

Global Aviation Markets – Analysis

Challenges & Opportunities for global carriers

Zinnov LLC
January, 2007

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Key Findings

- **Global aviation industry is expected to grow at a CAGR of 5.6% for the period between 2004 - 2024**
- **The major conventional matured airline markets like US and Europe will see their cumulative market share going down from 61% in 2005 to 52% in 2025**
- **Emerging market like China, India, Middle East poses great opportunity for the civil aviation sector, especially for regional carriers**
- **However market like India & Middle East are highly regulated markets which bar entry of foreign players**
- **Regional aviation industry in US is on rise, growing at a CAGR of 3.9% for the period 2001 – 2005**
- **New models like air taxi, Boutique regional catering to niche travelers are picking up**

AGENDA

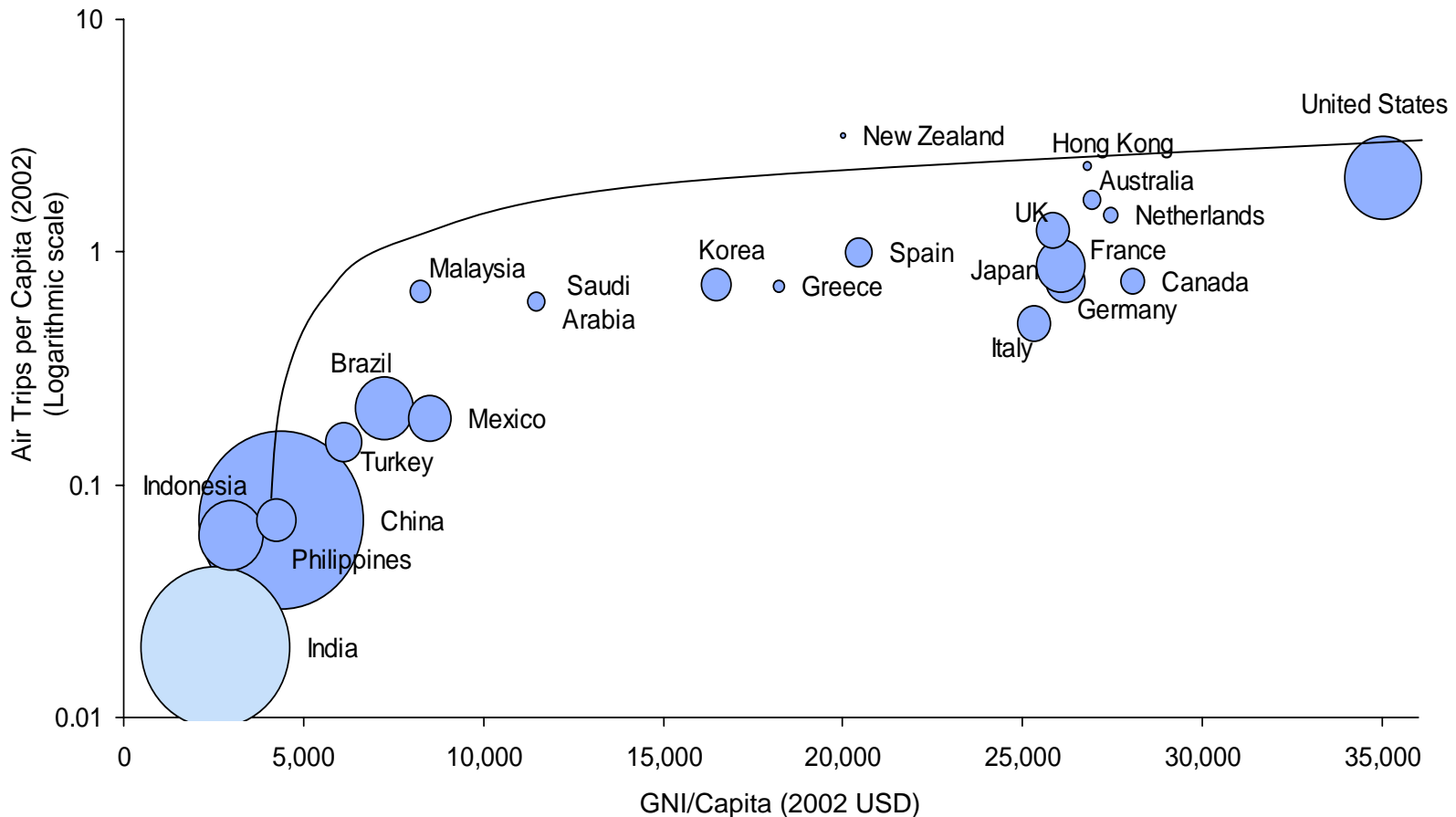
- Global Aviation
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Air travel, which is correlated with wealth, has increased over the years with a rise in global GNI

Passenger Trips vs. GNI/Capita – 2002

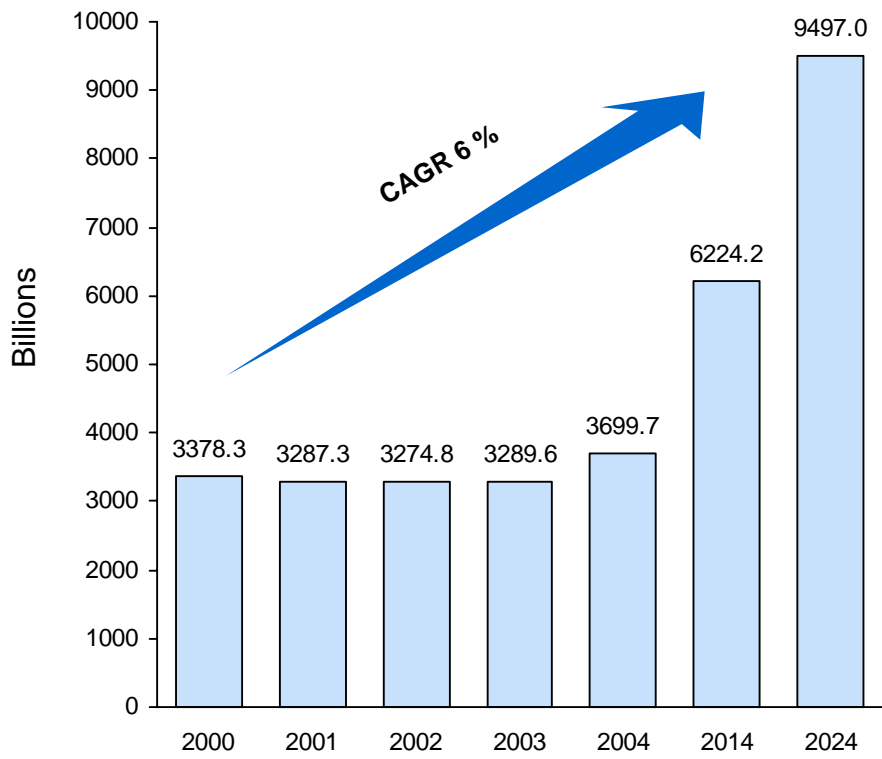


Note: Air Trips per Capita calculated using the number of passengers carried by the airlines of each country, Circle indicates population size.

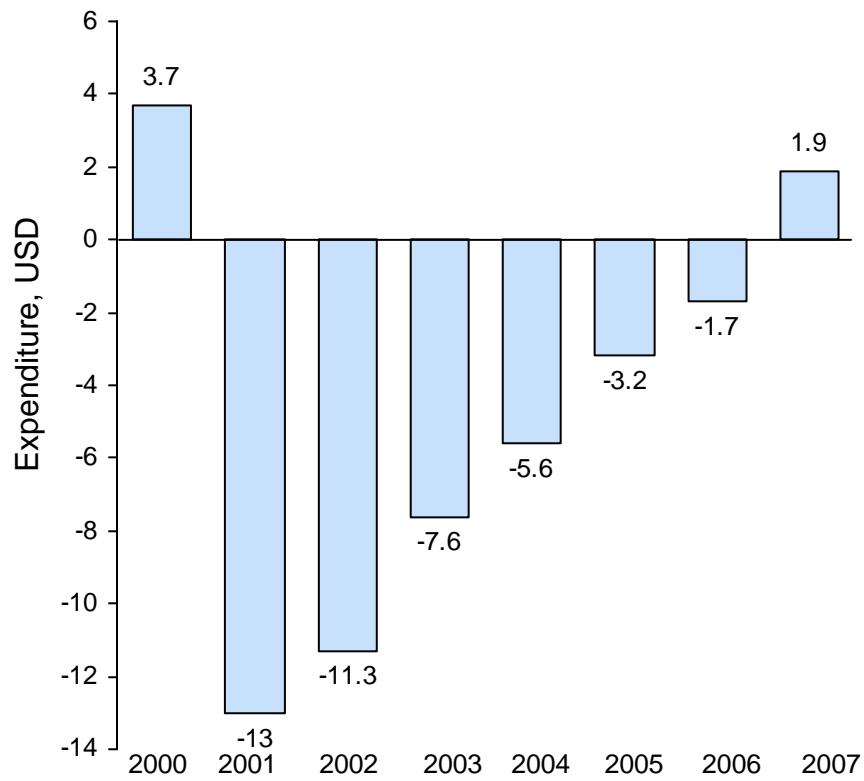
Source: Secondary research

Global RPK is expected to increase at a CAGR of 5.8% for the period 2004 – 2024 , however they do not match the increasing costs

Growth of World RPKs, (2000-2024)



Operating Margin of the Aviation Industry, (1997 – 2007)

