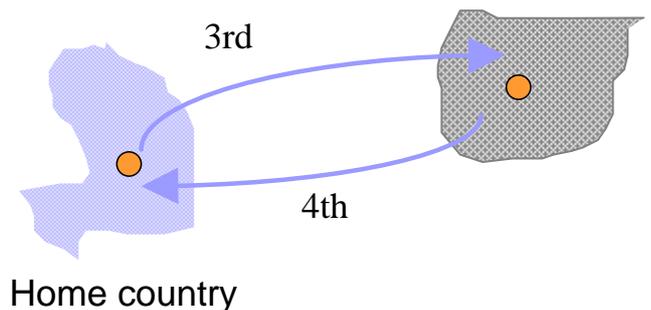
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The commercial air freedoms

- 3rd freedom : right to disembark passengers in a foreign country when coming from home state
 - Air China flying from Beijing to Tokyo (3rd), and taking passengers in Tokyo back to China (4th)
- 4th freedom : right to embark passengers in a foreign country and take them to home country



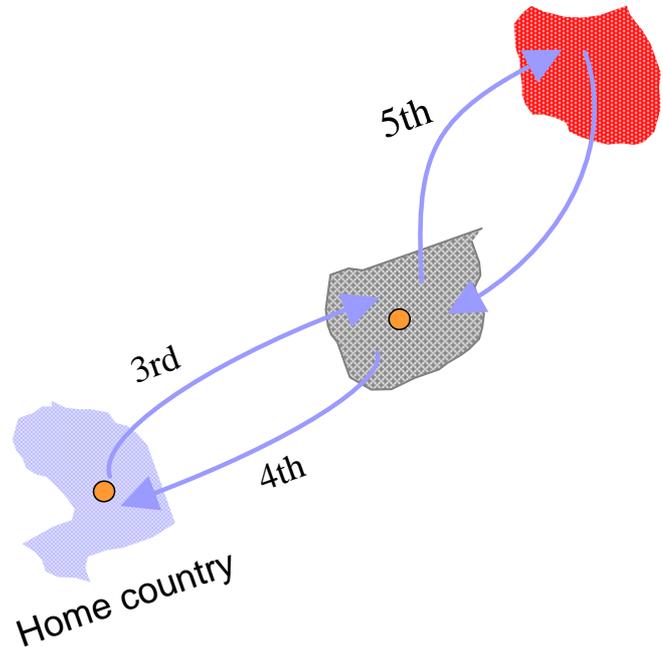
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The commercial air freedoms

- 5th freedom : Continue service of 3rd or 4th freedom to third country.
 - Air China flying from Beijing to Tokyo and then on to Los Angeles and taking passengers in Tokyo



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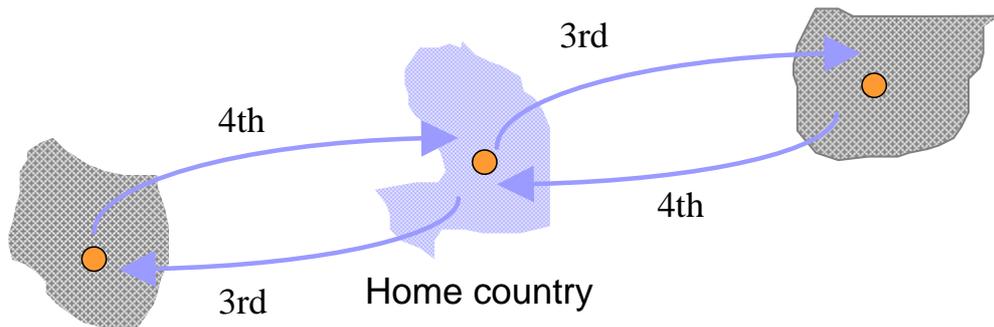


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The additional freedoms

- 6th freedom*: combine 3rd and 4th freedom rights, to open a service between two foreign countries

- Example : Air China flying from Paris to Tokyo through Beijing



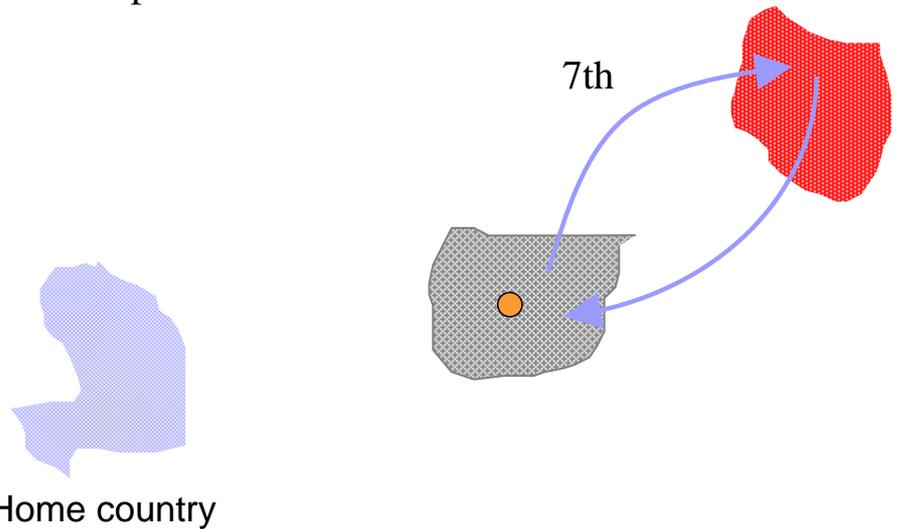
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The additional freedoms

- 7th freedom : 5th freedom without restrictions
 - Air China flying from Japan to the USA



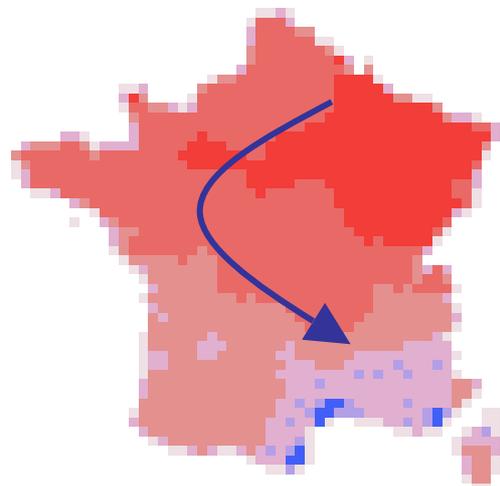
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The additional freedoms

- 8th and 9th freedom : cabotage with or without restrictions : right to fly inside a foreign country
 - British Airways flies inside France
 - Air China flies inside Japan



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The Agreements

- The Transit Agreement : 97 countries over 159 in Chicago, agree to sign this agreement to exchange technical freedoms. Many signed later on.
- The Transport Agreement : a second agreement was proposed in Chicago, to exchange commercial freedoms. It was however not signed, and never came into effect

Framework of bilateral agreements

- Routes opened between countries or points of entry
 - different outcome !
- Freedom exchanged (3-4-5)
- Designated carrier(s) for each country
 - carriers designated by name
- Capacities (fixed or not)
 - 50/50 if fixed
- Pricing rules

IATA : International Air Transport Association

- Created in 1945 as an association of airlines
- Role of IATA :
 - Organize price fixing conferences
 - Organize cooperation between airlines : interlining, pooling agreements.
- Counter-power to the governments
- Today most major airlines and others...
 - 274 members worldwide(April 2003); 89 in Europe

IATA members : North America

- Air Canada
- Alaska Airlines Inc.
- Aloha Airlines Inc.
- America West Airlines Inc.
- American Airlines Inc.
- Atlas Air, Inc.
- Continental Airlines, Inc.
- Delta Air Lines Inc
- FedEx
- Forward Air Int.
- Kitty Hawk Air Cargo, Inc.
- Laker Airways
- Northwest Airlines, Inc
- United Airlines, Inc.
- UPS
- US Airways, Inc.

The bilateral agreements

- First agreement signed between the US and the UK in 1946
 - The Bermuda I agreement
- How it worked until 1978 : principle of reciprocity
 - conflict about entry points and fifth freedom
 - mono-designation
 - equal share of capacity
 - very restrictive rule until 1978 : double approval rule
- No competition on international routes !

1-3 The domestic US market

- 1925 - 1938 : Beginnings of commercial aviation with the Air mail Act
- 1938-1978 : The era of regulation under the Civil Aeronautics Board
- 1978 ... : liberalization of domestic aviation with the “Airline Deregulation Act”

The beginnings : 1925 - 1938

- Air Mail Act signed in 1925
 - Postal service entrusted to private carriers
 - Generous contracts from federal government : efforts to develop postal air services
- Important development of air transport even for passengers
 - In 1926, 13 airlines, 2 millions of RPKs
 - In 1930, 38 airlines, 137 millions of RPKs

1934 - 1938 : Crisis years

- In 1934 federal subsidies are questioned and contracts cancelled
 - The Post Office Department (POD) and the airlines are under suspicion of “complicity”
 - The POD is accused of protecting the airlines
- The system is not economically sound
 - Airlines use subsidies for mail to transport passengers
 - Prices are linked to costs neither for post nor for passengers
 - bankruptcies and incidents are multiplying

1938 : A global regulation (1)

- Aim:
 - promote development of air transport : air transport seems particularly promising in a large territory like the USA
 - protect the industry from bankruptcy and the public against abusive prices
- Tool: government agency regulating the market
 - as exists in other transport industries (railroads, 1887, roads : “motor carrier act” 1935)
 - In the USA public services regulation began with transport modes

1938 : A global regulation (2)

- Why use regulation of the market?
 - there seems to be economies of scales : no competition possible
 - Fragile industry: protection from destructive competition
 - the objective is to develop a small number of large airlines and a global US network covering as many cities as possible
- How to do it :
 - by protecting airlines from competition,
 - by subsidizing them
 - by promoting cross subsidies

1938 : The civil Aeronautics Act

- Creation of CAB : Civil Aeronautics Board
 - Federal agency (at first Civil Aeronautics Authority)
- CAB regulates all economic aspects of air transport
 - Entry on the market: certification of trunks, locals
 - Traffic rights on each route
 - Tariffs
 - Agreements and mergers between airlines
 - Subsidies for small routes
- After 1940, the CAB regulates also safety aspects

The policies of CAB (1)

- Allow very little or no entry on the markets
 - by certification of airlines : certification of trunk airlines in 1938 (19 trunks), no certifications of trunks thereafter. Certification of local airlines(23 locals) in 1940
- Allow little or no competition on routes
 - by restricting routes to one or two airlines (depending on traffic)
 - by forbidding price competition : CAB regulates prices
 - but no control over frequencies or capacities

The policies of CAB (2)

- Regulates mergers
 - prevents bankruptcies by allowing some mergers
 - try to prevent monopolization of markets by preventing others
- Subsidizes small routes
 - in 1938 subsidies are one third of revenues for airlines
 - later CAB encourages cross-subsidies (by authorizing high prices on profitable routes) : after 1959 no subsidies for trunks
 - until 1978 still some subsidies for small routes

The effects of regulation : the US air transport system

- Important development of traffic
 - x 300 between 1938 and 1978
- Services to medium sized markets
 - Thanks to CAB subsidies and cross subsidies
 - the longest routes subsidize the shortest in the sixties (CAB study)
- Development of large (profitable) airlines
 - 11 trunks in 1978 dealing with all continental traffic, 13 locals, many smaller airlines (the commuters)
- Safe activity

The effects of regulation : the perverse effects

- No price competition, but frequency competition
 - too many flights, bad load factors (50% in 1976)
 - high costs (flying empty costs the same as flying full !)
 - high tariffs (airlines asked CAB for higher prices)
- Airlines are too well protected :
 - no incentives to reduce costs : at the end of the seventies, the trunks are called “the dinosaurs”
- The public is faced with too high prices
 - air transport still largely reserved to business travelers

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2 - The deregulation years : from 1978 until today

- Domestic traffic in the USA deregulated in 1978
- International agreements evolve towards more competition since 1978 between the USA and the rest of the world
 - gradually more price freedom since 1978
 - new “open skies” agreements proposed since 1992
- European “Domestic” traffic liberalized between 1987 and 1997
 - a largely free European market

2-1 The US deregulation

- Context and objectives
- The Airline Deregulation Act
- What happened ?
 - Market structure
 - Networks
 - Prices
 - Airlines
- The results

The US deregulation: the context

■ Politic context

- Liberal policies: The motto is “Markets do better than the government”
- Many deregulations to come in all sectors of the economy (the Reagan era :1980-1988)

■ Economic context

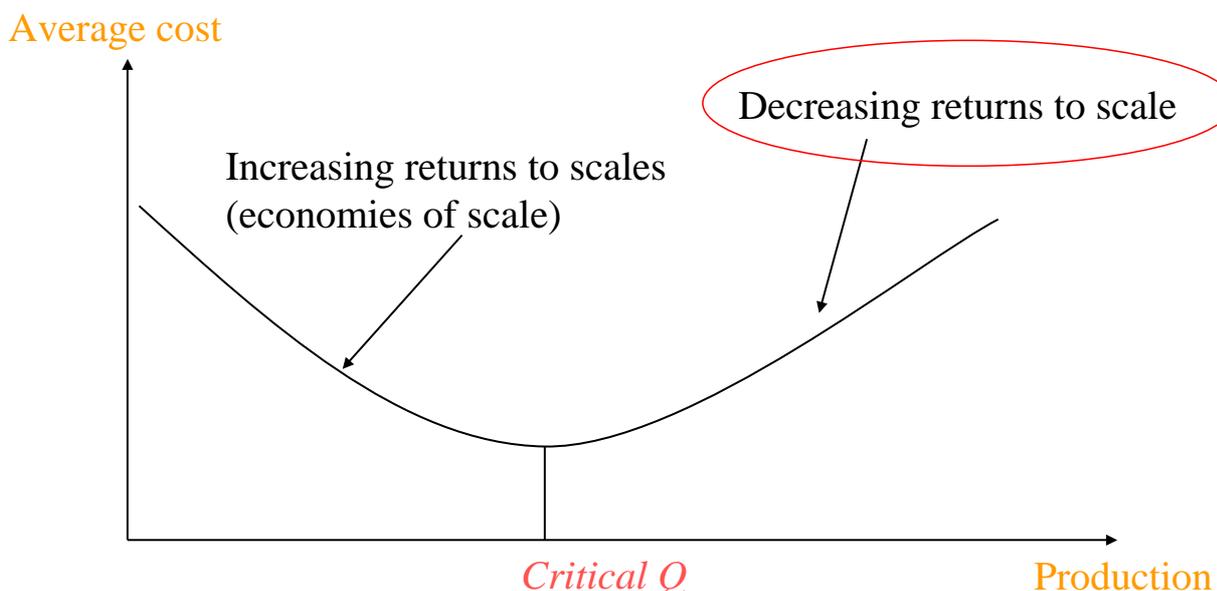
- Profitable industry (very few subsidized routes)
- Large (and inefficient) airlines
- Potential oligopolistic competition
- Skepticism about economies of scales : size does not matter ! (from the point of view of costs)

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Returns to scale (again)



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The objectives of the US deregulation

- The first step is to introduce more competition by deregulating
- Competitive pressure will then give airlines incentives to lower their costs
- More competition and lower costs should result in lower prices and better services
- Lower prices will then lead to a faster development of traffic and a higher social welfare
 - more people will have access to air transport

The Airline Deregulation Act (Oct. 1978)

- After a short transitory period, the market become «free» for all airlines (old and new) to access and serve
- Access to the market
- Traffic rights (after 3 years)
- Prices (after 4 years)
- Mergers and agreements ruled by the Department of Justice (DOJ)
- Subsidies allocated by auctions (Essential Air Services)

What happened ?