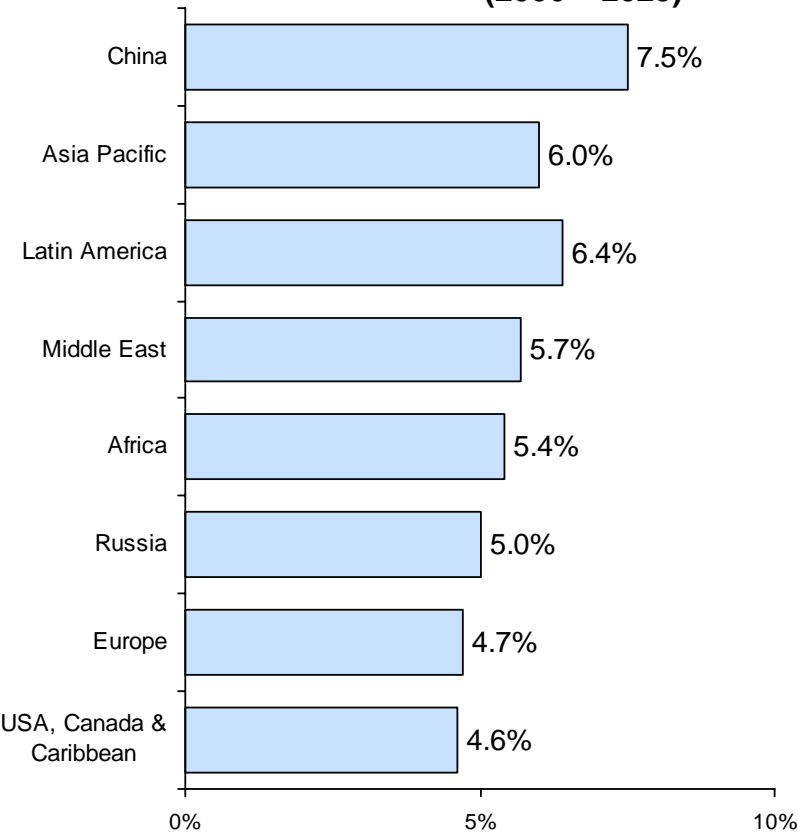


Note: RPK stands for Revenue Passenger Kilometers

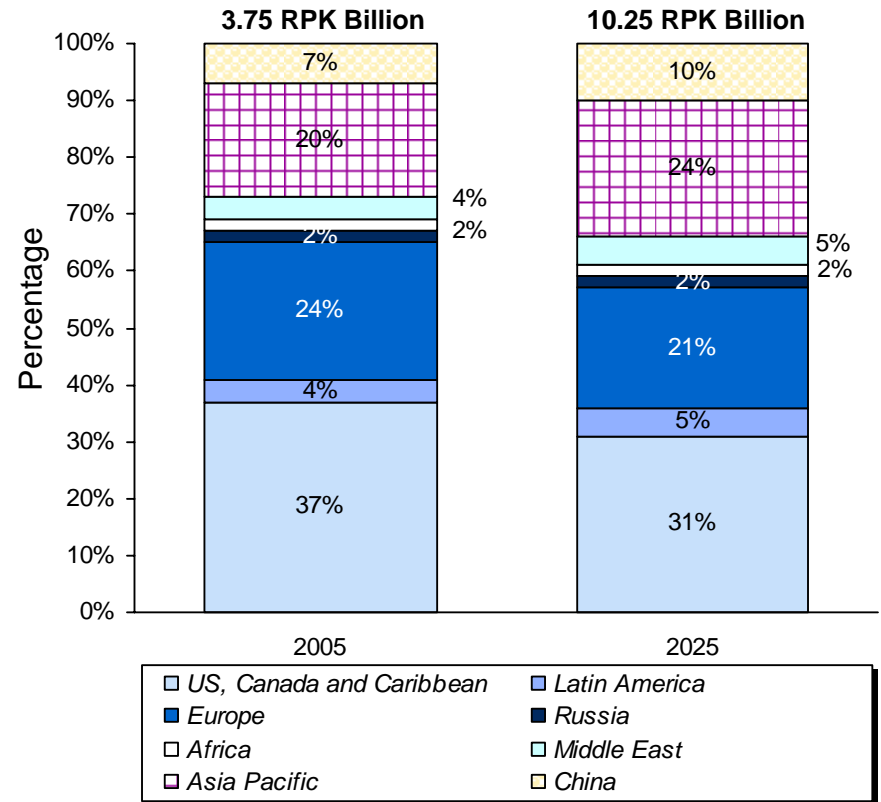
Source: Secondary research

Markets like US and Europe are growing slower than the average world rate, Characterized by a fall in their global share from 61% in 2005 to 52% in 2025

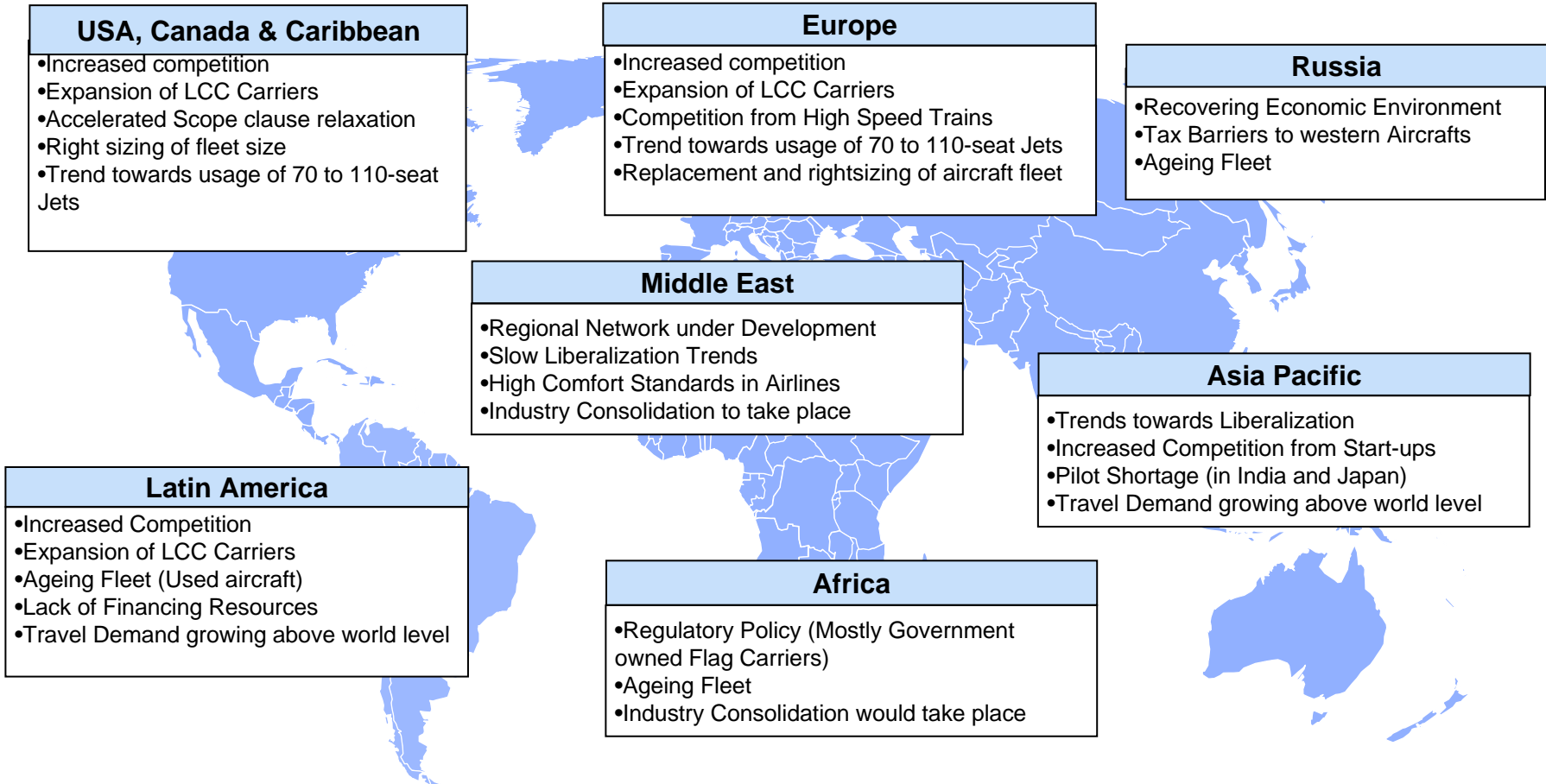
Projected Growth Rate of Aviation Industry, (2006 – 2025)



Global Air Traffic Distribution, (2003 – 2025)



Global aviation industry will see the trends such as, liberalization in Asia Pacific region and increased competition in developed markets

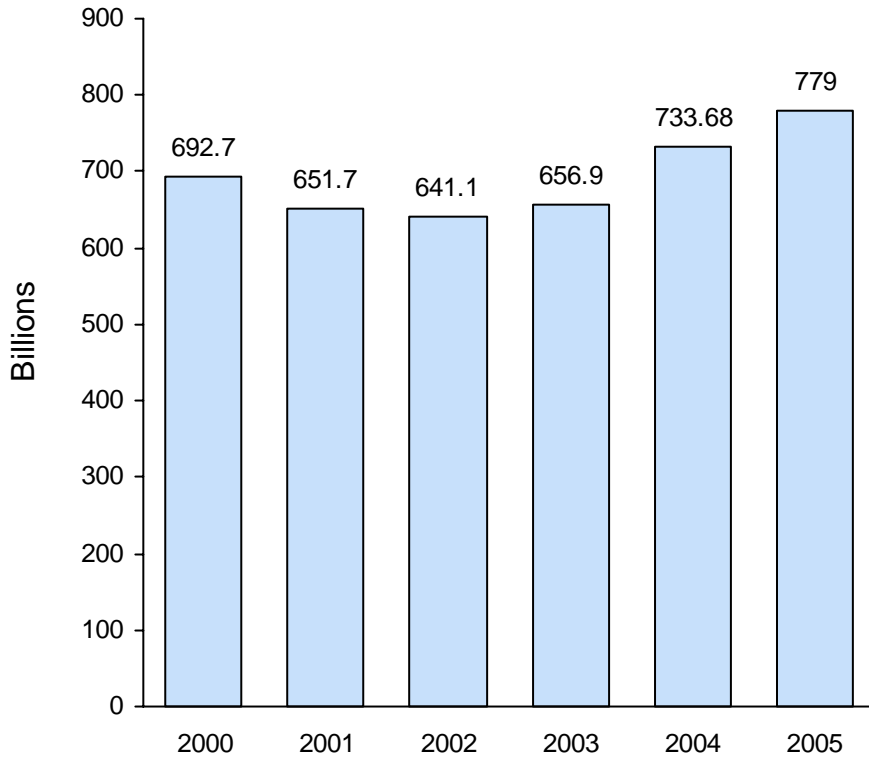


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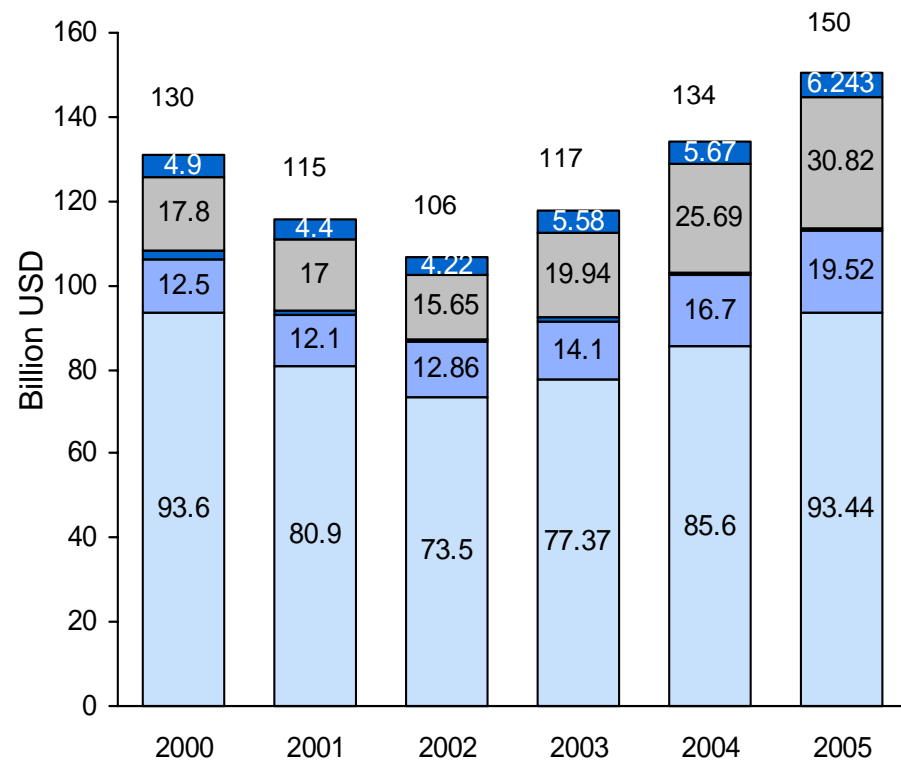
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US Aviation Industry revived after a dip in 2000, driven primarily by scheduled passenger flights...

Growth of Revenue Passenger Miles, (2000-2005)

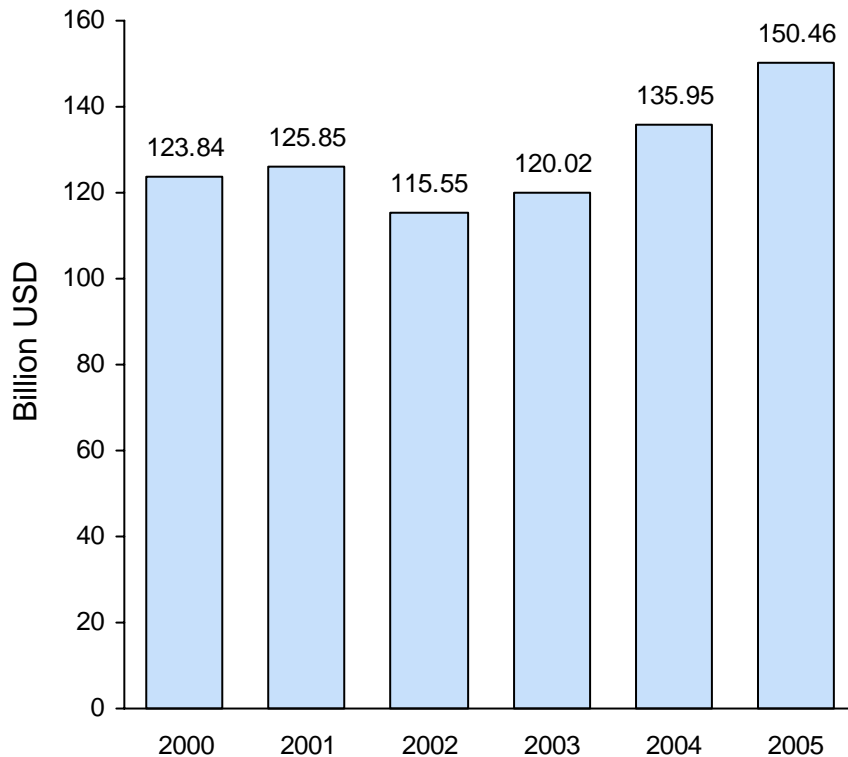


Distribution of Operating Revenue, (2003 – 2005)

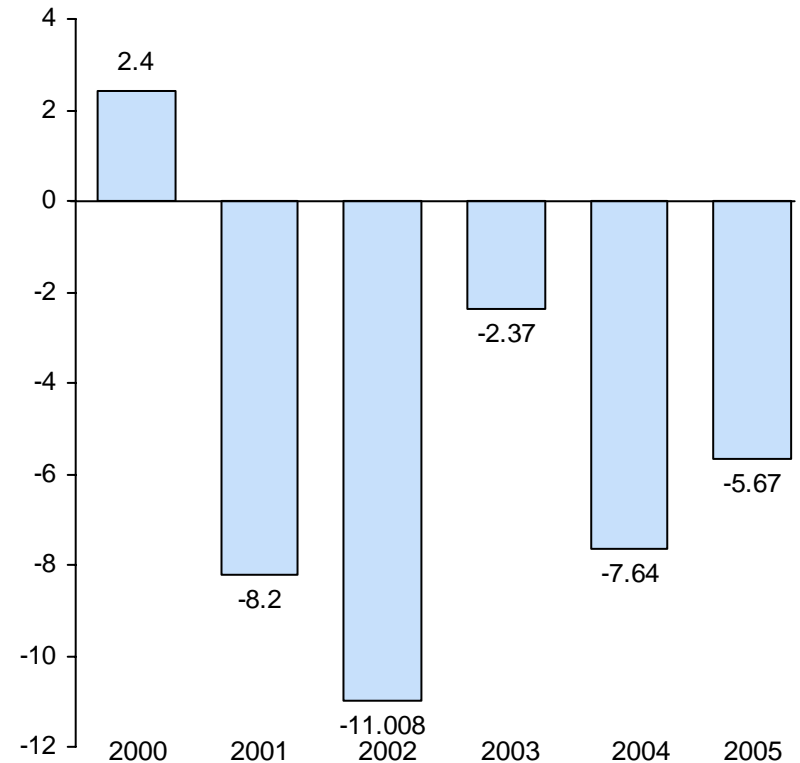


....However the expenditures (employee and fuel costs) have out-run the revenues, putting pressure on net profits

**Rise in Operating Expenditure,
(2000 – 2005)**



**Net Profit of US Airlines,
(2000-2005)**



Increasing costs put a huge pressure on the US aviation industry

Opportunities

- *Restructuring can provide scope for increased Cost cuttings*
 - Companies like United Airlines has been negotiating with unions on wage and labor concessions since it filed for Chapter 11 protection in 2002 and has asked a judge to throw out contracts if cost-saving agreements cannot be reached
 - Delta is working on restructuring deals in hopes of avoiding a bankruptcy filingAll these will help in bringing up the efficiency of the airline industry
- *Airlines Liquidating assets – a blessing in Disguise*
 - In case any airlines goes for liquidation, it would help in reducing the excess capacity that had been created

Challenges

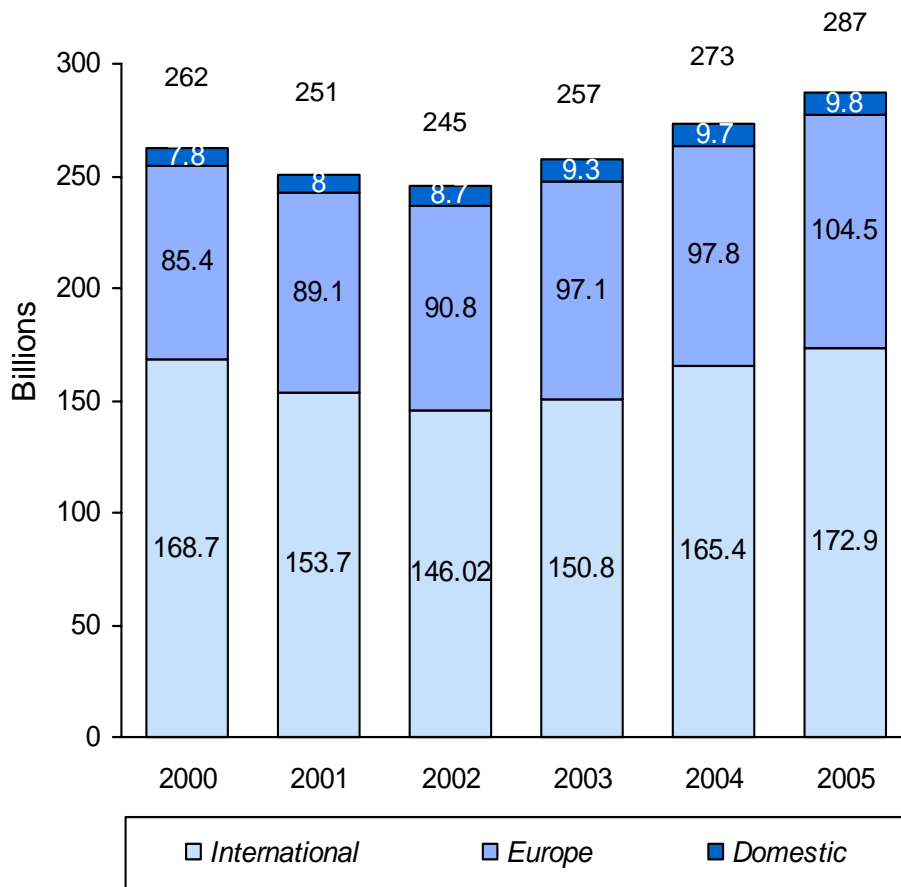
- *Large airlines face increased competition from low-cost carriers while they continue to address labor costs*
- *High fuel prices have squeezed the entire industry*
- *Over capacity in the industry*
- *Consolidation among legacy carriers can create an anti competitive environment, that can have detrimental impact in industry growth , as it may lead to cartelization o the industry*