- Difficult to really know the pure effects of deregulation!
 - The industry would also have evolved without deregulation
 - It is very sensitive to the economic environment
- Short term and long term effects on:
 - The structure of the market
 - Networks : development of the hub and spoke system
 - Prices
 - Airlines

The structure of the market : 1978 - 1983

- The first post deregulation period is one of intense competition
 - New airlines are created (about 120)
 - Existing small airlines (commuters) enter the nation-wide market (about 80)
- Severe competition between new and old airlines
 - Price competition (price wars)
 - Aggravated by the 1981 crisis of overcapacity (oil shock)
 - In 1983 bankruptcy of Branif, ending this period

The structure of the market : 1983 - 2007

- Progressive concentration of the market
 - Bankruptcies and mergers, few new entrants
- Development of « mega carriers » with an extensive network, owning smaller subsidiaries
 - The large 1978 airlines have either disappeared (Pan Am, TWA, Eastern Airlines, Branif...)
 - Or they have turned into « mega carriers » (American Airlines, United, Delta, Continental)
- A new model of airline has been developing: the low-cost airline (following Southwest)

The US majors : from 1978 to 1998

1978		1998	
Trunks		Majors	
Airline	Market Share	Airline	Market Share
United	21,9%	Delta	17,1%
American	13,6%	United	17,0%
Eastern	12,2%	American	16,1%
Delta	11,0%	Northwest	8,2%
TWA	9,6%	USAir	7,9%
Western A.L.	5,2%	Continental	7,8%
Continental	4,6%	Southwest	6,8%
Braniff	3,9%	TWA	4,3%
National	3,6%	America West	3,4%
Northwest	2,7%	Alaska	2,2%
Pan Am	1,2%		
Total	89,4%	Total	91,0%

Domestic market shares (RPKs): from 1978 to 2003

- 11 Trunks (89,4%*)
 - 9 majors (+3 all freight airlines) (~91%)
 - 30 nationals (~9%)
 - 13 Locals (10,1%)
 - Regionals (~0.5%)
 - Commuters (0,5%)
- 2003

■ 1978

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The US market in 2007

- From the post deregulation new actors, only 2 large remain (Southwest, US Air)
- Several mega-carriers are in difficulty
- The market is more concentrated than in 1978
 - More concentration can be foreseen since the largest airlines are in difficulty (Northwest+Delta ?)
- The low-cost market is a dynamic and profitable «niche»

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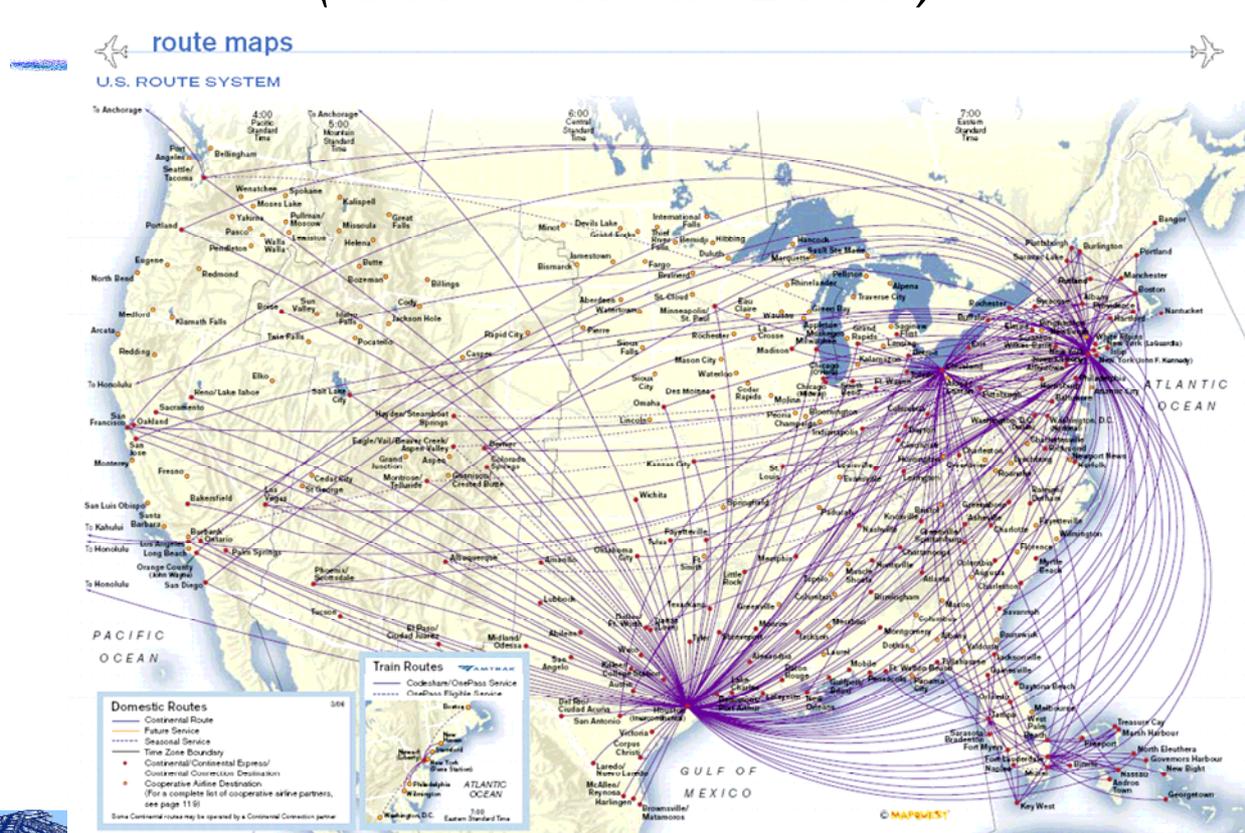
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Networks : the hub and spoke system

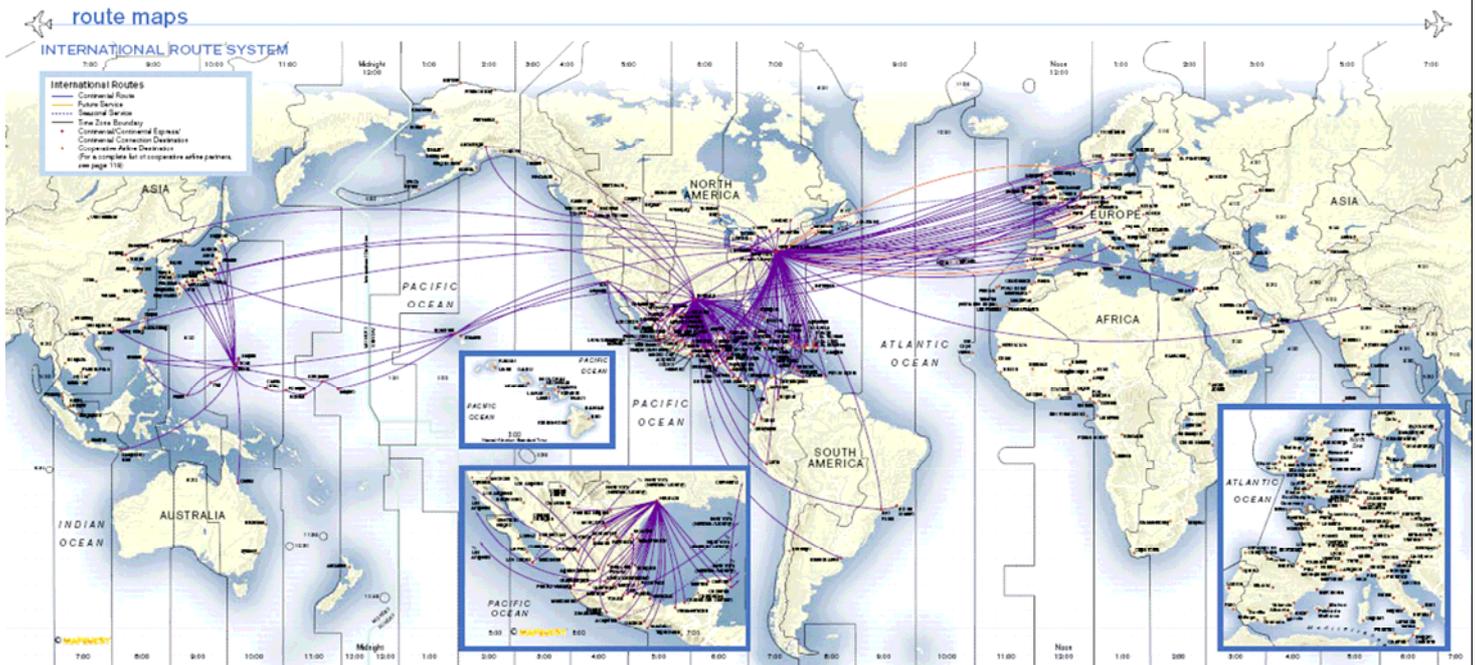
- Looking at the European airlines, the US airlines invent the hub and spoke network :
 - Network centered on a main airport : the hub,
 - With routes (nearly) all going to and from the hub
 - Their contribution is to add the idea of optimizing the connection times (banks of arrivals and departures)
- They choose hubs in un-congested airports, in large cities (Denver, Atlanta, Dallas...)
- All large airlines choose this type of network and abandon the point to point network



Hubs in practice (Continental 2005)



Hubs in practice (Continental 2005)



The effects of deregulation on prices

- Old price structure :
 - 2 prices + 2 discount prices
 - prices based on distance : $p = a \times \text{distance} + b$
- New prices :
 - several discount prices with restrictions
 - prices based on competition and revenue optimizing (development of revenue management)
 - price wars

Have prices gone down ?

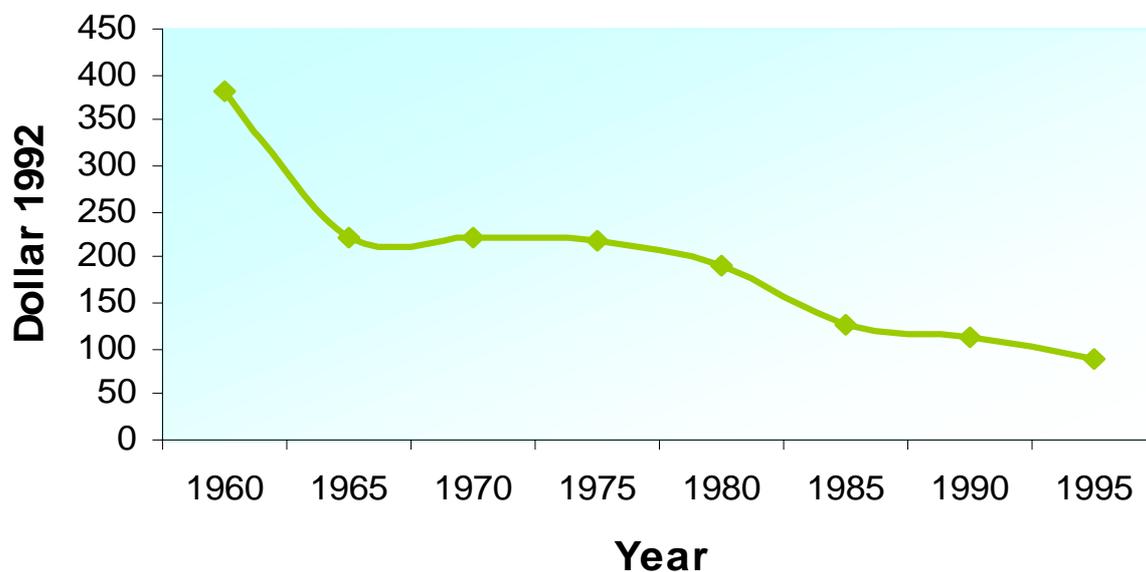
- Several conflicting effects :
- A sure decrease in prices on average
 - A study (G. William) concludes that prices are 15% lower today **than they would have been without deregulation**
- but differences due to competition level
 - Other studies (GAO) show that prices are higher (+30%) on non competitive routes

Average ticket price (1992 dollars)

1960	1965	1970	1975	1980	1985	1990	1995	1996	1997
381.7	222.2	222.6	218.7	192.8	127.4	112.6	87.1	88.6	88.0

Bureau of Transportation Statistics, 1999

Evolution of prices on the US market



The effects of deregulation on airlines

- Restructuring of existing airlines
 - costs reductions
 - productivity increases
 - fleet restructuring (hubs !)
- Development of new management and commercial tools :
 - Computerized reservation systems (CRS)
 - Frequent Flyers Programs (FFP)
 - Revenue (or Yield) management
- New concept of airline : the low-cost airline

The results : nearly 30 years later

- Important increase of traffic
 - larger access to air transport
 - better services, lower prices
 - with the negative effect of congestion
- No safety problems
- Concentration of the market
 - unexpected result
 - oligopolies, or monopolies ?
- But competition from “low cost” airlines

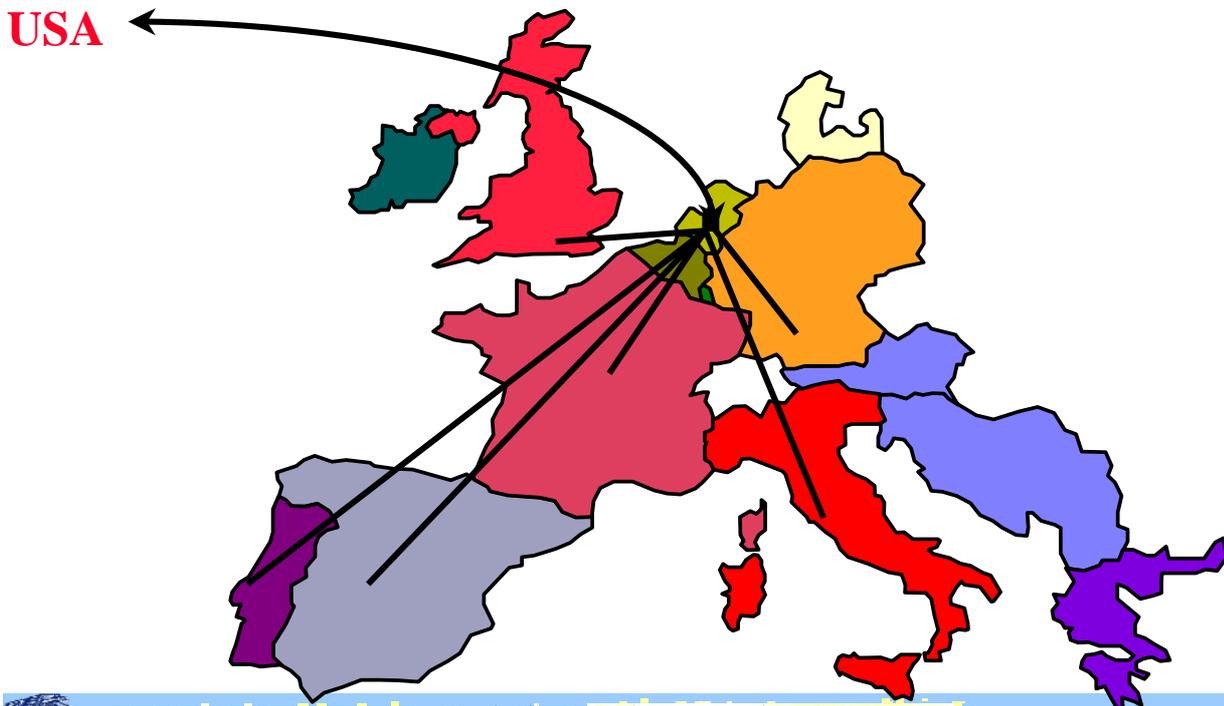
2-2 Deregulation of International traffic

- Trend initiated by the USA
 - liberal context
 - “bad” re-negotiation of the Bermuda agreement (Bermuda II, 1977)
 - domestic deregulation in 1978
- The USA will try to impose more competition between airlines in all their bilateral agreements
 - they think that competition is better for everybody
 - but especially for the US airlines

Re-negotiation of bilateral agreements 1978 -1985

- Agreement in 1978 between The USA and the Netherlands
 - Double disapproval rule : free prices (or nearly free)
 - In exchange for the Netherlands cooperation : 2 new entry points in the USA for KLM
- The result is diversion of European traffic towards the Netherlands
 - The other European countries are obliged to renegotiate (1978 -1985)
 - Same strategy in the Pacific area (with Singapore)

The traffic diversion of 1978



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The effects of the first steps of liberalization

- Traffic growth : x3 between France and the USA between 1982 and 1994 !
 - Falls in prices
- Disappearance of charter traffic on the North Atlantic routes
- The US airlines increase their traffic shares on some markets (France, Germany, ...) but loose on others
 - overall the market is divided rather equally
- Price wars

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The North Atlantic market 1982-1993

Compagnies :	1993		1982		% croissance du trafic
	US	Europe	US	Europe	
USA/France					
Passagers (000)	2 419,6	1 176,9	675,9	666,1	168,0%
Part de marché	67,3%	32,7%	50,4%	49,6%	
USA/Royaume-Uni					
Passagers (000)	4 995,2	6 563,8	3 090,6	2 210,1	118,1%
Part de marché	43,2%	56,8%	58,3%	41,7%	
USA/Allemagne					
Passagers (000)	3 289,7	2 369,1	1 103,2	1 235,9	141,9%
Part de marché	58,1%	41,9%	47,2%	52,8%	
USA/Total					
Passagers (000)	14519,27	16867,6	6815,9	8301,5	107,6%
Part de marché	46,3%	53,7%	45,1%	54,9%	

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1991, a difficult year

- The Gulf war, and its effects on air transport:
 - higher fuel prices,
 - economic slowdown,
 - reductions in demand
- Over-capacity on the markets
 - Aircraft deliveries
 - Arrival of American, United and Delta in the main European airports
 - Leading to new price wars on the North Atlantic
- The USA want to review their bilateral agreements

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1992, the “open skies” agreements

- The USA want more competition on the markets
 - no limits on capacity
 - no restrictions on price
 - more 5th freedom rights
- They need to give something in exchange
 - entry points !
- New type of agreement “proposed” by the USA
 - same strategy as in 1978 to impose their view
 - first country to sign agreement : the Netherlands in 1992

Structure of an “open skies” agreements

- No restrictions on frequencies and capacities
- Permission to operate between all points of both countries without restrictions
- No restrictions on price
- All possible 5th freedom rights are automatically granted
- Possibility of signing code sharing agreements with US airlines
 - a compensation for the absence of cabotage rights in the USA

Open skies today

- Most European countries have signed with the USA
 - Except UK (Bermuda II)
 - but the agreements are challenged (see part II-3 on Europe)
 - New “super” open skies to come (march 2008 with Europe)
- Many Asian countries have signed
 - In some cases US airlines have more traffic rights in Asia than Asian Airlines ! (fifth freedom rights)

2-3 The European single market

- Europe before liberalization
- Steps of European liberalization
- Consequences of liberalization

Europe before liberalization

- Until the mid 80th, international traffic is ruled by (non liberalized) bilateral agreements
 - no competition : the aim is to protect the national airlines
- The canvas :
 - one airline for each country
 - capacity is shared equally (and revenues can be shared)
 - prices are fixed by IATA
 - double approval rule

The steps of the European liberalization

- 1957: Treaty of Rome
- 1986: Single European Act
- 1987: first package of European liberalization
- 1990: second package of European liberalization
- 1992: third package of European liberalization
- April 1997: end of transitory period, full effects of liberalization laws

1957 : Treaty of Rome

- Creates the European Economic Community
 - ...to promote...a harmonious and balanced development of economic activities... the raising of the standard of living and quality of life...
- The means (among others):
 - the abolition of obstacles to the free movement of goods, persons, services and capital
 - a common policy in the sphere of transport
 - a system ensuring that competition in the common market is not distorted

The first steps

- 1983 : inter-regional air services liberalized
- 1986 : single European Act
 - creation of the single European market (01/01/1993)
 - decision to include air transport in the common market
- 1986 : the “Nouvelles Frontières” ruling
 - decision of the European court of justice in favor of “Nouvelles Frontières”
 - The European commission encourages competition

The first package (1987)

- Extension of 1983 law on regional services
- Prices : 2 pricing areas
 - reduced prices : between 65 and 90% of full fare
 - very reduced price : between 45 and 65% of full fare
- Routes : Multi-designation on routes of more than 250000 passengers
- Capacity shares : from 50/50 to 60/40
- Limited 5th freedom rights
 - with restrictions: one airport is not a first category airport

The second package (1990)

- Final extension of 1983 law
 - all 3rd and 4th freedom right liberalized
- Prices : 2 pricing areas
 - reduced prices : between 80 and 94% of full fare
 - very reduced price : between 30 and 79% of full fare
- Routes : Multi-designation on routes of more than 140000 passengers
- Capacity shares : from 60/40 to 25/75
- More 5th freedom rights and limited cabotage rights

The third package (1992)

- Free prices (01/01/1996)
- Capacity shares : no limitations
- 5th and 7th freedom rights liberalized (01/01/1995)
- Cabotage liberalized (01/04/1997)
- Free access to the market for all airlines from the community
 - new legal concept

Consequences of liberalization : International traffic

- International traffic inside Europe liberalized for European airlines
 - New routes opened, new airlines operating them
- International traffic with the rest of the world not impacted much so far
 - Because of bilateral between individual countries
- But it is going to evolve :
 - In the future the European commission will negotiate new “bilaterals” for all of Europe with the rest of the world

International traffic: the case of US-EU negotiations

- Negotiations have been going on since June 2003
 - Several conflicting points
 - Agreement reached in march 2007: new agreement to come into force in march 2008
- three problems to address :
 - ✓ European Airlines have international access only from their home country
 - ± US airlines can only be owned by foreigners up to 25% (49.9% for European airlines)
 - ☹ No access to the US market for European airlines (US airlines do have a large access to the European market!)