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UK Aviation Industry has grown at a CAGR of 5.4%, after a dip in 2001

Growth of Revenue Passenger Miles, (2000-2005)



Discussion
<ul style="list-style-type: none"> • UK aviation contributed directly 11.4 billion pounds to the GDP in 2004 • Which is 1.15 of the overall economy of UK • The industry handled 210 million passengers in 2004, of which around 35 million were business passengers • The industry transported 2.5 million tones of freight • UK airlines sold 4 billion pounds of tickets overseas • 520,000 jobs in UK in total are dependent on the aviation industry

International Tourism supports the UK aviation industry, which is now hampered by the recent Terrorist attacks

Opportunities

- *Tourism makes a major contribution to the UK Economy*
 - In 2005 the sector generated an estimated 46.8 billion Pounds (3.9% of GDP)
 - 3/4th of the international visitors to the UK arrive by air
- *Increased trade from countries outside EU provides immense opportunity*
 - 55% of the UK's exports of manufactured goods to countries outside the EU are transported by air
 - 60% of imports of machinery, mechanical appliances and electric equipments from outside the EU are carried by air

Challenges

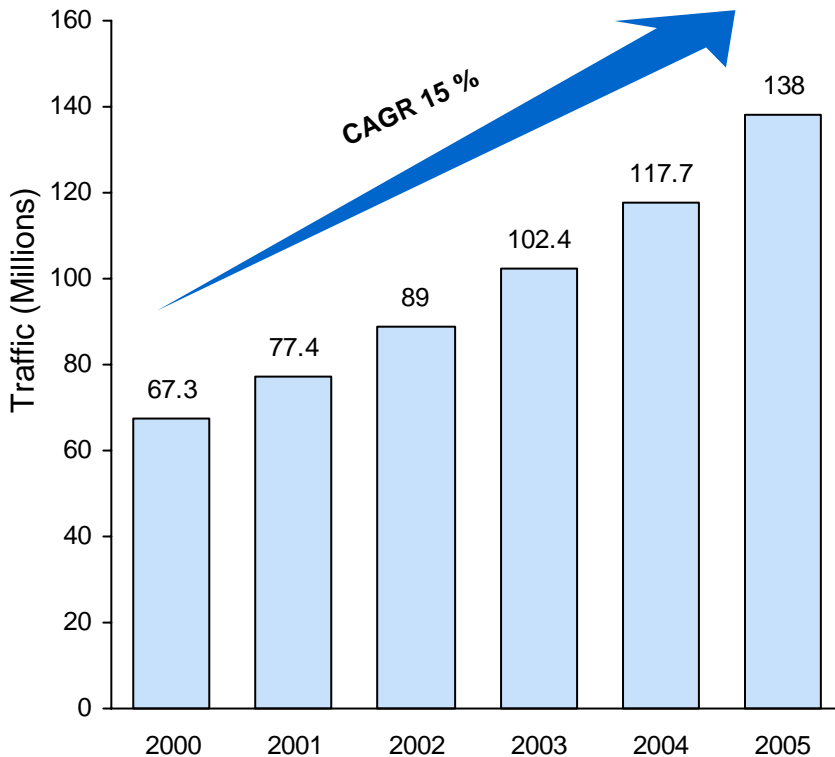
- *Poor Infrastructure to support the Aviation Industry*
 - Passengers traveling through air have risen faster than the capacity of air transport system to handle them
 - Congestion cost to passengers and airlines is estimated to be 1.7 billion pounds in 2005 and expected to exceed 5 billion pounds by 2015
- *Increasing Global terrorism has impacted the UK aviation industry negatively*
 - It has increased cost of security for the airlines, adding to the increasing operational costs
 - Reduced demand and cancellation of flights have added another blow

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Chinese air passenger traffic is increasing vigorously and will be the third largest only behind that of the US and Europe in the future

**Growth of Chinese Passenger Traffic ,
(2000 – 2005)**



Growth Analysis	
•	China will be the fourth largest international market for leisure travelers by 2020, with about 100 million outbound Chinese tourists
•	As per IATA, the region's current 23 percent share of the world's air traffic will grow to 50 percent by 2006
•	<i>Route Analysis</i> <ul style="list-style-type: none"> – Total routes served by Chinese airline companies -1,200 <ul style="list-style-type: none"> • Domestic – 975 (reaching 136 cities) • International – 225 (reaching 38 countries)

Absence of a regional airline network and no proper coverage of western Chinese territory are some of the opportunities present (1/2)

Opportunities

- *Absence of regional airline network*
 - The concept of regional airline have just picked up with only one Airlines Company focusing on regional routes started operation in September 2006
- *Governmental Focus on Regional Aviation*
 - China will give top priority to the development of small aircraft with 50 to 70 seats for regional flights
- *Western China – an opportunity waiting to be tapped*
 - Western china (Tibet, inner Mongolia etc.) poses a great opportunity for regional players as it not covered properly by present Chinese airlines
 - The western region cover as much as 71% of the total Chinese territory
- *High demand for regional Jets*
 - China still needs more than 400 small jetliners for regional flights, which will account for more than 26 percent of the total flights in 2019
- *Chinese Developmental Goals*
 - However the developing of the West Programme and the Olympic Games in 2008 will accelerate the need for regional jets

Absence of a regional airline network and no proper coverage of western Chinese territory are some of the opportunities present (2/2)

Challenges

- *Weak Aircraft Component supply*
 - The key weaknesses in the Chinese aviation sector are engines and avionics, and it is in these areas that China will need foreign assistance
 - For engines, while China can produce components, they are still some way from effectively producing their own products
 - Avionics is also similarly primitive
- *Lack of Skilled Labor*
 - There is plentiful supply of cheap labor in China, but a dearth of well trained specialists - though this is improving
- *Structural Weakness of Chinese airline Industry*
 - China's air transport industry is still regarded as having structural weaknesses. The total fleet of the three main carriers, for instance, is still less than that of an airline like British Airways or Lufthansa
- *Highly Competitive Landscape*
 - With opening up of skies, keener competition, something that will bring its own set of challenges
- Over sea technology transfer in this domain also suffer with the problem of autonomy

Chinese policy on civil aviation helps the flow of FDI in the sector indicating a huge opportunity for foreign entities

Chinese Aviation & FDI

FDI Policy - Highlights

- Foreign investment or management on the air traffic control system is prohibited.
- FDI on the existing public and general air transportation enterprises are encouraged, which includes following
 - General aviation enterprises related to agriculture, forestry, and fishery
 - General aviation enterprises related to business flight, aerial sightseeing, or serving for industries
 - Any projects related to State Security are prohibited
- Forms of the foreign investment include
 - Joint investment
 - co-operative management (Joint Co-operation for short)
 - Shareholding
- Any foreign company invests in a public air transport enterprise
 - its maximum stake is not permitted to exceed 49%
 - If foreign investment is from more than one company, each company can own a maximum stake of 25%

Impact on Chinese Aviation

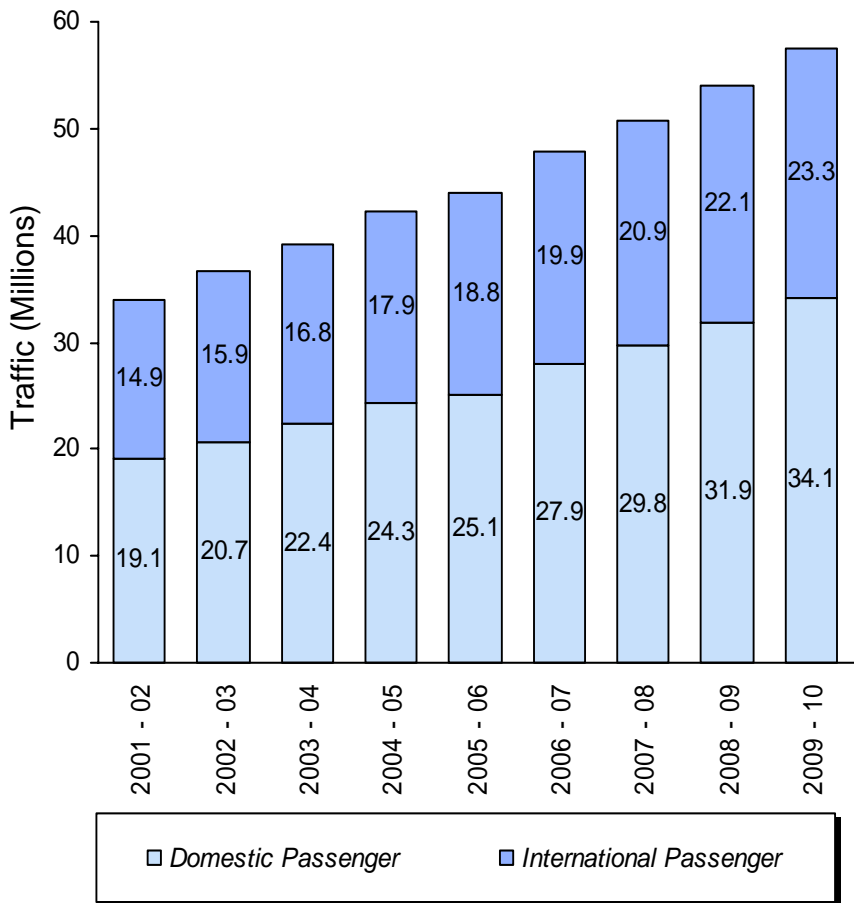
- According to CAAC, between 1980 and the end of 2003, more than US\$ 30 billion in foreign investment was pooled into China's civil aviation sector in projects including plane and engine maintenance, ground services and air catering.
- In 2004, 4 joint ventures were approved, 2 foreign loan projects were used, and the total foreign investment was US\$ 784 million