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Consequences of liberalization : the airlines

- Restructuring of major European airlines
 - privatization of most public national airlines (except ailing ones)
 - costs reductions, search for efficiency
 - more cross-border restructuring to come...due to new bilaterals
- New entrants : the low-cost
 - Following the model designed by Southwest
 - Main ones are : Ryanair, Easyjet
 - low-cost, low fares

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Consequences of liberalization : infrastructures

- Old and new hubs
 - large hubs have been re-organized : planning of flights more efficient in order to minimize connection time
 - new hubs are appearing : medium size hubs mostly
- Traffic increase and smaller planes
 - pressure on airports and airspace
 - problem of the slot allocation on major airports : barrier to entry for competitors

Consequences of liberalization : the passenger

- More frequencies and more destinations
 - consequence of the increase in traffic
 - and of the shuttle system
 - and of the new organization of hubs
- Lowered fares
 - more competition on domestic routes
 - but most international routes are still operated by only 2 carriers
 - Fares difficult to measure (lack of statistics)

Part I - History of competition

- 1 - The regulated period
 - 1-1 Why was the industry regulated ?
 - 1-2 International traffic
 - 1-3 The domestic US market
- 2 - The deregulation years
 - 2-1 The US deregulation
 - 2-2 International traffic
 - 2-3 The European single market
- 3 - An evolving situation

3- An evolving situation today

- More and more competitive markets
 - Inside deregulated areas (US market, Europe)
 - Between those areas : North Atlantic market, US-pacific market
- At odds with an old regulatory structure which limits airlines freedom
 - The bilateral system still holds
 - Ownership restrictions : system of national airlines in a world of multinational companies because of bilateral agreements

The “old” bilateral system

- Prevents airlines from restructuring over borders, for fear of losing traffic rights
 - maintains small, unprofitable “national” airlines (Europe, Asia)
- Leads them to an alliance policy, inadequate substitute to restructuring
 - Is questioned by IATA and ICAO
 - evolutions in the years to come

Probable evolution of bilaterals

- The ownership clause could be replaced by an activity clause
 - an airline having its operations in one country (airport base, employees, management) instead of having its capital owned by nationals, would be considered as a “national airline” in bilateral agreements
 - this airline would be controlled by the country’s authorities (to prevent flags of convenience)
- This would enable cross border restructuring
 - and maintain high level of control (safety, finances...)

Summary of findings

- The desirability of competition has been long questioned in the air transport industry
 - long regulated period
- Nowadays competition exists but is still constrained on international markets
- It may evolve in the years to come towards more freedom of competition
 - Especially if bilateral system evolves

Plan of presentation

- Introduction: what can economic theory tell us ?
- I- History of competition: regulation and deregulation of the air transport markets
- **II- The characteristics of competition in the air transport industry**
 - **Networks**
 - **Anti-competitive practices**
- III- The competing actors
- IV- Conclusion: future of competition and the role of the Authorities

Part II - The characteristics of competition in the air transport industry

The complex structure of an oligopolistic network industry

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II - The characteristics of competition in the air transport industry

1 Networks : the backbone of the air transport competition conditions

- 1-1 Characteristics of networks : point to point network, the hub, examples of hubs
- 1-2 Hubs and competition : the hub specific type of competition, the matter of network size, anti-competitive effects, hubs and congestion, hubs and prices
- 2 Anti-competitive practices
- 3 Summary of findings

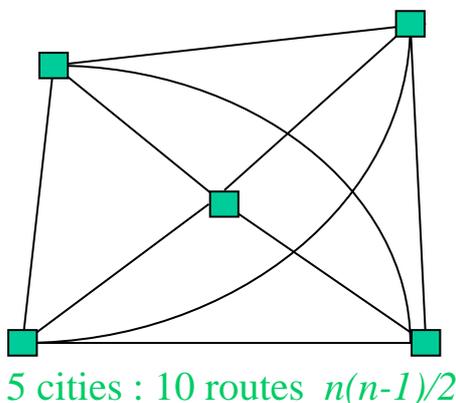
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1-1 Characteristics of air transport networks

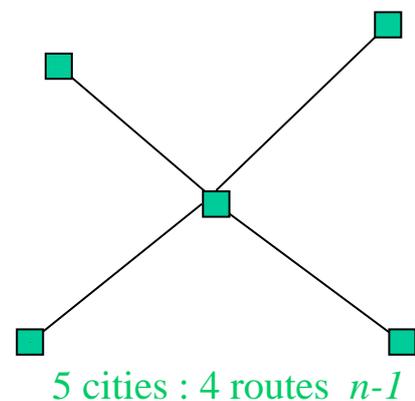
- Air transport networks are unusual :
 - In most network industries, there are high fixed network costs and a fixed network
 - In air transport networks are “easily” changed and do not imply high costs : they can adapt to demand or to competition
- There are two main models:
 - Point to point network : an old model, but with new adepts
 - Hub network : the nearly universal standard today

Networks : hubs versus point to point

Point to point network



Hub and spoke network



The point to point network

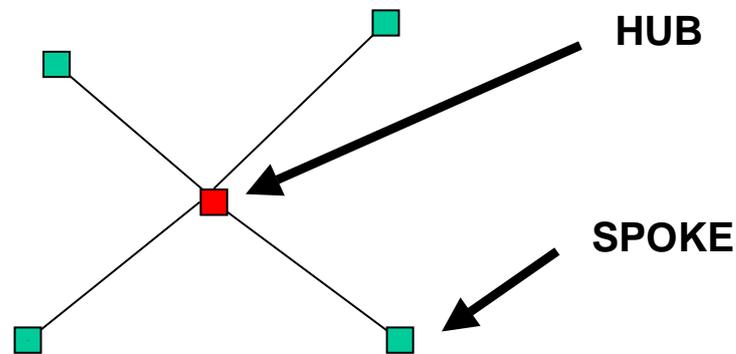
- Theoretically a network linking every city by a route to every other
 - Does not exist
- In practice, any network not centered on a center airport
 - The historic network during regulated years in the USA
 - Nowadays hard to find !
- Only low-cost airlines like southwest have a network close to a point to point network

The Hub network



CARRIAGE WHEEL

The Hub network

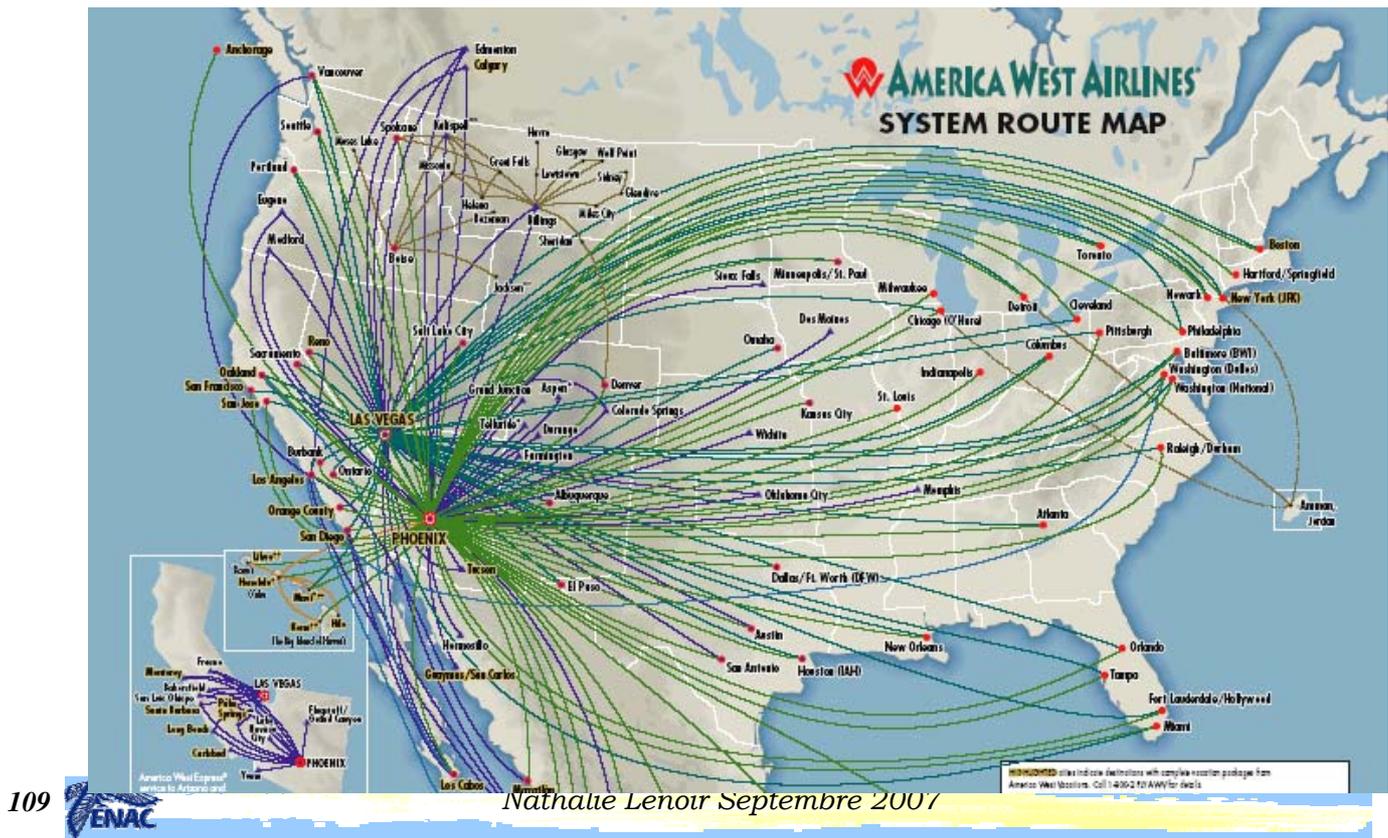


II - 1

The “Hub and spokes” network

- The predominant type of network these days
 - Historic network for European airlines
 - Adopted (and perfected) by the US airlines after deregulation
- Hub networks have many advantages
 - For hub airlines and their passengers
- But also drawbacks
 - For competitors, for airports
- The main adverse effects of the hubs are linked to competition !

The “Hub and spokes” network



The virtuous circle of the hub system

- Airlines serve routes with less planes, and with bigger planes
- Bigger planes means lower costs per passenger
- With lower prices more passengers come
- More passengers mean bigger planes, more frequencies and new routes
- Bigger planes mean lower costs...
- As a result : access for the average American to air transport !

Advantages of the hub network

- For hub airlines:
 - More destinations with less flights
 - Larger planes, lower costs, more demand
 - More control at the main airport (the hub)
- For passengers
 - More destinations, more frequencies
 - Lower prices (globally)
 - Shorter connections
- For hub airports
 - More business

Drawbacks of hubs

- For other airlines
 - Difficulty of access to hub airports
- For hub airports
 - Congestion
 - Dependence on main hub airline
- For hub airlines:
 - Cost of capacity
 - Management of connections
- For passengers
 - Less direct flights

Example of hub : AA hubs

American Airlines/American Eagle Dallas/Fort Worth Hub (As of March 2003)

Airport Name	Dallas/Fort Worth International Airport
AA Hub Established	1981
Eagle Hub Established	1984
Terminal Location	Terminals A, B, C
Terminal Size	3,756,311 square feet
Principal Traffic Flow	East/West/OMNI
Number of Gates	64 (plus 3 Eagle, and 8 Eagle boarding door)
Daily AA Jet Departures	471
Daily American Eagle Departures	229
AA Nonstop Cities Served	107
Eagle Nonstop Cities Served	37
International Routes	25
Connecting City-Pair Combinations	Over 3,000 in peak connecting complex.

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Example of hub : AA hubs (2003)

Airport Name	Chicago O'Hare International Airport
AA Hub Established	1982
Eagle Hub Established	1985
Terminal Location	Terminal 3 – Concourses G, H, K, L
Terminal Size	1.2 million square feet (688,000 leased by AA)
Principal Traffic Flow	East/West/Europe/Japan
Number of Gates	69 (26 American Eagle)
Daily AA Jet Departures	286
Daily American Eagle Departures	183
AA Nonstop Cities Served	57
Eagle Nonstop Cities Served	24
International Routes	11

A total of 469 flights

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Example of hub : Air France hub at CDG Airport (source Air France)

750 flights per day

14,936 connecting flight opportunities weekly each way

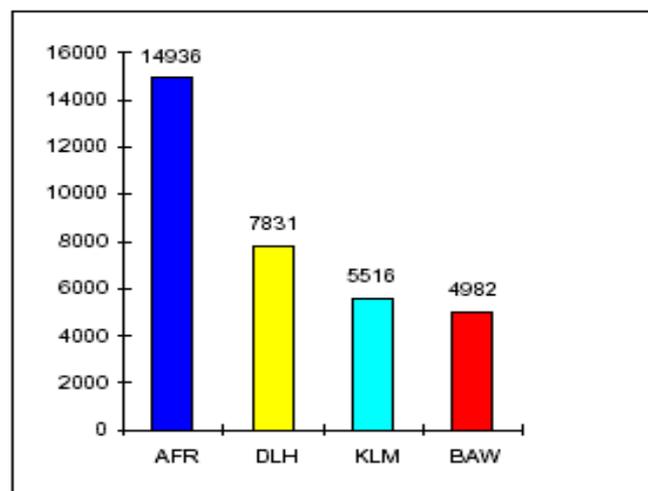
76,600 passengers per day on average (arrivals and departures)

21,000 passengers with connecting flights

27,000 items of connecting baggage

7,400 agents with complementary responsibilities

Air France Hub : Weekly connecting flights (less than 2 hours)

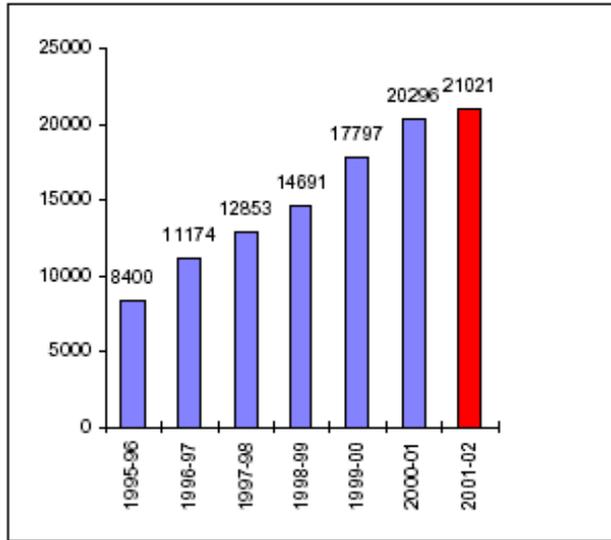


Source : Air France, 2002

AFR = Air France / CDG2
 DLH = Lufthansa / Francfort
 KLM = KLM / Amsterdam
 BAW = British Airways / Londres-Heathrow