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Indian civil aviation is poised for growth, with predicted growing levels of domestic and international traffic

**Growth of Indian Passenger Traffic ,
(2000 – 2005)**



Growth Analysis

- Indian Domestic passenger air traffic is bound to grow at CAGR 7.5% for the period 2001 - 2010
- While international passenger traffic is bound to grow at CAGR 5.7% for the period 2001 - 2010
 - This represents a very healthy scenario for growth of air travel industry
- **Regional Air Travel in India**
 - As per the civil aviation minister the regional air connectivity is still very low
 - Air travel is still confined to a very small segment of the population
 - Therefore, there is a vast scope for expansion of civil aviation in the country in which low cost carriers will play an important role
 - Airlines like Kingfisher, Spice Jet, Air Deccan have started operations to many regional destinations like Jammu, Varanasi, Tirupati from Bangalore
 - While airlines like Paramount airways, are serving specially the south Indian market like Chennai, Trivandrum etc. only in business class configuration

But the Indian regulation on civil aviation prohibits the participation of any foreign airlines in domestic operations

Indian Civil aviation Policy

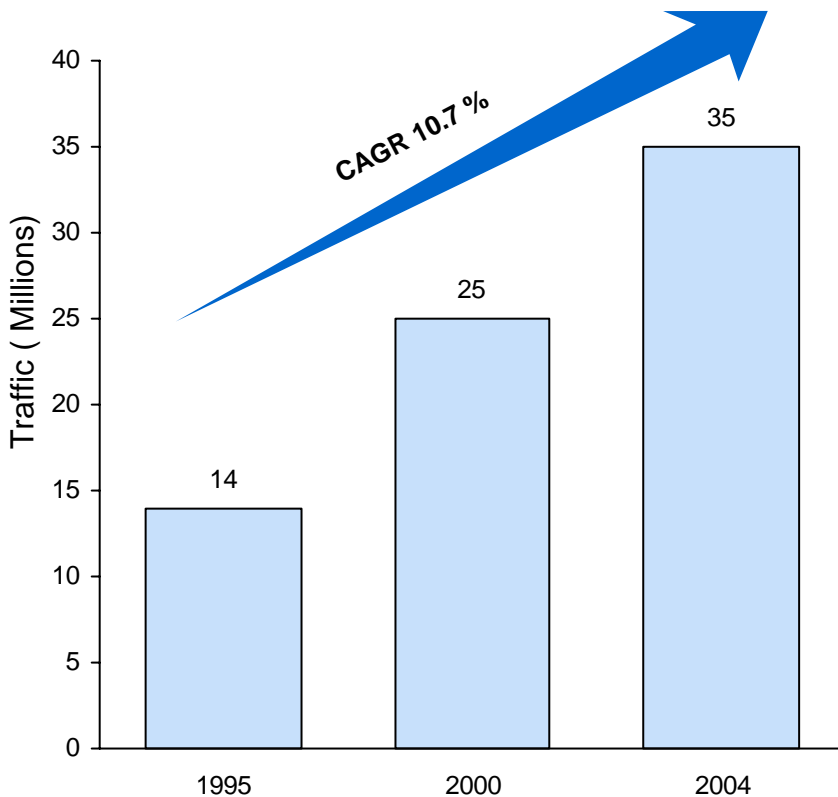
- Private sector is allowed to operate scheduled and non-scheduled services
- Operator should be a citizen of India or a company or a body corporate which is registered in India and whose
 - Principal place of business is in India
 - Chairman and at least two-thirds of its Directors are Indian citizens
 - Substantial ownership and effective control are vested in Indian nationals
- The scheduled operators are required to follow route dispersal guidelines
 - An administrative mechanism that was aimed at extending air transport services to regions/routes that is not necessarily commercially viable
- Foreign equity participation up to 49 percent and investment by Non-Indian Residents (NRIs), Overseas Corporate Bodies (OCBs) up to 100% is allowed. The representation of the foreign investing institution/entity on the Board of Directors of the company shall not exceed one-third of the total
- Foreign airlines are not permitted to pick up equity. Foreign financial institutions and other entities who seek to hold equity in the domestic air transport sector shall not have foreign airlines as their share holders
- Open skies policy for cargo services
- As regards safety and security arrangements, the operators must ensure compliance with relevant regulatory requirements stipulated respectively by the Director General of Civil Aviation (DGCA) and the Bureau of Civil Aviation Security (BCAS)

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Air transport has been a major medium for travel, but international tourism has been the major driver for growth of civil aviation

**Growth of Middle East Tourist Inflow ,
(1995 – 2004)**

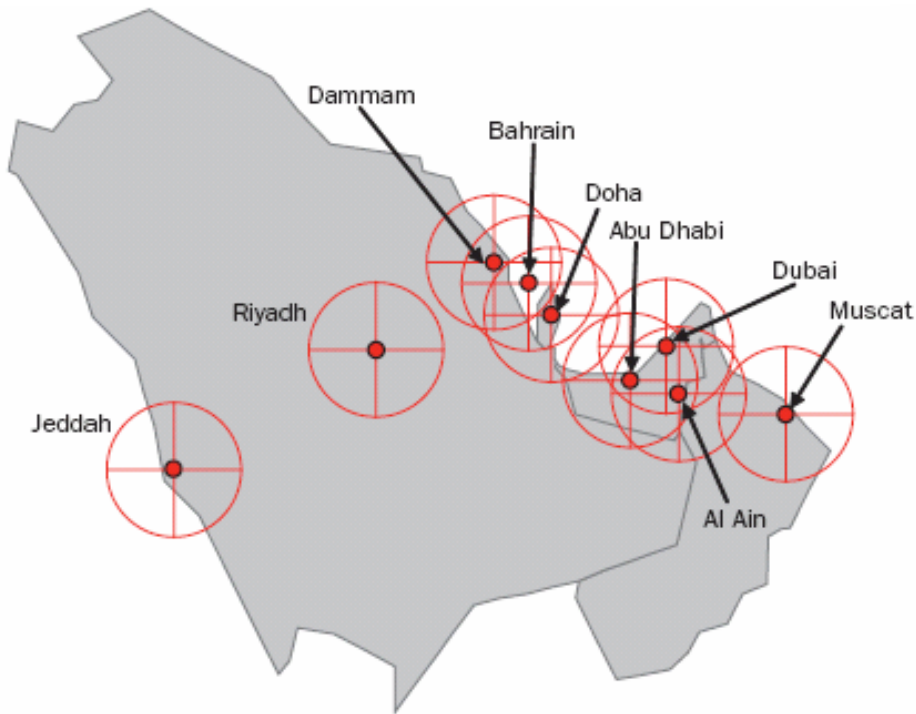


Growth Analysis

- Most of the air traffic growth in middle east has been driven by the growth of international tourism flowing into the region at a CAGR of 10.7%
 - In common term, the growth has been over three times over the 1995 – 2003 period
 - The growth has been more compared to other regions in the world for the same period, i.e
 - Europe – 3.4%
 - Asia & Pacific – 6.7%
 - Americas – 1.6%
 - Africa – 5.7%
- Offered capacity of aviation sector in middle east is well developed than other countries
- Regional Air Travel
 - The total number of regional routes served has grown over the year
 - 1995 – 14 (including 3 routes in Iran)
 - 2002 – 54 (including 21 routes in Iran)

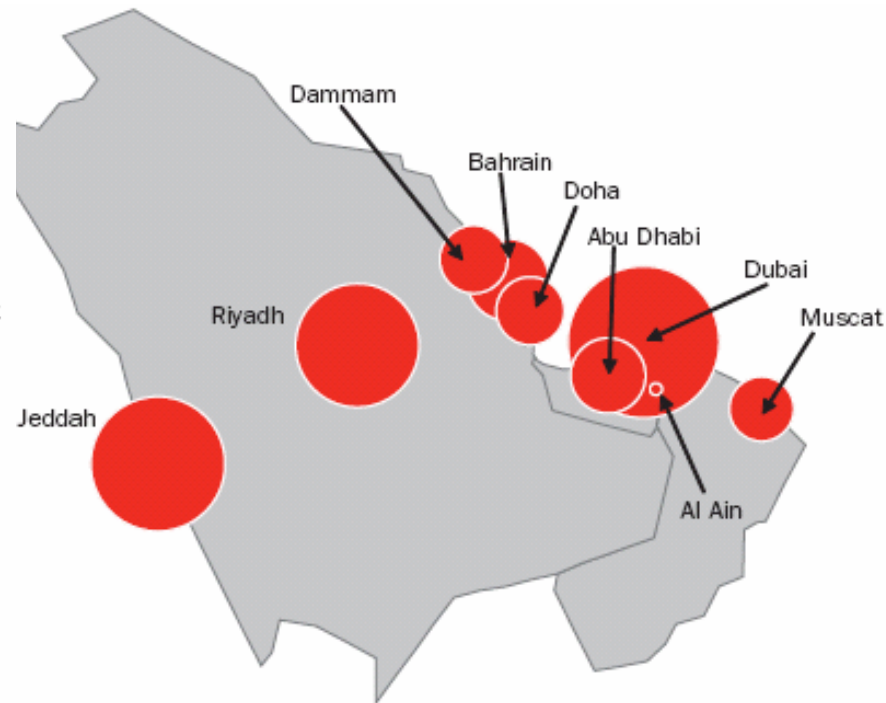
Presence of major airports with huge traffic potentials and small catchments areas provide lucrative opportunity for growth of regional carriers