Air France Hub : daily passengers and connecting passengers

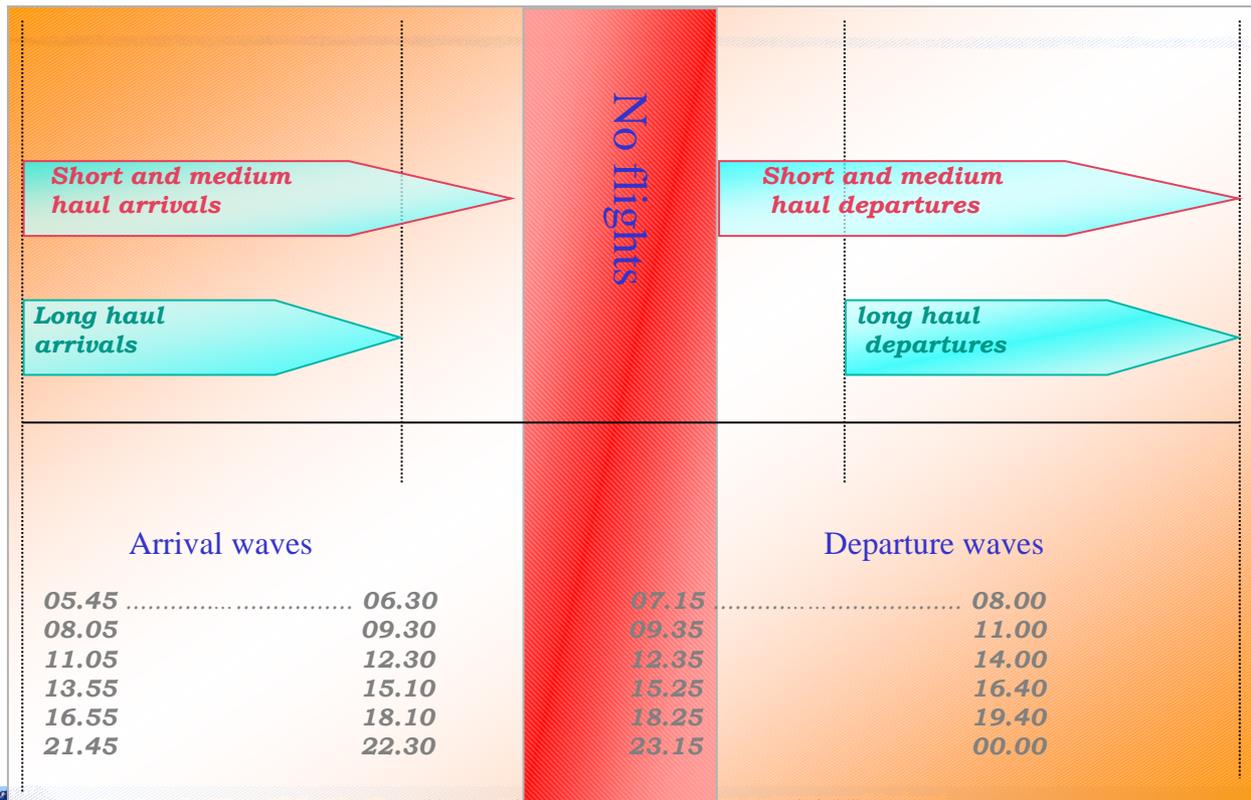
Number of connecting passengers per day (IATA year: April-March average for each year).



- 55 600 passengers (connecting passengers are counted once) :
- 21 000 connecting passengers, 38% of the total number of passengers of Air France at CDG, 58% of passengers on arriving flights
- 6 connection banks everyday

117 Source : Air France, 2002 Nathalie Lenoir Septembre 2007

Air France Hub : Connection banks

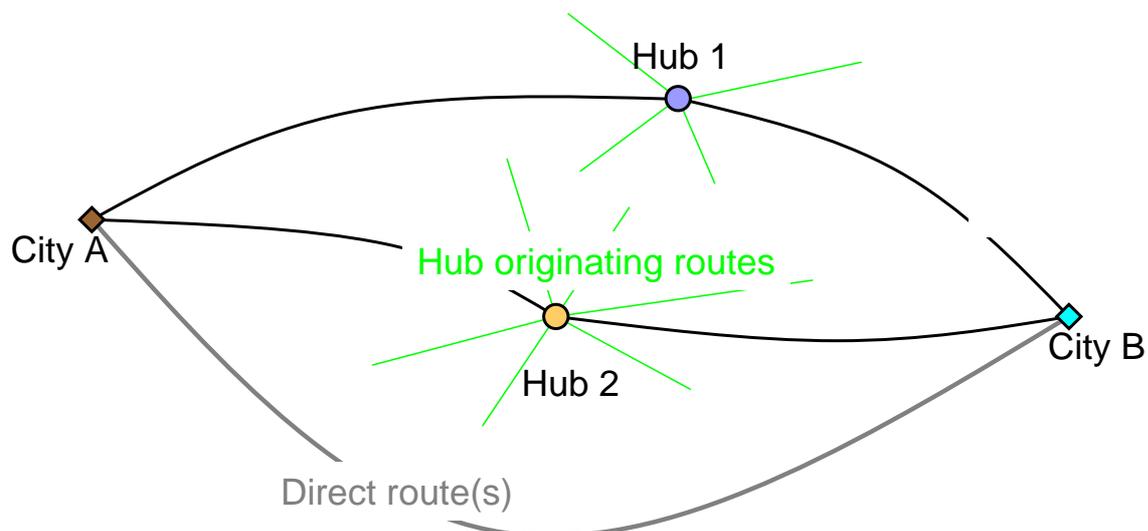


118 Source : Air France, 2002 Nathalie Lenoir Septembre 2007

1-2 Hubs and competition

- The hub network creates a very specific type of competition
 - Competition between hub airlines has to be understood as a competition between hub networks
- The hub creates some perverse effects in terms of competition
 - “fortress” effect
 - Congestion
- The result is higher fares

The hub-specific type of competition



Competition between networks : where we learn that size matters

- An extended network gives an advantage over competitors
 - the goal is to attract passengers wherever they want to go through connections at the hub

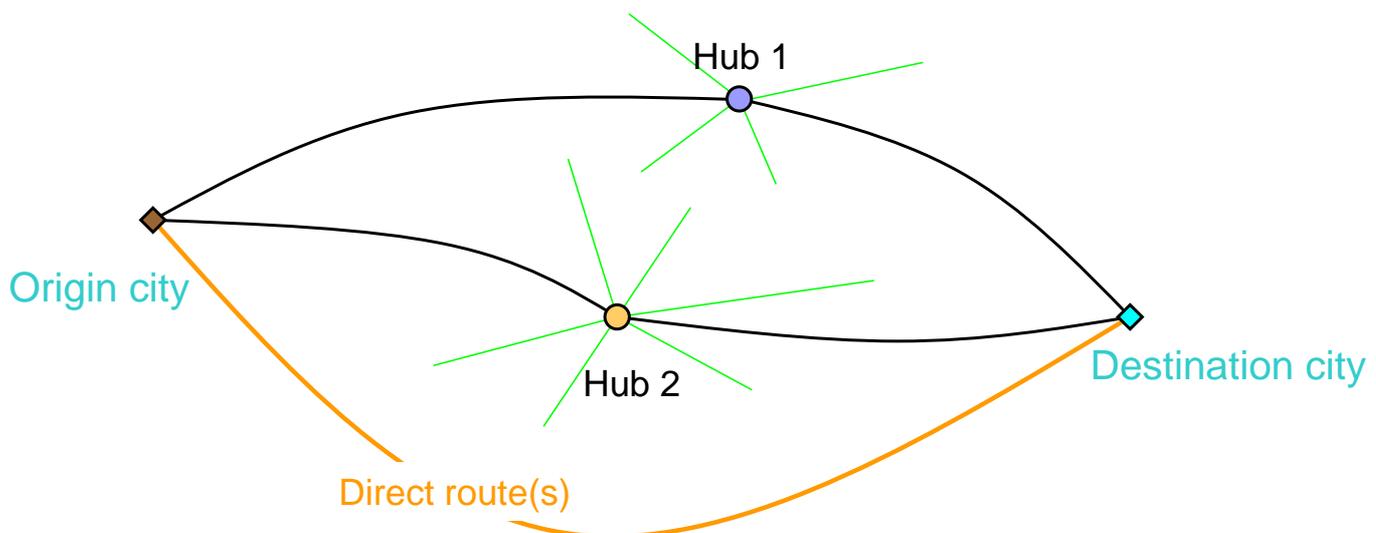
Competition between networks : where we learn that size matters

- An extended network gives an advantage over competitors
- As a result, size and coverage of network matters !
 - Airlines have understood that the more destinations, the more passengers, and the more market share !
 - Bigger size (of network) does not necessarily mean less unit costs (no economies of scale) but more revenues !
 - Airlines are trying to obtain a global world coverage through alliances between hub airlines (see part III)

Competition between networks : where we learn that size matters!

- An extended network gives an advantage over competitors
- As a result, size and coverage of network matters !
- As a consequence, in order to understand and analyze competition :
 - Looking at competition at the airport or at the route level is not sufficient (but still informative and useful)
 - We need to define the concept of origin-destination : what matters is the competition (whatever the route taken) between origin cities and destination cities

The hub-specific type of competition



Spoke-Spoke markets are competitive !

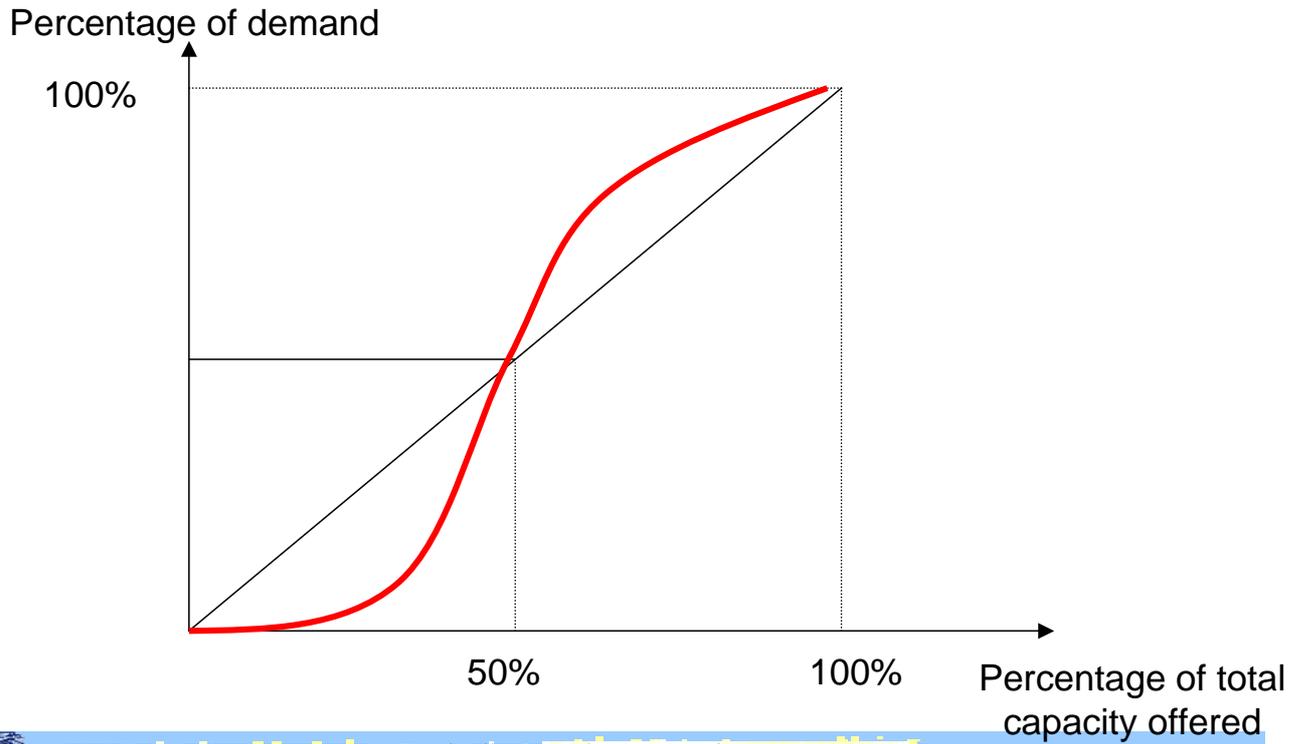
Perverse effects of the hub system

- The hubs have anti-competitive effects :
 - The fortress effects: dominant airlines make entry difficult for competitors
- The hub networks create its own congestion
 - The more routes you have, the more congestion
 - Limitations to competition: problematic access to airports
 - (Pressure on costs for airports and airlines due to the need to over-invest)
- Fortress effect and congestion create market power on routes to and from hubs

Why is there less competition at hubs : the fortress effect

- Major airlines have tried to prevent entry at their hubs (and succeeded !)
 - by using all airport capacity : no room for others
 - On most hubs the dominant airline has more than 50% of traffic, and on some, more than 75%
 - by offering many flights on each route : entrants have to match capacity in order to succeed
 - The S shaped curve
 - by leasing gates on long term contracts
 - In 1990, on 66 largest US airports, 85% of gate were rented through exclusive contracts

The S curve



Control of gates



Kansai International Airport

Control of gates

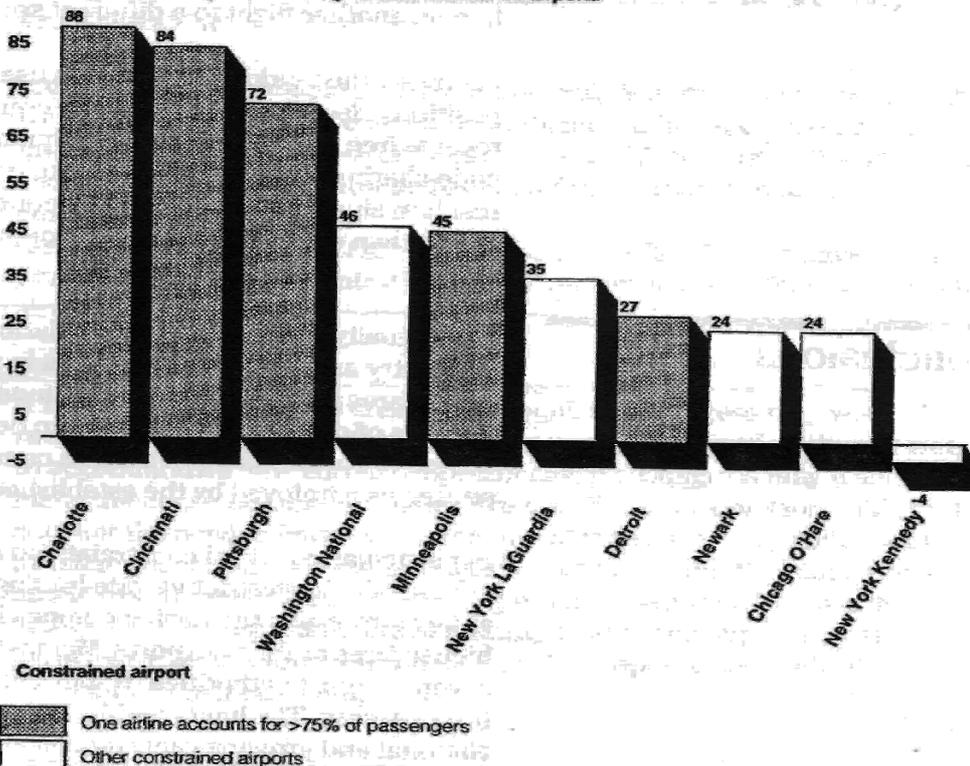
Airport	Total number of jet gates	Gates under exclusive-use leases	Major lease holder and date of lease expirations
Charlotte	48	43	34 gates leased to USAir until 2007
Cincinnati	67	67	50 gates leased to Delta with 9 leases expiring in 2015 and 41 expiring in 2023
Detroit	86	76	64 gates leased to Northwest until the end of 2008, with all but 10 under exclusive-use terms
Minneapolis	65	65	49 gates leased to Northwest with 16 leases already having expired and now on month-to-month basis, and remainder expiring at various times ranging from the end of 1997 to 2015
Newark	94	79	43 gates leased to Continental until 2013, 36 gates leased to the other established airlines until 2018, and 15 gates reserved primarily for international use
Pittsburgh	75	66	50 gates leased to USAir until 2018

Source: GAO's presentation of the airports' data.

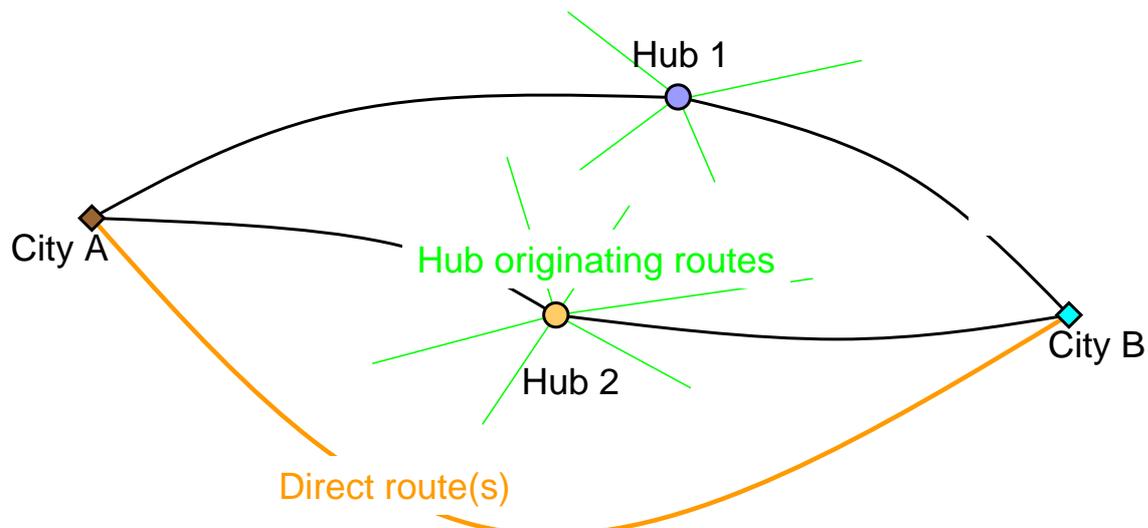


Control of gates : results on prices

Percentage that average fare was higher than at other 33 airports



Result of fortress effect



Spoke-Hub markets are much less competitive !

Hubs and congestion

- In the world, about 150 airports are constrained by capacity problems...
 - most are hubs
 - most major European, airports are concerned
- ...and many others are congested
 - most important US airports face delays
- Several factors can explain capacity shortage
 - sheer lack of space (runways, but also gates)
 - but also concentration of flights during the day at hubs

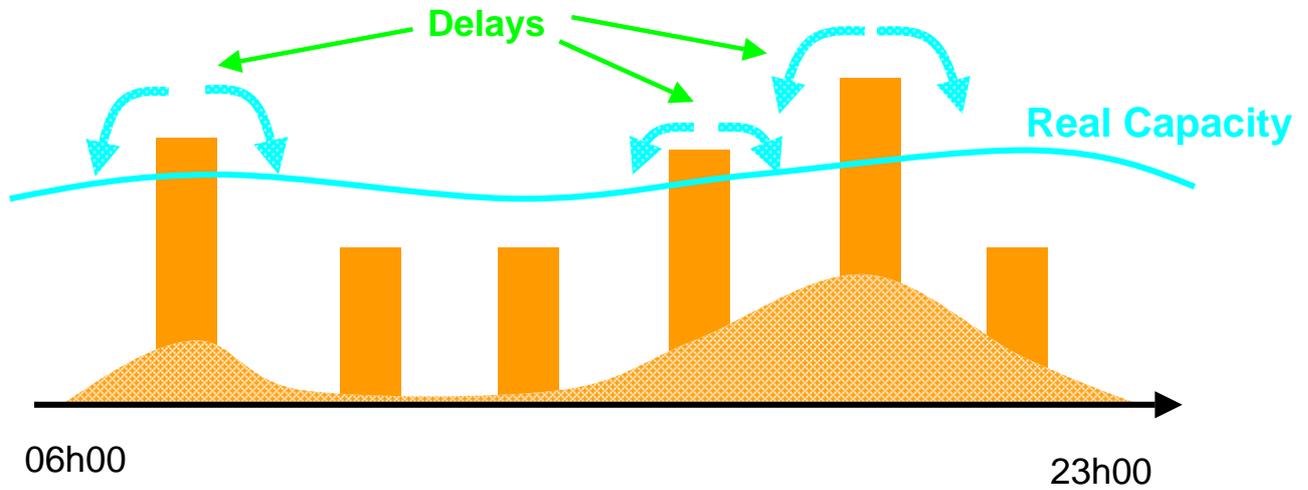
How to deal with lack of space

- Different response in the US and in Europe
 - In Europe slots are defined in order to avoid delays
 - no (or few) delays but less landings and take-offs
 - In the USA, Airlines are supposed to coordinate their schedule in order to avoid delays
 - There are delays (sometimes huge ones) but all capacity is used
 - except on a few slot controlled airports (Chicago, New York, Washington National)
- Results in different situations

The US congestion problem

- Market is mostly self regulating through delays
 - everybody suffers from delays : passengers and airlines
 - huge amounts of money are lost every year
 - hub airlines suffer from bad image
 - Some are trying to “de-peak” their traffic
- Congestion is in itself a barrier to entry on US airports
 - access theoretically possible, but in fact no room for challengers except if they use secondary non congested airports (strategy of low-cost airlines)

Peak traffic at hubs (US case)

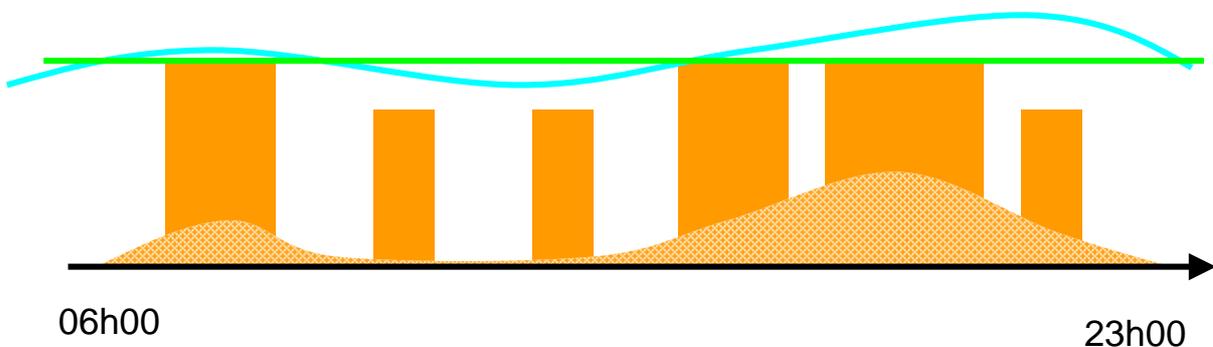


Hub airline arrival banks + other airlines traffic

Nb : real capacity is not fixed : it depends on weather, traffic homogeneity...

“De-peaking” traffic at hubs

No Delays...
(only works if one airline has large share of traffic !)



Hub airline arrival banks + other airlines traffic

— Estimated Capacity

— Real Capacity

The European congestion problem

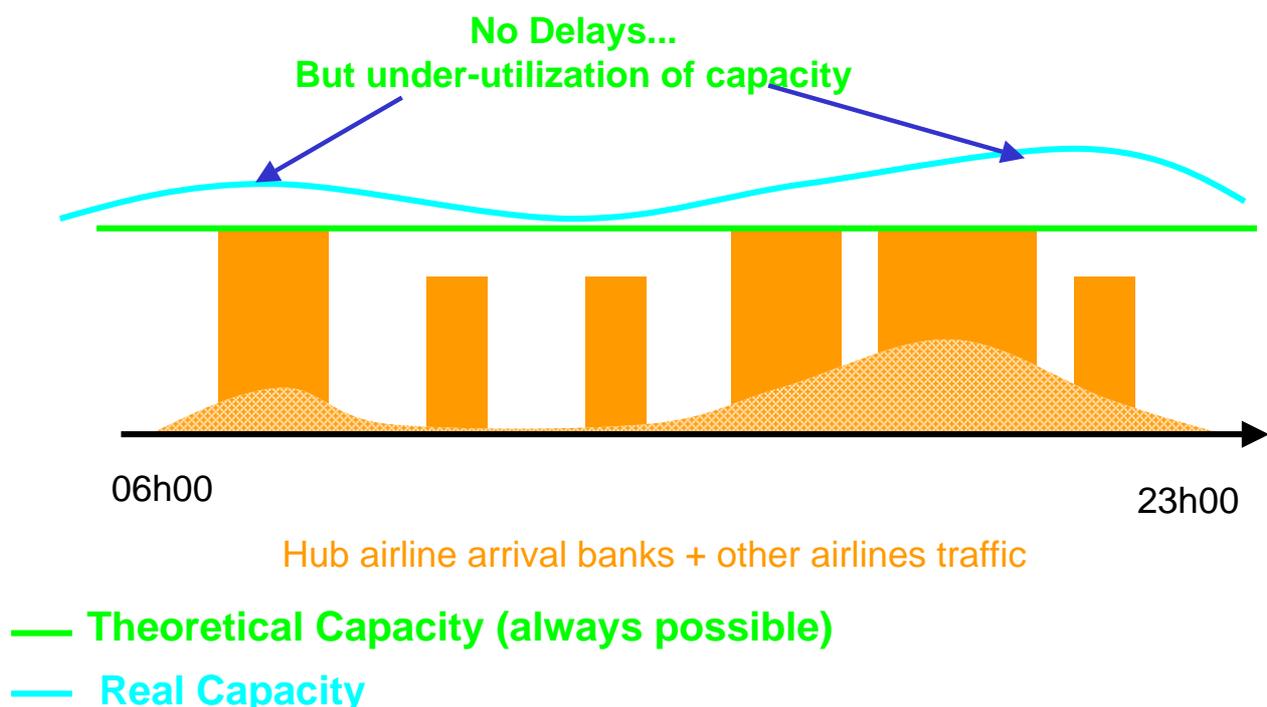
- On most major European airports, slots are allocated through historic rights
 - the “grandfather rights” system (once you get a slot, you keep it in the future, as long as you are effectively using it)
 - only non attributed slots (not many !) can be distributed to challengers
- No sufficient access possible for competitors on European main airports
 - non consistent with liberalization goal of promoting competition

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Peak traffic at hubs (European case)



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Congestion : two approaches, no solution

- Whether in Europe or in the US, no real solution
 - building infrastructures is one solution but is costly and increasingly difficult
 - it may be preferable to use secondary airports more
 - The European Commission wants to revise the slot attribution process, in order to allow more entry, but hub airlines need space, in order to set up an efficient operation
- Competition will remain limited on main hub airports in the years to come !

Hubs and market power

- Fortress effect and congestion are barriers to entry that create market power
 - definition
- Evidence of market power on routes to and from hubs
 - shown by higher prices

What is market power?

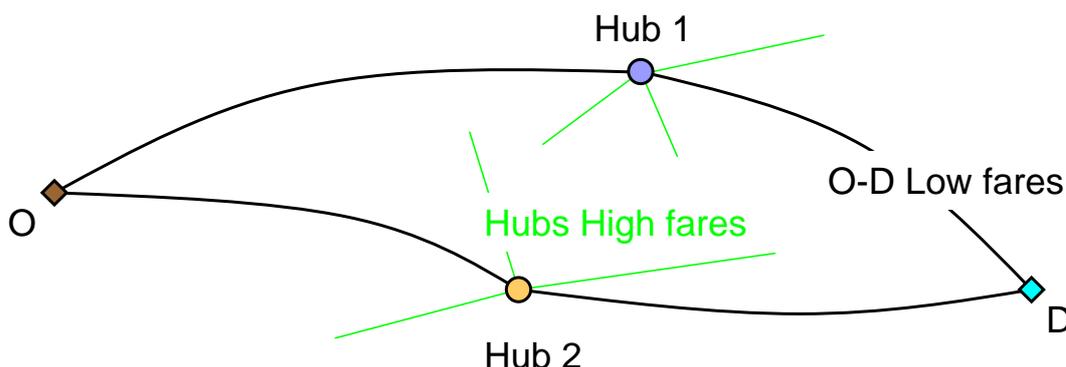
(a situation...) When one buyer or seller in a market has the ability to exert significant influence over the quantity of goods and services traded or the price at which they are sold. market power does not exist when there is perfect competition, but it does when there is a monopoly, monopsony or oligopoly.

Definition from the Economist

II - 1

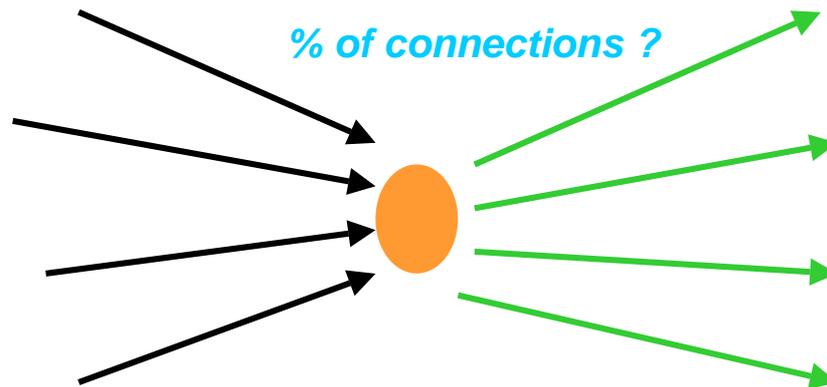
Where do we see higher airfares ?

- Competition between hubs on O-D markets
 - low fares
- Less or no competition on routes to and from hubs
 - higher fares (up to +30% !)



Competition on hubs : how to measure it?

- By definition a hub is a connecting platform
 - the degree of hubbing can be measured by the percentage of connecting traffic



Competition on hubs : how to measure it?

- By definition a hub is a connecting platform
 - the degree of hubbing can be measured by the percentage of connecting traffic
- On major US hubs competition can be measured by concentration and fares :
 - concentration is high (fortress effect) as measured by the Herfindhal index
 - airfares are higher

The Herfindhal index

- A market concentration index, called Herfindahl index, can be computed*. It is equal to the sum of the square of market shares:

$$H = \sum_{i=1}^n \alpha_i^2$$

- The higher the index (from 0 to 1), the more important the concentration on the market
 - ex: if two firms share the market 50/50, then H=0.5

*other measures exist

Table 3. Hubbing and Airport Concentration at the 30 Largest U.S. Airports

Airport	Percent Changing Planes	Airport Herfindahl	Airport Fare Premium	Rank by Size
Charlotte	75.7%	0.579	18.8%	20
Atlanta	69.0%	0.347	17.2%	3
Memphis	67.7%	0.355	27.4%	29
Dallas/Ft. Worth	65.8%	0.386	20.5%	2
Pittsburgh	62.1%	0.529	15.9%	16
Salt Lake City	61.3%	0.430	19.1%	28
St. Louis	56.2%	0.354	-4.0%	13
Chicago-O'Hare	55.7%	0.270	14.8%	1
Denver	54.1%	0.272	15.3%	7
Minneapolis	51.0%	0.418	31.5%	15
Houston-Intercontinental	49.5%	0.423	15.6%	19
New York-Kennedy	47.3%	0.202	2.9%	6
Detroit	43.6%	0.296	-0.7%	11
Baltimore	40.5%	0.299	9.1%	26
Phoenix	33.1%	0.205	-28.4%	9
Miami	31.0%	0.171	-14.3%	14
Seattle	27.3%	0.145	8.7%	24
San Francisco	25.3%	0.145	-1.5%	5
Los Angeles	25.2%	0.110	-5.3%	4
Philadelphia	24.9%	0.217	11.2%	22
Honolulu	22.4%	0.199	-20.8%	17
Newark	19.6%	0.292	11.5%	12
Las Vegas	18.9%	0.177	-27.8%	23
Houston-Hobby	17.5%	0.481	-23.4%	30
Orlando	16.8%	0.180	-15.6%	21
Boston	13.8%	0.120	9.0%	10
Washington D.C.-National	11.1%	0.125	10.7%	18
Tampa	11.0%	0.181	-12.4%	27
San Diego	6.6%	0.138	-18.1%	25
New York-La Guardia	6.2%	0.118	9.5%	8

Source: U. S. D. O.T. Databank IA, second quarter, 1990

Competition on hub airports

- Figures give evidence of market power on routes to and from hubs !
- If herfindhal > 0.3 then price premium positive !
 - Except Houston Hobby (not a hub, southwest)
 - Except St Louis

II - The characteristics of competition in the air transport industry

- 1 Networks : The backbone of the air transport competition conditions
- 2 **Anti-competitive practices**
 - **Commissions to travel agents**
 - **Frequent flyer programs**
 - **Predatory pricing**
- 3 Summary of findings

II - 2

2 Anti-competitive practices

- As in all oligopolistic markets, airlines try to limit competition
 - Direct competition is often costly
- They use legal means if they can
 - Means linked to hubs (see earlier)
 - Commissions to travel agents
 - Frequent flyer programs
- But they also engage in less legal practices
 - Predatory pricing/behavior

Legal practices to limit competition

- Commissions to travel agencies
 - travel agencies get bonuses by an airline when selling more than a specified volume (TACOs : travel agents commission override).
 - As a result small airlines tickets do not get well distributed
- Frequent flyer programs
 - gives incentives to passengers to use one airline (or one alliance of airlines) by rewarding him. Works well if network is spread out (disadvantage to small airlines)

Illegal practices : predatory pricing and behavior

- Refers to the strategies designed to get rid of competitors
 - used if profit after competitors get out compensates losses during predatory episode
 - Predatory pricing forbidden (it is forbidden to sell below cost almost everywhere)
- Although forbidden, it is used by airlines, because the “crime” is usually difficult to prove
 - cost is a fuzzy concept as well as price
 - behavior is more conclusive

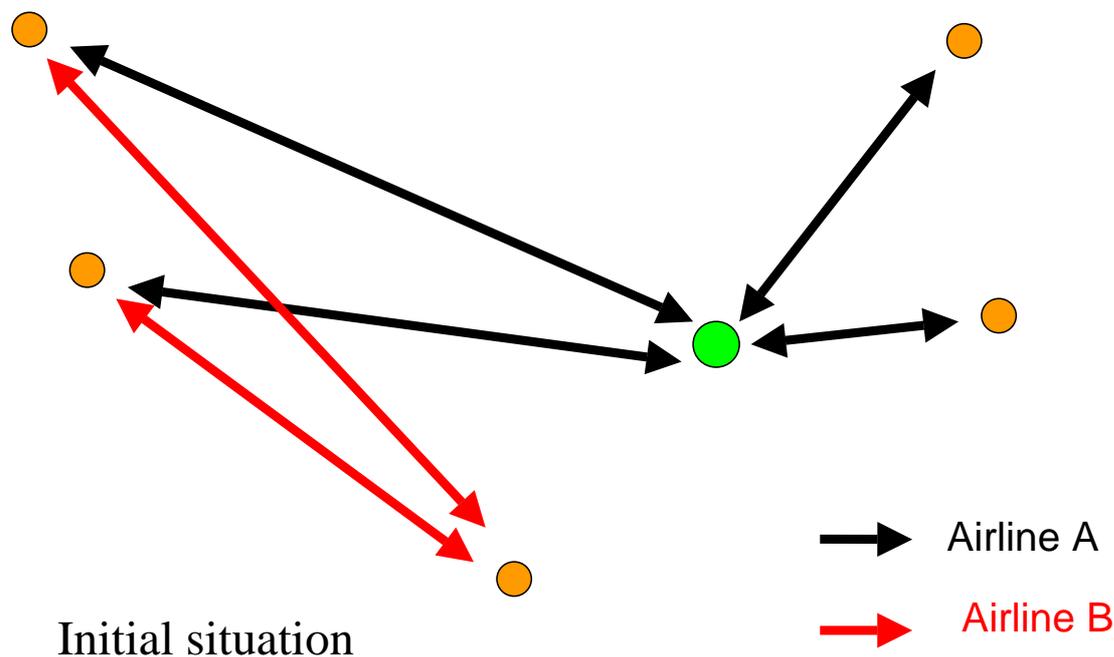
Predatory pricing : a story

- Airline A flies from its hub H (incumbent airline)
- Airline B (the challenger) comes to hub H and opens new service to D
- Airline A does the same, and cut prices on new service :
 $p_A < p_B$
- After some time, airline B is driven out of the market, because it cannot match Airline A price
- After Airlines B goes away, airline A does the same
- When is it normal behavior, and when is it not ?