Catchments Population of Main Gulf Airports



⊕ Catchments population in a radius of a 2.5 Km Drive

Passenger Traffic in Main Gulf Airports



● Size of bubble represent number of passengers

However the Middle East civil aviation market are more regulated and create a de-motivating factor for foreign carriers

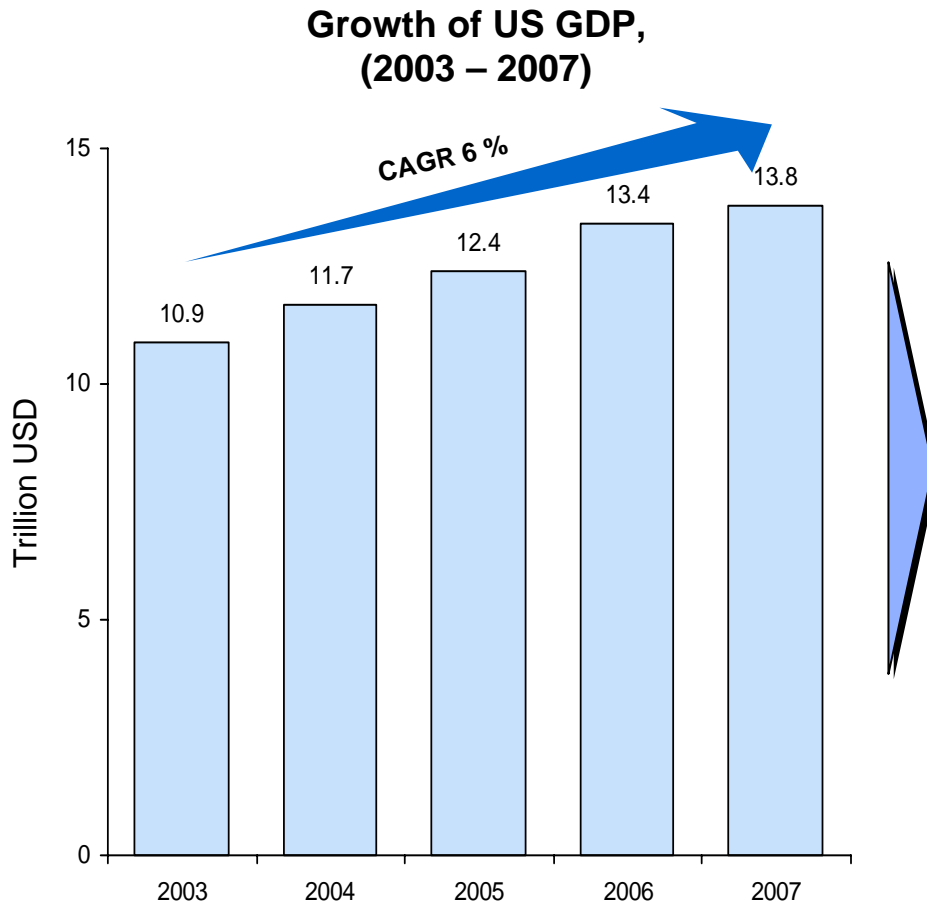
Challenges

- *Over Regulated Civil aviation market*
 - Middle aviation market is characterized by the factor that it being too much over regulated, such as
 - Saudi Arabian Airlines
 - Saudi Arabian Airlines was established as a corporation. By Royal Decree No. 45 dated February 19, 1963, signed by King Faisal, the airline became an autonomous entity, run by a Board of Directors, and chaired by the Minister of Defense and Aviation
 - Emirates Airlines
 - Wholly owned by the Government of Dubai
 - Etihad Airways
 - Etihad Airways was set up as the National Airline of the United Arab Emirates in July 2003 by a Royal decree
 - Gulf Air
 - Owned by the Kingdom of Bahrain and the Sultanate of Oman
- *Cost and efficiency issues*
 - Airline in middle east have a total fleet size of 504 aircraft, and are about to add another 260 aircraft
 - They also plan to increase their over all capacity by 15% per annum for the next five years
 - These expansion plans are being supported by the respective governments of the airlines
- *Subsidies*
 - The airlines are also provided with subsidies by there respective governments

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 - Evolution of Regional Airline
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US economy has been projected to grow at a comfortable CAGR of 6 percent for the period 2003 - 2007

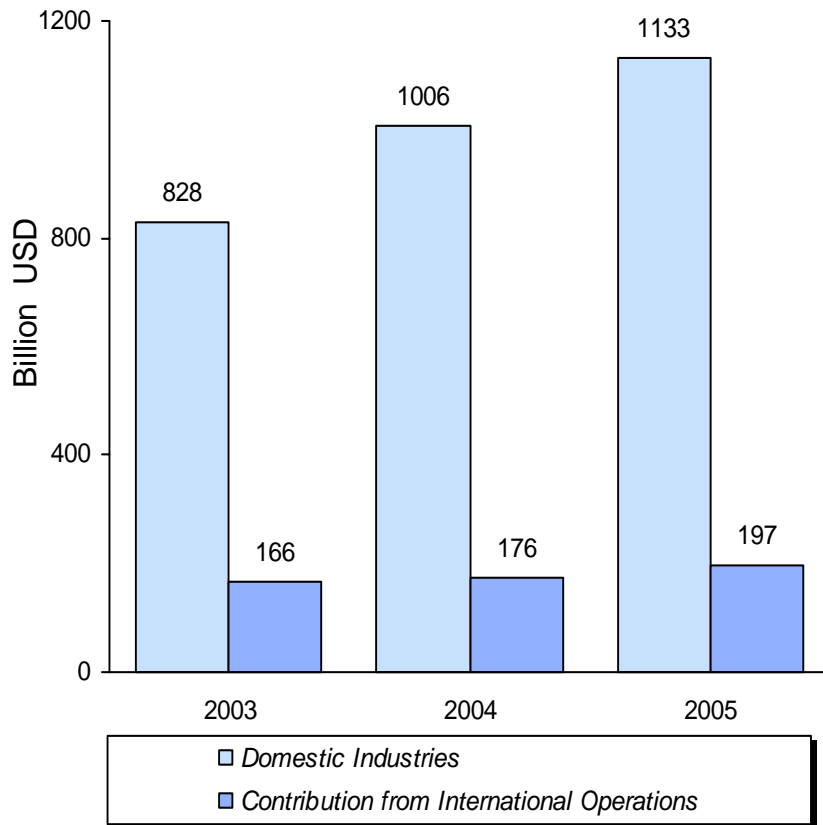


US – Economic Outlook

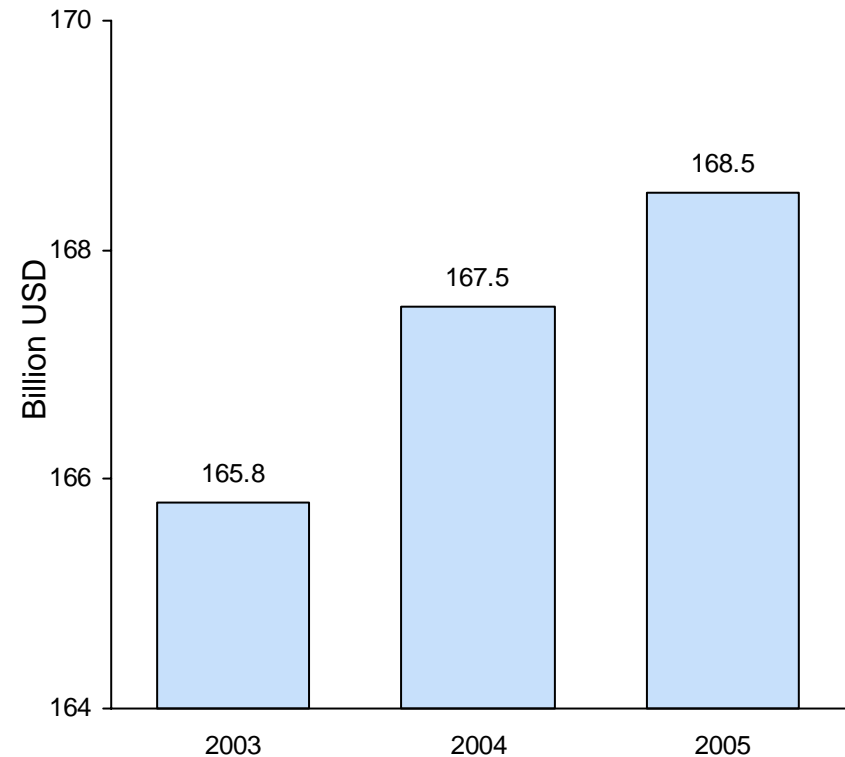
- GDP real Growth rate – 3.2 %
 - It is expected to slow down to 2% in 2007, but will pick up to 2.8% by 2008
- Rate of unemployment – 5.1%
- Inflation rate – 3.2%
- *Private consumption*
 - It will rise by 2% in 2007 as opposed to 1.6% previous year
- *Economic Policy Outlook*
 - The Federal Reserve is not expected to cut interest rates until mid-2007 at the earliest
 - Presently the rates are 5.25% as against a neutral rate of 4.5%

The growth in GDP has been driven by the growth of US corporate profits which has also resulted in growth of business travel and tourism industry