A story : setting

- We have two airlines :
 - Reno Air flies mainly from Reno
 - Northwest has a hub in Minneapolis

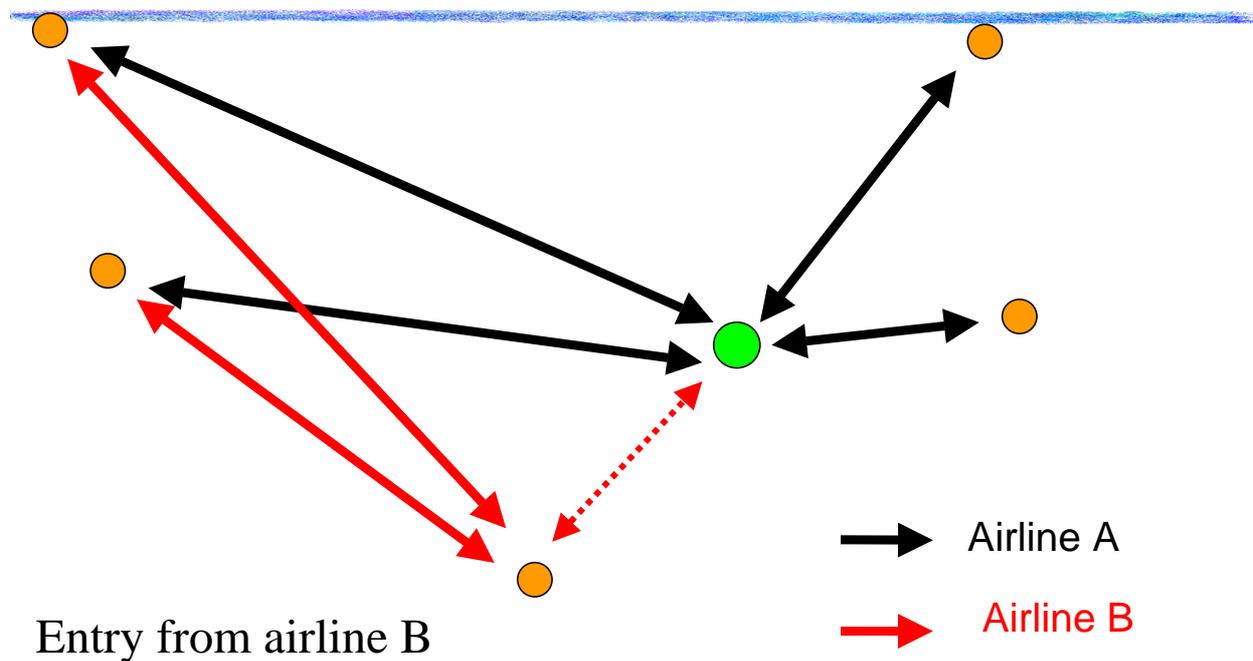
A story : setting



a story: entry phase

- We have two airlines :
 - Reno Air flies mainly from Reno
 - Northwest has a hub in Minneapolis
- In 1993 Reno Air opens service from Reno to Minneapolis

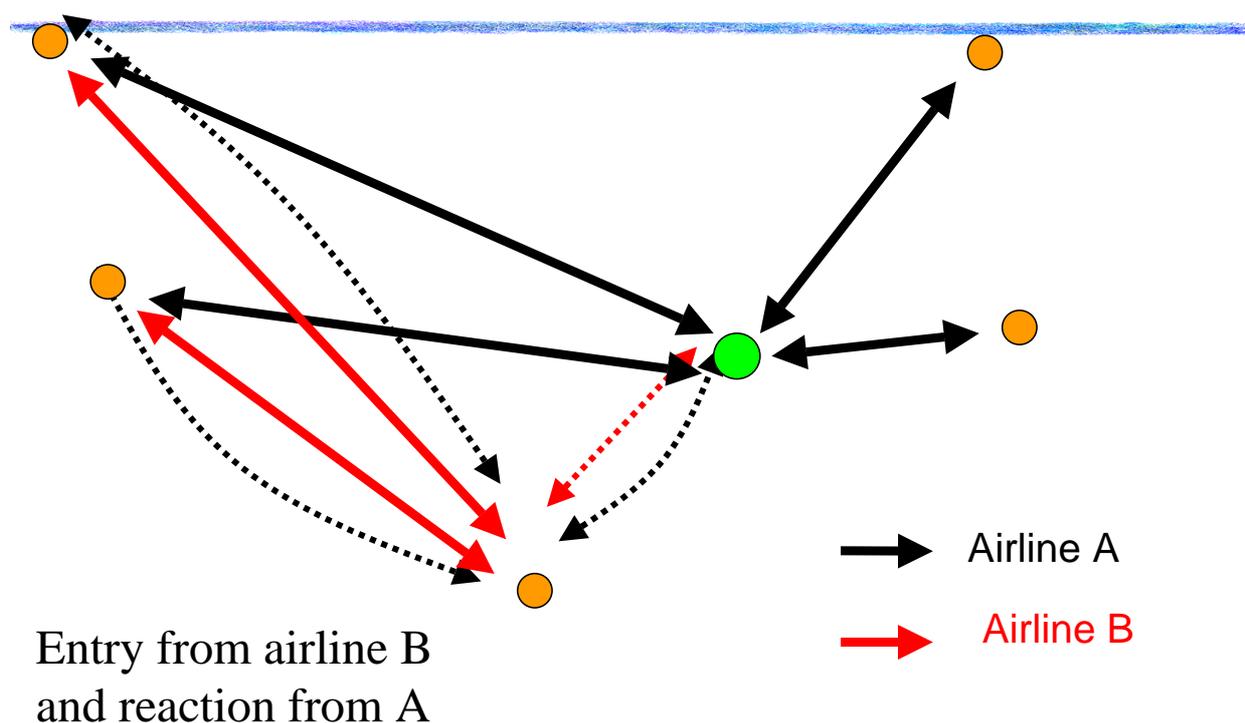
a story: entry phase



a story: reaction phase

- Northwest does the same, and open routes from Reno to LA, San Diego and Seattle where Reno Air operates
- Northwest set fares under those of Reno air, and offer overrides to travel agents for reservations to/from Reno
- Northwest fares from Minneapolis to LA, San Diego, and Seattle drop

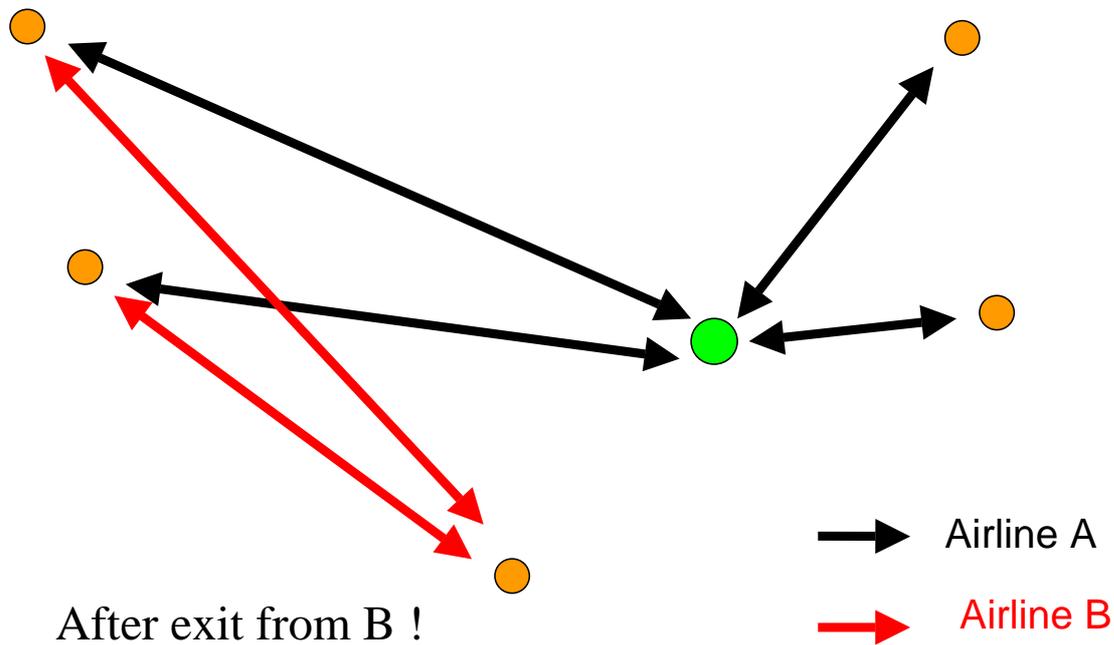
a story: reaction phase



a story: end of war

- Reno Air exits the market
- Northwest exits the Reno market, and raises fares on Minneapolis markets

a story: end of war



Predatory pricing : a story

Looks a lot like predatory pricing/behavior !

- Northwest preserves its Minneapolis markets
- Passengers have higher fares
- Reno air is hurt

Predatory pricing

- Evidence of it in the US airline industry
 - And suspicions in Europe but no data to prove it
- Points out to market power : ability to sustain high prices to recoup losses after predatory episode
- Signaling « game » : important to build a reputation for toughness, in order to deter entry
 - If predatory prices are not observed it may be because entry is effectively deterred !

II - The characteristics of competition in the air transport industry

- 1 Networks : The backbone of the air transport competition conditions
- 2 Anti-competitive practices
- 3 Summary of findings



3 Summary of findings

- Competition is shaped by the hub network
 - Competition between hub networks
 - anti-competitive effects of airline strategies at hubs
- Size of hub network matters
 - An extended network is a competitive advantage
 - The more destinations, the more passengers
- There is a global shortage of infrastructure capacity
 - another constraint on competition, by lack of space and because of hub flights programming
- As in all oligopolistic markets, airlines try to limit competition :
 - anti-competitive practices to keep under scrutiny

Plan of presentation

- Introduction: what can economic theory tell us ?
- I- History of competition: regulation and deregulation of the air transport markets
- II- The characteristics of competition in the air transport industry
- **III- The competing actors**
- IV- Conclusion: future of competition and the role of the Authorities

III - The competing actors

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III - The competing actors

- **1 Actors and strategies**
 - the major airlines
 - the charter airlines
 - the “low-cost” airlines
 - high speed rail
- 2 The US market
- 3 The European market
- 4 The International markets
- 5 Summary of findings

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The major airline

- Global strategy: transports everybody, everywhere
 - Extended network, hub strategy
 - Transports passengers and freight
 - High and low fare passengers
 - Alliances strategy with other majors
- High costs
 - Being global is costly
- Much sensitivity to economic situation
 - Difficult situation for several of those airlines today

The “low-cost” airline

- A “niche” strategy
 - direct routes, short haul
 - high traffic routes, leisure and business
 - low price
- Low costs
 - secondary airports, limited service, internet ticket sell...
- High growth market in Europe : +37% a year between 2001 and 2003
 - already existing in the USA (Southwest)
- High profitability

The Charter Airline

- A “niche” strategy
 - Non scheduled : not year-round routes
 - Leisure travels, tourist market
 - Package holidays
 - Low yield passengers
- Low costs
 - Limited service, no marketing structure
- About half of cross-border intra-European traffic
- Tend to turn to medium and long haul destinations
 - Because of “low costs” competition on short haul.

The charter airline business model

Scheduled airline

- Sell seats to passengers on scheduled flights :
- Airline tries to fill up planes by mixing high fare and low fare passengers in order to optimize profit.
- Costs are mostly fixed when flight has been scheduled

Charter airline

- Sell flights to tour-operators
- Charter airline tries to find enough clients ready to buy flights to keep planes and crews busy
- Success depends on aircraft utilisation, not on passengers !
- Only few people are needed to deal with clients

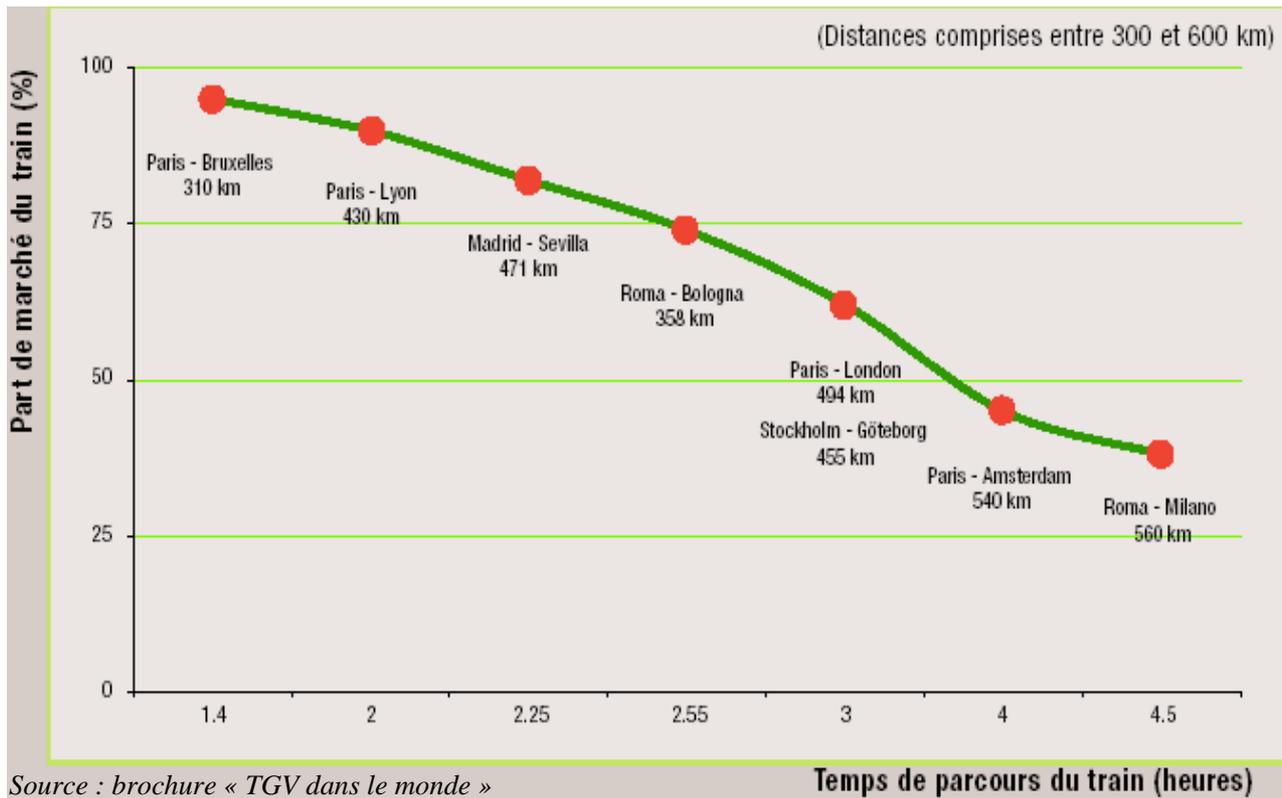
Charter Airlines (2004)

Airline	/ Country	/ Pax (millions)	/ RPK's (Billions)
TUI Group	/ Europe	/ 19.5	/ 55.6
Thomas Cook	/ Europe	/ 14.25	/ 40.87
MyTravel Airways	/ Europe	/ 9.28	/ 25.7
LTU Intal Airways	/ Germany	/ 5.9	/ 18.4
First Choice Airways	/ UK	/ 5.8	/ 14.56
Transavia Airlines	/ Netherlands	/ 4	/ 7.5
Monarch Airlines	/ UK	/ 3.1	/ 9.4
Spanair	/ Spain	/ 2.5	/ 4.8
Air Transat	/ Canada	/ 2.4	/ 9.9
Excel Airways	/ UK	/ 2.3	/ 6.4

High speed Rail

- A short haul operator
 - Competes with air on less than 3h-3h30 rail routes (typically Paris Marseille) : total travel time is the same as with air !
 - From city centers to city centers
- Low prices
 - partly because of infrastructure subsidies
- More environmental friendly
 - More efficient energetically less emissions
 - But electricity still has to be produced

HST market share



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III - The competing actors

- 1 Actors and strategies
- 2 The US market
 - figures
 - where do they compete ?
 - competition between majors
 - the low-cost market
 - competition between low-cost airlines and majors
- 3 The European market
- 4 The International markets
- 5 Summary of findings

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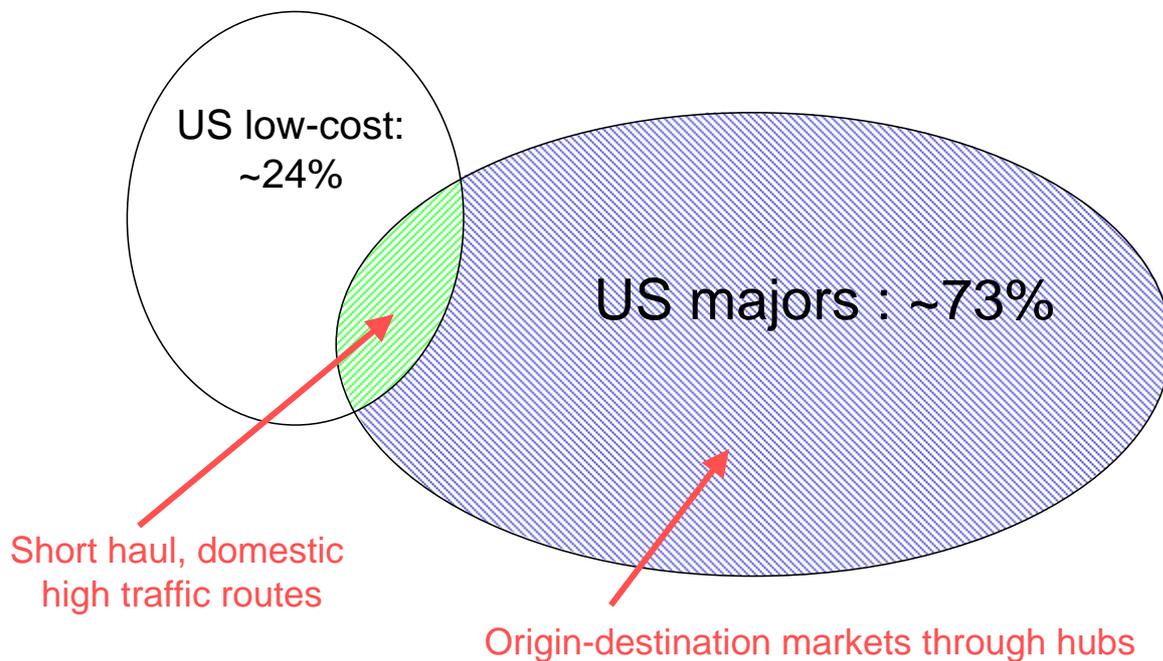
2 : The US market

- Only majors (and their regional partners) and low-cost airlines
 - no charter market
- Competition between the majors
 - between their hubs.
- Competition between majors and low-cost
 - Threat to the majors
- Competition between the low-cost
 - very limited so far, only Southwest has a large market share

The US market (2005)

Delta	16,9
American	15,8
United	13,0
Northwest	8,6
Continental	7,9
US Airways	'''
America West	'''
Alaska	'''
Total ATA network majors	73,1
Southwest	11,7
Jetblue Airways	3,0
AirTran Airways	2,1
Song	1,7
Ted	1,7
Independence Air	'''
frontier airlines	'''
Spirit Airline	'''
Total US low costs	24,1

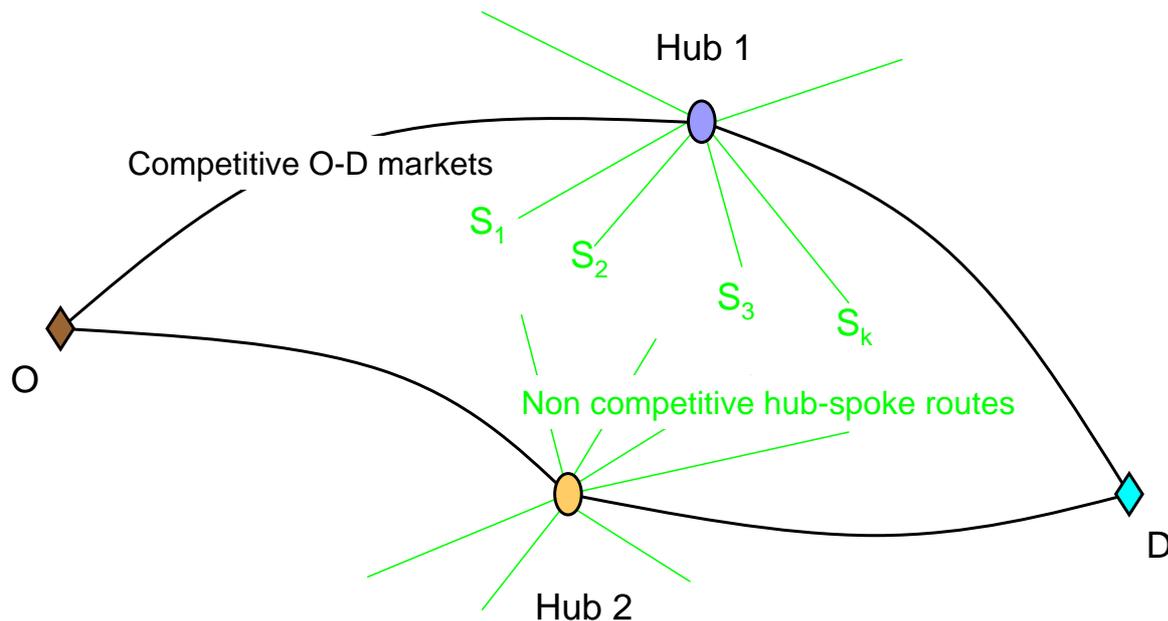
Where do they compete ? (US domestic market)



Competition on the US market : the majors

- Build barriers to entry in fortress hubs
- Compete with other majors between hubs
 - spoke-spoke routes competitive
 - hub-spokes routes with little or no competition, except by low-cost

Competition between majors



Competition on the US market : the majors

- Build barriers to entry in fortress hubs
- Compete with other majors between hubs
 - spoke-spoke routes competitive
 - hub-spokes routes with little or no competition, except by low-cost
- Operate mainly on domestic markets
 - Where they are “attacked” by low costs
- Huge firms with high costs
 - Weight of long history
 - Try to lower costs but it is hard work !

Costs on the US market

	cost (cent per ASM)
AMR Corp.	11,07
UAL Corp,	11,73
Delta	10,47
Northwest	9,17
Continental	9,58
US Airways	12,46
America West	8,05
Alaska Airlines	10,84

Source ITA Presse, cies US, année 2002

Competition on the US market : the majors' problems

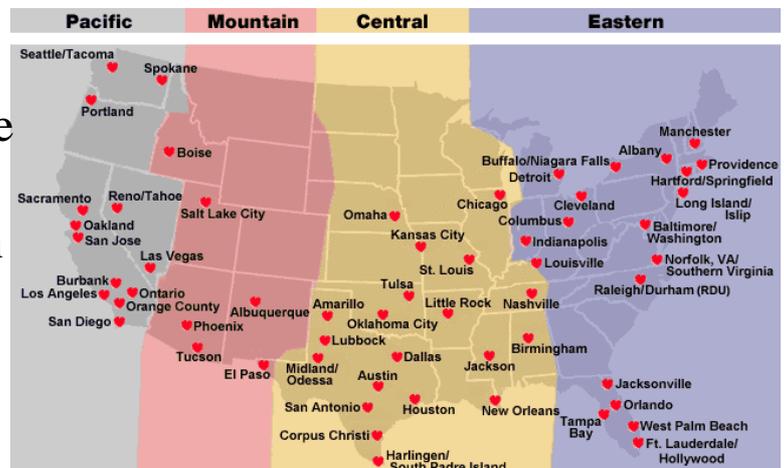
- Suffered from drop in demand after sept. 11, 2001
 - US majors have most of their activity in domestic markets: very sensitive to US economic conditions
- Suffer from successful competition from the low costs carriers
 - Mostly on domestic markets
- As a result several ailing airlines
 - Several majors concerned: Delta, Northwest, United Airlines, Us Airways...
 - Are beginning to recover (since 2006)

The « Low Costs » airlines in the USA

- Southwest (major)
 - America West (major)
 - JetBlue (major)
 - AirTran (major)
 - Frontier
 - National
 - Trans Air
 - Spirit
 -
- † Sun Country
 - † Valuejet (bankruptcy in 1996)
 - † Vanguard (bankruptcy)
 - † Metrojet (subsidiary Us Airways, 1998- end 2001)
 - † United Shuttle (reintegrated in United)
 - † Continental Lite
 - † Song (subsidiary Delta - April 2003, reintegrated in 2006)

The “Champion” : Southwest

- Began operating in 1971, served the global US market after 1978, became a major in 1990, is today the 4th domestic airline in the US
- Average stage length 880 km, average passenger travel 1 150 km, average price \$85,
- 59 airports, no hub, 338 routes, domestic traffic



- 34 years of profit

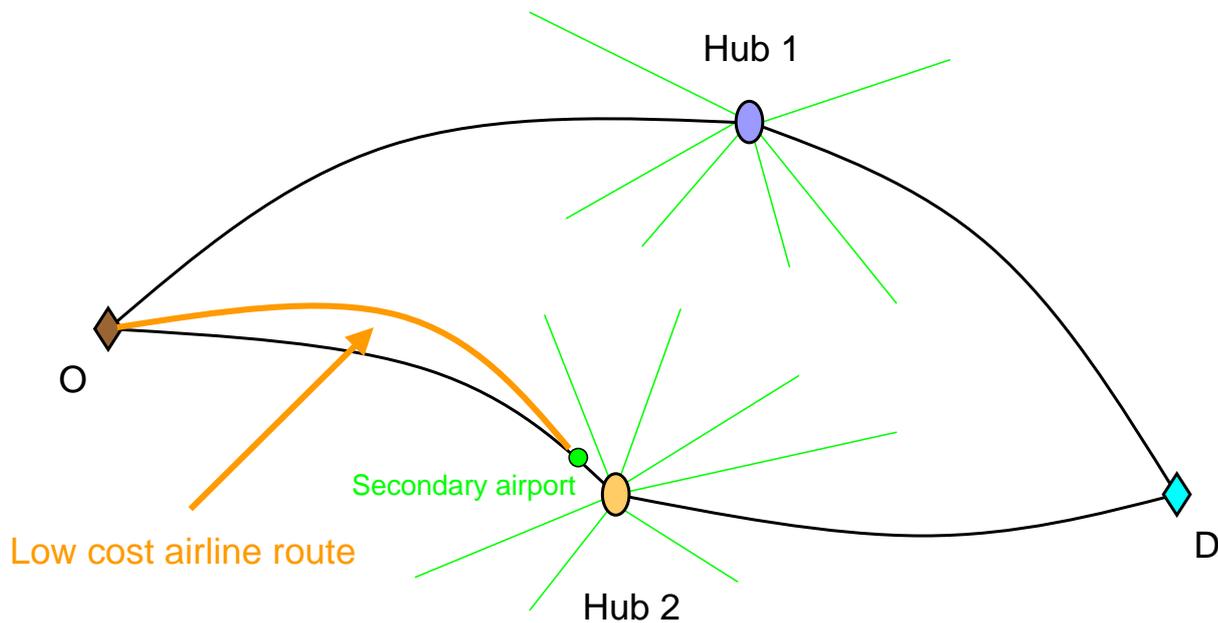
Southwest invented the “low-cost” concept

- High traffic short haul routes, served with high frequencies
 - take large share of market from the start (on 100 first routes, has on average 69% of market share)
- Low prices, possible because of low costs
- use of secondary airports, for costs reasons but primarily to avoid direct competition with the majors (and avoid barriers to entry)
- direct sales (phone, internet) : same reasons
- progressive development (10-15% a year no more)

Competition on the US market : the low-cost airlines response

- The strategy of low-cost airlines (and the whole concept) is a response to the anti-competitive strategy of majors
- The whole point is to « by-pass » the barriers erected by the majors
 - by using other airports : non hub airports
 - by not using the classical distribution channels, where competition is distorted by the majors
 - by offering mainly direct flights
 - by focusing on low prices

Competition between low-cost and majors



How to use secondary airports : The example of Washington-Baltimore



- 3 airports : Reagan Washington National (DCA), Washington Dulles (IAD), and Baltimore (BWI)
- Southwest entered the market in 1993 at BWI : low prices, high frequencies
- After a period of intense competition, UA and USAir had to cut back frequency at IAD and DCA

Result of low cost competition

Hub City	Carrier	Hub Premium			1997 Low-Fare Markets
		1988	1995	1997	
Atlanta	Delta	47%	38%	20%	24
Charlotte	US Airways	34%	51%	59%	0
Cincinnati	Delta	45%	64%	67%	1
Denver	United	-4%	13%	10%	17
Detroit	Northwest	2%	21%	15%	28
Memphis	Northwest	33%	36%	36%	6
Minneapolis	Northwest	23%	41%	44%	3
Pittsburgh	US Airways	12%	46%	57%	1
Salt Lake City	Delta	21%	-11%	-15%	28
St. Louis	TWA	24%	3%	14%	40

Source : predatory pricing in the US airline industry, C. Oster, J. Strong

III - 2

The future of competition on the US market

- Majors have difficulties to adapt
 - they cannot raise barriers against the low-cost
 - they have high costs
- More entry of low-cost on majors markets
 - because of low-cost expansion
- In the future equilibrium between low-cost and majors
 - good for competition and for the passenger
 - majors have to lower their costs (restructuring ?)
 - What market shares for low costs ?

III - The competing actors

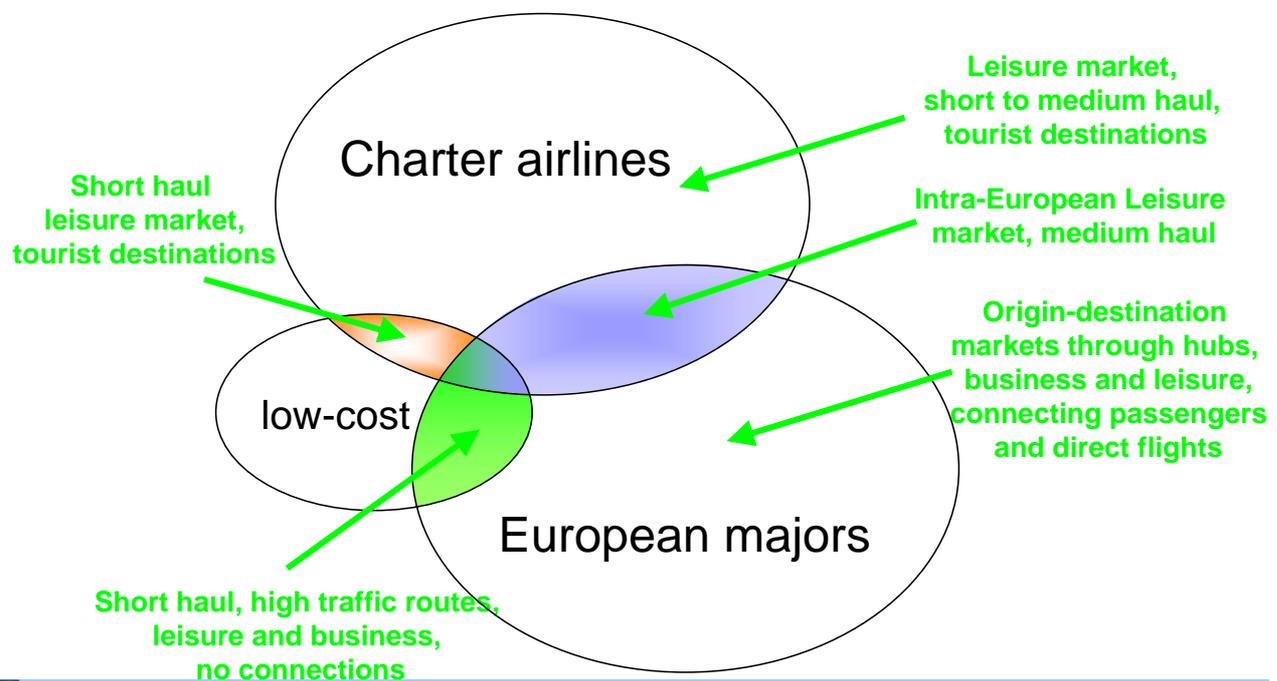
- 1 Actors and strategies
- 2 The US market
- 3 The European market
 - where do they compete ?
 - competition between the European majors
 - the European low-cost airlines
 - low-cost airlines, majors and charters
- 4 The international markets
- 5 Summary of findings

III - 3

3 : The European market

- A different setting
 - majors, low-cost, charters, and...rail
- Competition between the majors
 - between their hubs.
 - competition but also partnerships
- Competition between majors and charters
 - not a new feature, limited competition
- Competition between low-cost and the others
 - low-cost are new actors in the European market

Where do they compete ? (European market)



Competition between the majors

- The European majors are trying to restructure through alliances and acquisitions
 - Air France / KLM merger in may 2004
- Ultimately, the market will be shared between 3 main competing groups :
 - Lufthansa (+ Austria, SAS)
 - Air France (+ Alitalia, KLM)
 - British Airways (+ Iberia)
- Not much competition between majors on local markets foreseeable

The European low-cost airlines

- Follow the strategy designed by Southwest and adapt it to the European market
 - short haul, high traffic routes, secondary airports
 - low costs, low prices, simple marketing centered on price
 - ticket sales mainly through the internet (~90% for Easyjet and Ryanair)
- They have entered the market after liberalization (beginning of 1990's)
 - many new actors in 2002-2005 : about 50 low-costs airlines in 2004