**Growth of US Corporate profit,
(2003 – 2005)**



**Growth of US Business Travel,
(2003 – 2005)**

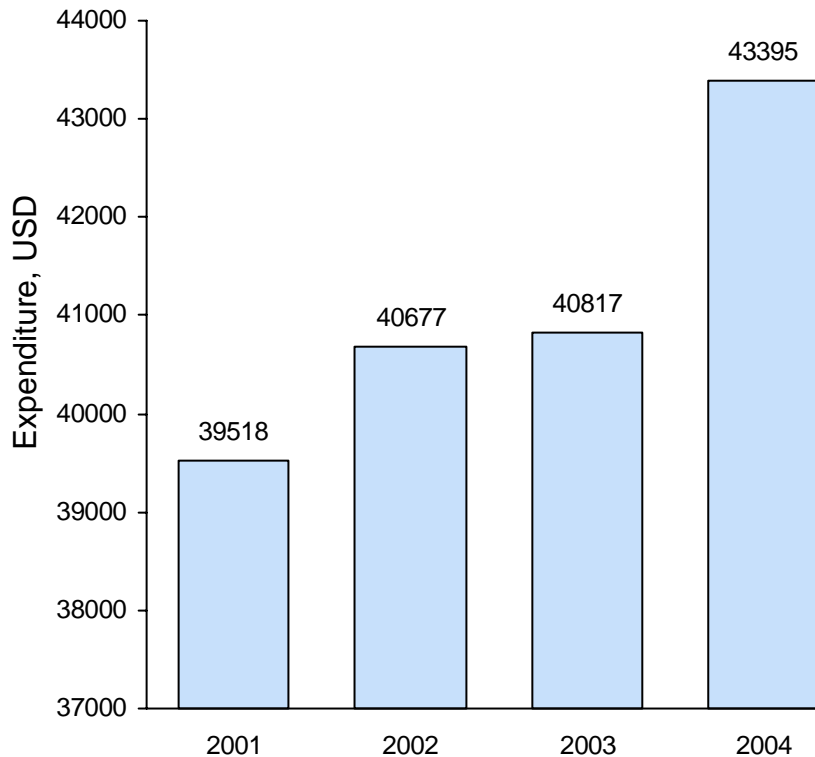


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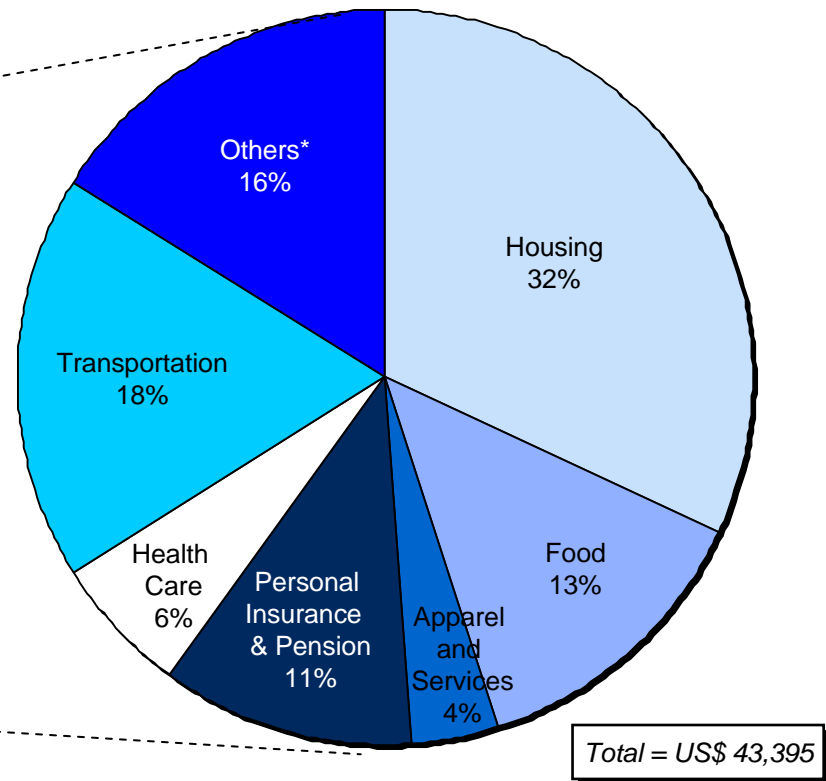
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US consumer tend to spend a large part of there income on housing closely followed by transportation and other needs

Growth of Average Annual Expenditure, (2001 – 2004)



Distribution of Average Expenditure of a US citizen, (2004)

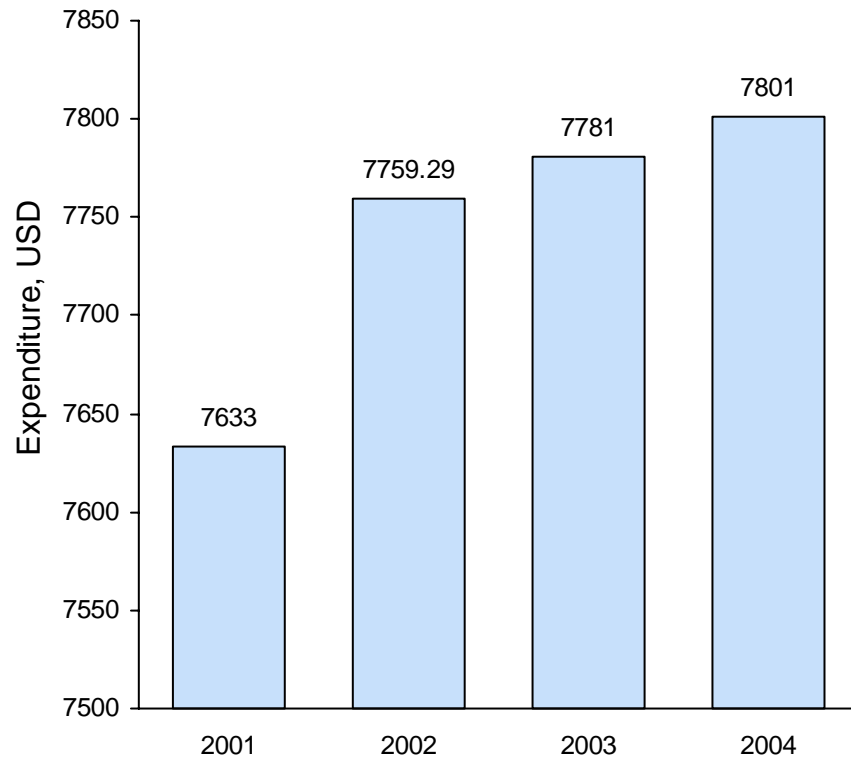


Note: * Includes entertainment, personal care products and services, education, tobacco products and smoking, and miscellaneous

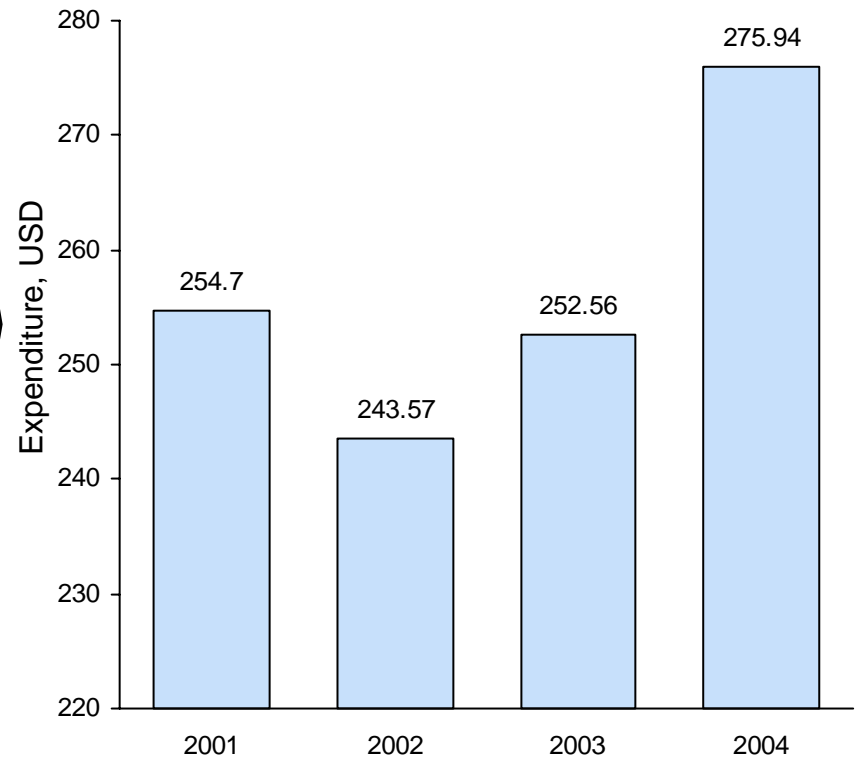
Source: Secondary Research

While the average spending of US citizens on transportation is also on increase, giving a boost to this industry

Average Personal Expenditure on Transportation, (2001 – 2004)



Average Personal Expenditure on Air Fare, (2001 – 2004)