The European low-cost airlines

- A European originality : the strategy of ancillary revenues
 - Idea : supplement revenues by developing new services, or by charging for formerly free services
 - Strategy developed by Ryanair, Flybe, Easyjet...
 - Examples of new services : car rentals, train or bus tickets, hotel booking...
 - Example of existing services : food on board, checked-in baggage (5£ Ryanair, 4£ Flybe), seat assignment (8 £ flybe)
- 15% of revenues for Ryanair in 2005 ! (5£ per pax)



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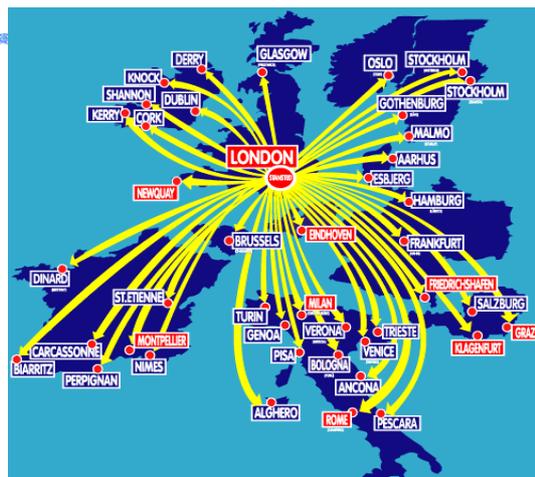
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Low-cost airlines in Europe

- Ryanair (1985)
- Easyjet (1995)
- Virgin express (1996)
- SkyEurope (sept. 2000)
- BasiqAir (dec. 2000)
- Germania (nov. 2001)
- Bmibaby (mars 2002)
- MyTravellite (oct. 2002)
- Germanwings (oct. 2002)
- Flybe
-and others
- † Buzz (Septembre 1999) bought Ryanair in april 2002)
- † Goodjet(2002, bankruptcy)
- † Go (bought in 2002 by Easyjet)
- † Debonnair (octobre 1999)
- † Aéris (2003)

Ryanair : Figures

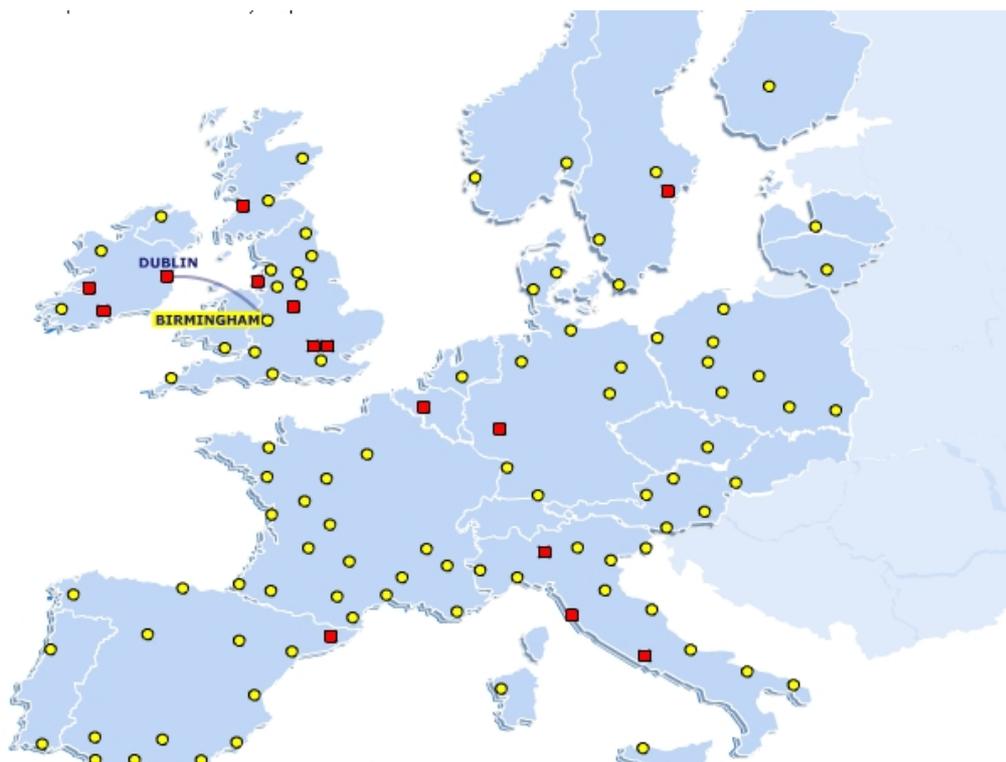
- Fleet and network :
 - 91 B 737 (march 2005)
 - 9 bases : Luton, Stansted, Shannon, Dublin, Glasgow, Bruxelles, Stockholm, Frankfort, Milan
 - 217 routes, 65 airports



Year Ended	March 31, 2004	March 31, 2005	% Increase
Passengers	23.1m	27.6m	+19%
Revenue	€1.074bn	€1.337bn	+24%
Profit after tax (Note 1)	€226.6m	€268.9m	+19%

Source Ryanair

Ryanair destinations



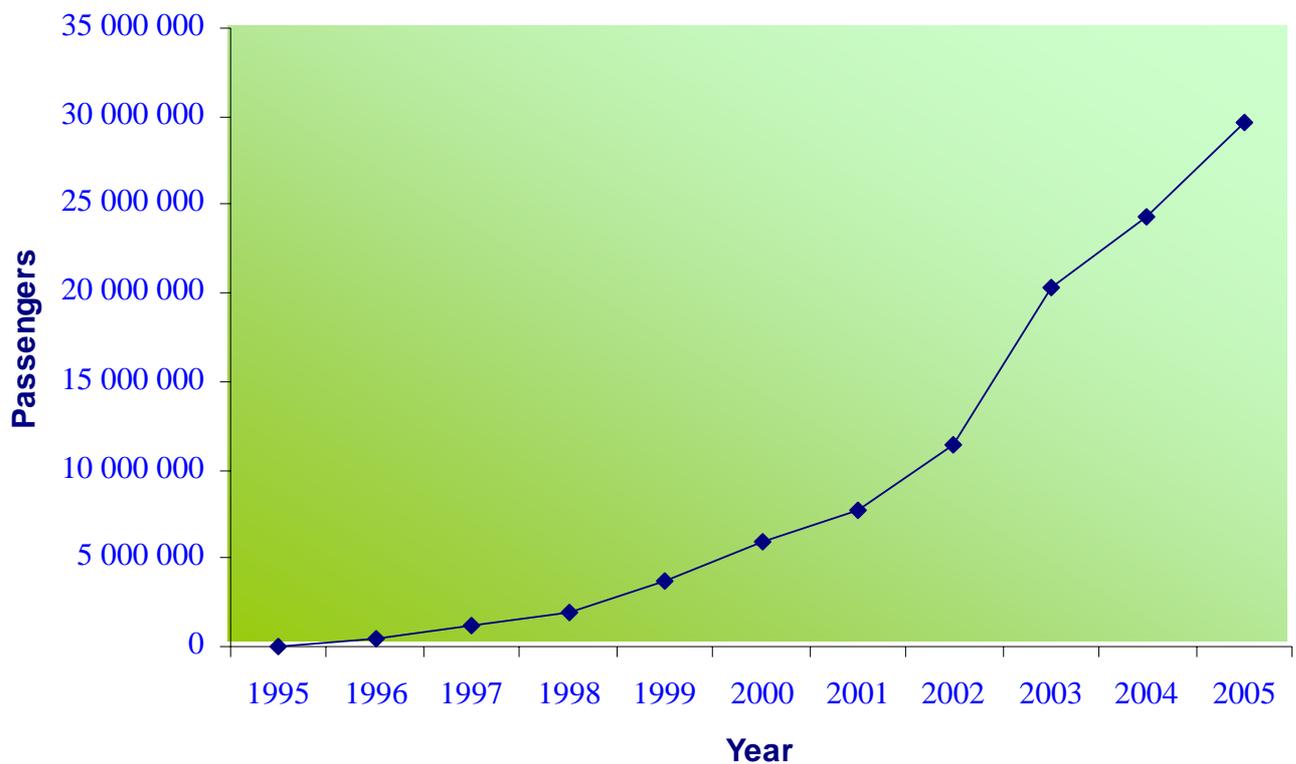
Easyjet : Figures (2005)

- The firm:
 - Created in 1995
- Fleet and network :
 - 54 B737 + 55 A319
 - 212 routes, 64 cities
 - 15 bases in Europe :
London Luton, Stansted,
Geneva, Liverpool, Nice,
Amsterdam, Paris Orly...
 - Stage length : 926 km
- Financial results
 - Revenues 1341m£
 - Profit 68m£
 - Ancillary revenues : 7%
- Traffic
 - Load : 85.2%

Année	PAX annuels
1995	30 000
1996	420 000
1997	1,140,000
1998	1,880,000
1999	3,670,000
2000	5,996,000
2001	7,664,000
2002	11 400 000
2003	20 300 000
2004	24 300 000
2005	29 600 000

Données Easyjet

Easyjet : traffic



Low-cost and majors

- Large cost differential
- Different strategies : idem USA
 - low-cost focus on short haul routes with high traffic
 - they use secondary airports (Beauvais-Dublin)
 - they sell low priced tickets
- They are beginning to bother the majors
 - legal dispute Ryanair / Air France about airport “subsidies”
 - “low-costs” take a part of majors business market (20% of passengers on Ryanair for example)

Low costs and Charters

- Same level of costs
- Different markets in general
 - scheduled for low-cost, non scheduled for charters
 - low-cost stay in Europe (typically, 1000 km routes), Charters go further (medium haul)
 - but some markets are the same : north / south short haul tourist markets (UK to Spain, Portugal)
- Low costs airlines may take a small part of the traditional charter market
 - independent travelers (20 % of charter market) on some non too seasonal routes

And rail?

- On short haul routes, high speed rail is also a competitor with “winning cards”:
 - Access to city centers
 - Low prices
- Compete with majors on feeder routes
 - But intermodal agreements can lead to abandon of air routes (Paris-Brussels)
- Potential competition with low costs ?
 - Low costs mainly avoid HST routes so far
 - Market segmentation : shorter routes for HST, and longer routes for air ?

III - 3

Future of European markets

- A strong growth for low-cost
 - Nearly 20% of European traffic in 2004 (5.2% in 2000)
- Restructuring of majors
 - in a medium growth context (4-5% a year)
- Competition for all
 - more competition than on the US market
 - how many low-cost airlines will survive ?
 - Competition of low-cost with charters and majors
- An equilibrium to find
 - between majors, charters and low-cost airlines

III - The competing actors

- 1 Actors and strategies
- 2 The US market
- 3 The European market
- 4 **The international markets**
 - **competition and cooperation**
 - **the alliances**
- 5 Summary of findings

III - 4

4 The international markets

- Competition...
 - Fierce on some markets (price wars on north Atlantic markets)
 - most markets are competitive
- ...and cooperation
 - Alliance policies among all international airlines to achieve global world coverage
 - Three main alliances : Oneworld, Skyteam, Star Alliance, with 54.6% of world traffic (RPKs, 2005)

Oneworld

- Aer Lingus
- American Airline
- British Airways
- Cathay Pacific
- Finnair
- Iberia
- LanChile
- Qantas Airways

Passengers : 234 millions

Market Share : 11.3%

Network and fleet

- 1855 aircraft
- 576 destinations
- 134 countries

SkyTeam

- Aeroflot
- Aeromexico
- Air France + KLM
- Alitalia
- Continental
- CSA Czech Airlines
- Delta Air Lines
- Korean Air
- Northwest

Passengers : 357 millions

Market share : 17.3%

Network and fleet

- 3199 aircraft
- 658 destinations
- 137 countries

- New arrivals : China
Southern Airlines

Star Alliance

- Air Canada
- Air New Zealand
- All Nippon Airways
- Asiana
- Austrian Airlines
- Bmi British Midland
- LOT-Polish Airlines
- Lufthansa
- Mexicana
- Scandinavian
- TAP Portugal
- Thai Airways
- United Airlines
- US Airways
- Varig

Passengers : 387 millions

Market Share : 18.7%

Network and fleet

- 822 destinations
- 152 countries

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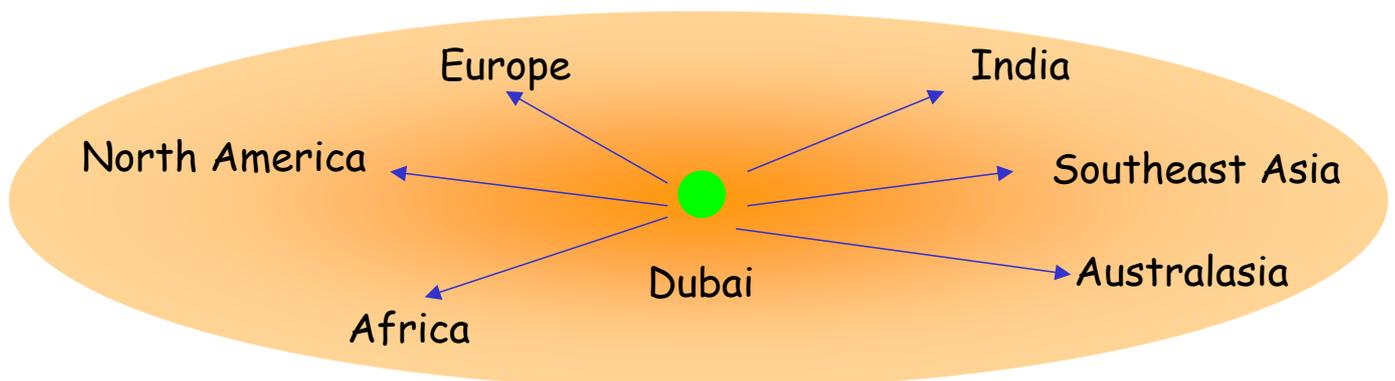


Singapore Airlines Nathalie Lenoir Septembre 2007

- Snanair

The 6th freedom carriers : new opportunities

- Some carriers take advantage of 6th freedom rights*, and of their geographical position
 - Ex: Emirates in Dubai, a long haul–long haul hub!



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The 6th freedom carriers : new opportunities

- Some carriers take advantage of 6th freedom rights, and of their geographical position
 - Ex: Emirates in Dubai, a long haul–long haul hub!
 - But also Singapore Airline, Thai Airways, Japan Airline...
- They collect and redistribute traffic over the hub
 - Enough traffic to serve secondary routes
 - Take demand away from long haul airlines: Qantas overseas market share dropped from 41% to 28% in 10 years

III - The competing actors

- 1 Actors and strategies
- 2 The US market
- 3 The European market
- 4 The international markets
- **5 Summary of findings**

5 Summary of findings

- In the US or European markets, restructuring of large airlines, more concentration to come
 - ex: AA buys TWA, merger Us Air / America West
 - ex Air France buys KLM
- Majors grouped into three main alliances
 - ultimately three main airlines groups covering the world
- Low-cost airlines provide an alternative to majors on short haul markets in Europe and in the US
 - They are developing also in other parts of the world !

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www.enac.fr/recherche/leea



*Conclusion: future of competition
and the role of the Authorities*

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Regulatory setting

- For better or for worse, air transport has been largely deregulated
 - USA
 - Europe
 - International markets
- This trend will go on, and more markets will become open to competition
 - More international markets
 - Trend strongly encouraged by the USA except on domestic market

Competition structure

- Competition will remain limited in air transport
 - Size of networks matters
 - Capacity constraints will worsen with traffic increases
 - Evolution towards a few (three ?) groups of airlines, with worldwide networks

Competition structure

- Competition will remain limited in air transport
- On international markets competition may be enough to ensure low prices
 - Depends on the number of alliances, and their coverage of the world

Competition structure

- Competition will remain limited in air transport
- On international markets competition may be enough to ensure low prices
- On local markets, non hub airlines (low-cost airlines?) will provide competition by using alternate airports
 - In Europe, also competition of high speed rail, and complementarity on short haul markets

Competitors

- Global airlines may emerge, nationality of airlines becoming irrelevant progressively
 - already fading in Europe with the notion of European airline
 - consolidation of alliances process
- There is room for “Niche” strategies, to serve market that the global airlines are not good at or willing to serve
 - Charters
 - Low-cost airlines

Competition and the Authorities

- Competition may work after all in the air transport industry
 - equilibrium between majors, low-cost, charters
- As in all oligopolistic markets, there is and will be anti-competitive behavior
 - especially in the hub framework
- What remains for the Authorities in a deregulated market, is to ensure “fair” competition
 - by ensuring access to the markets, watching them, and preventing (or penalizing) anti-competitive behavior

Role of the Authorities

- Monitor the markets :
 - traffics, prices, airlines financial situation...
 - give all actors in the industry a fair access to information
- Look for anti-competitive practices and prevent them as far as possible
 - monitor competition conditions
 - make sure airlines have access to the markets
- Monitor partnerships and mergers
 - in order to avoid monopolization

Remaining questions

- Internationalization of airlines
 - On what conditions : safety and security aspects, social aspects...
- What Authorities ?
 - In a global airline industry, there is a need for a “global” Authority, even if local ones remain useful : ICAO ?
- Some countries may want to stay aside
 - In order to “keep” the domestic market for national airlines (China ?)

As a conclusion, “food for thought”

- Without being excessively pessimistic, it is legitimate to ask what will become of competition and of air transport if energy prices go way up.
 - Then ticket prices will go up
 - Demand will go down, or at least increase slower
 - depending on price increases and on the evolution of people's revenues
 - Weaker airlines will go bankrupt
 - Competition will diminish
 - Air transport may become (again) a luxury for richer, fewer people !

THE END