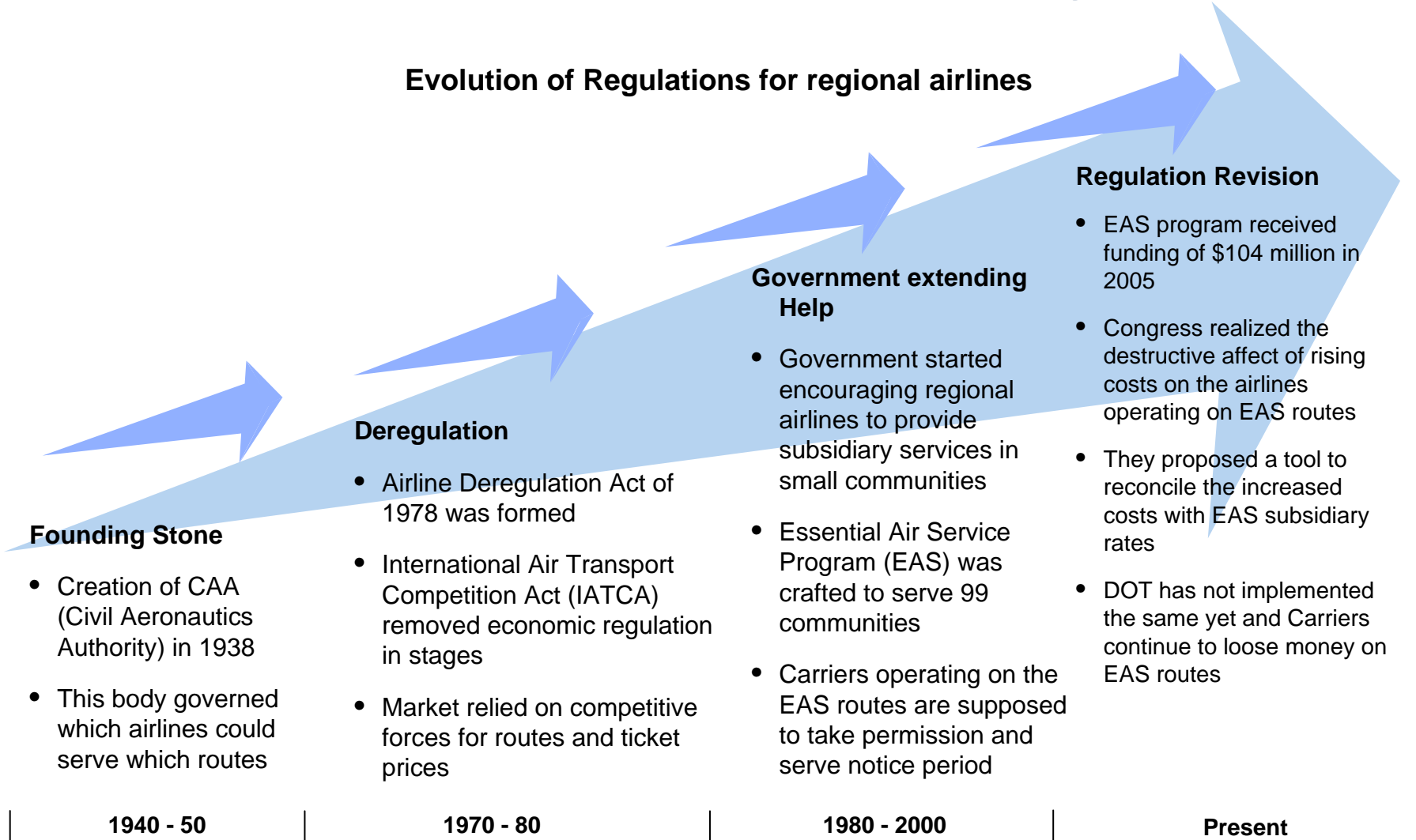


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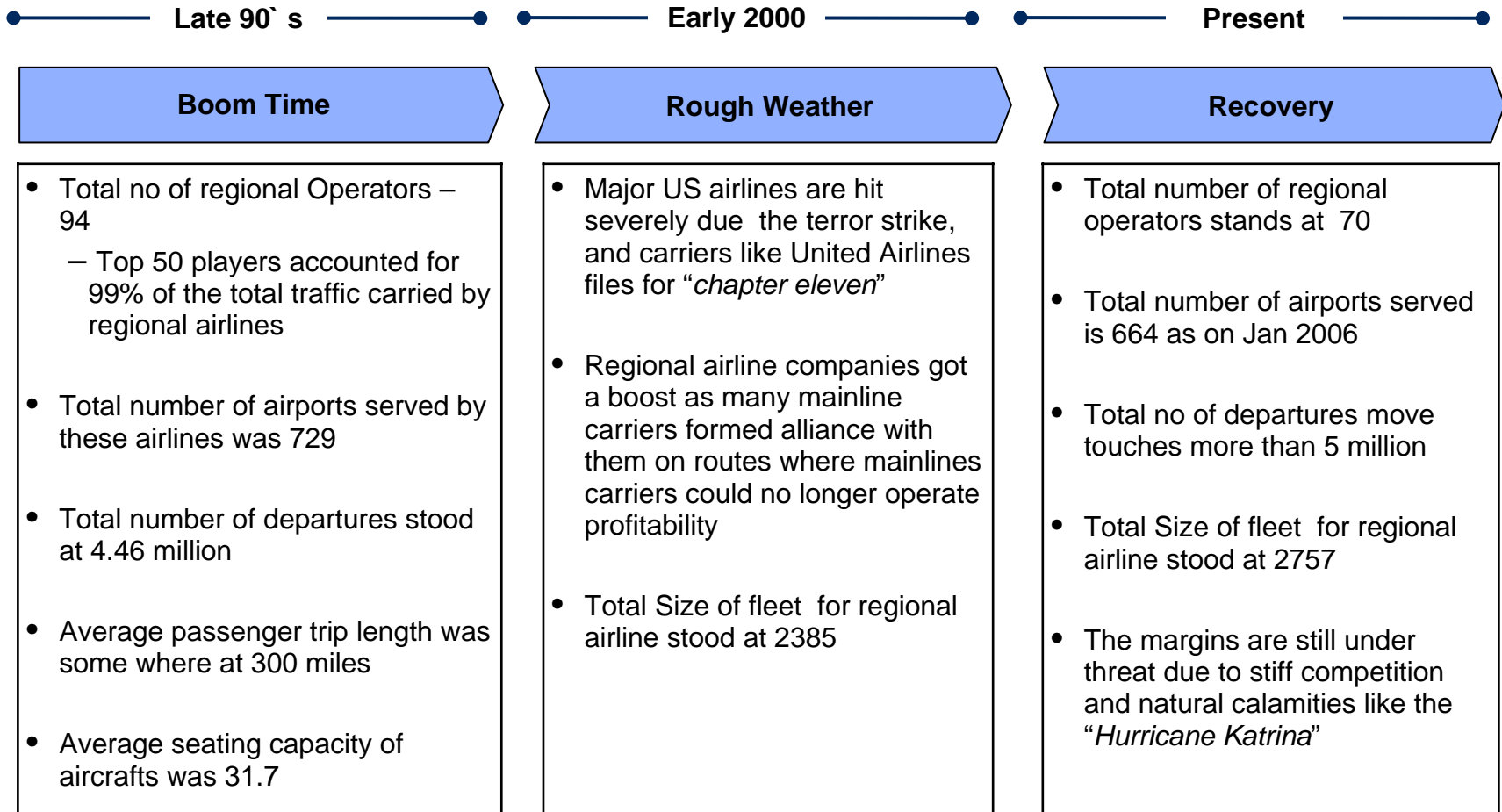
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U.S. Government has also encouraged the forming of regional airlines to provide feeder services from smaller communities to larger towns

Evolution of Regulations for regional airlines

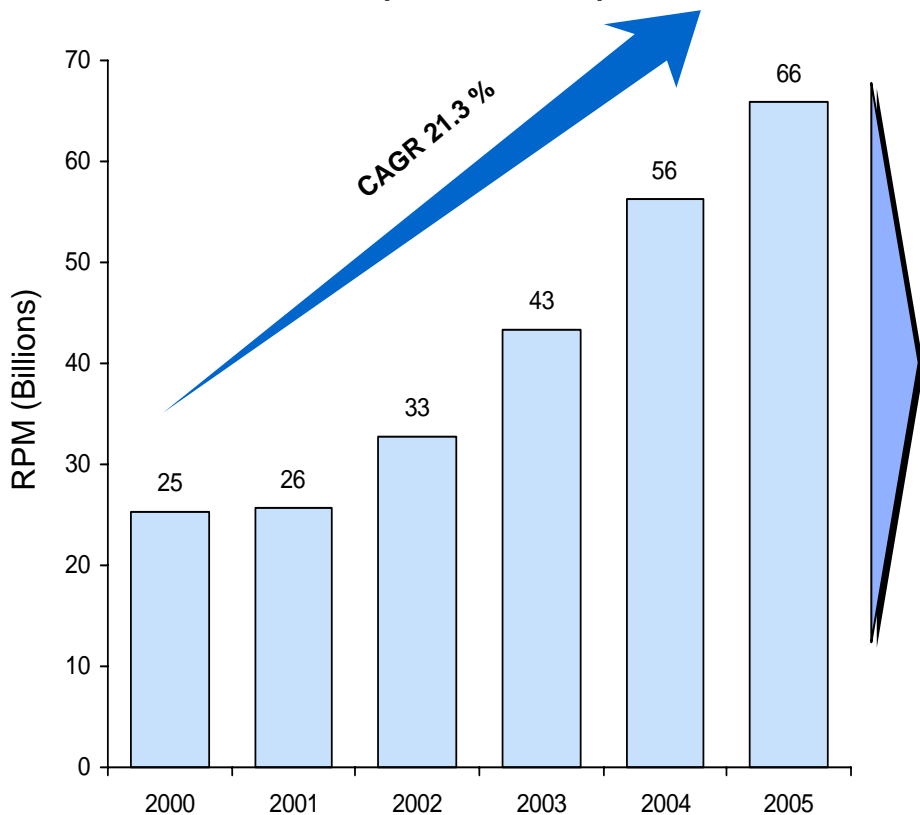


Post September 9/11, US civil aviation industry has seen a lot of restructuring through consolidation, alliances, etc.



US regional air travel industry has been growing at CAGR of 21.3 percent from 2000 - 2005

Growth of Revenue Passengers Miles , (2000 – 2005)



Growth Analysis

Who is propelling this growth

- These carriers transport every 1 out of 8 travelers in US
- Around 65% of the passenger traveling through regional carriers are business travelers
 - The business travel and tourist market has grown at a 0.7% CAGR to a US\$ 167 Billion in 2004 since 2000

Where is the industry heading

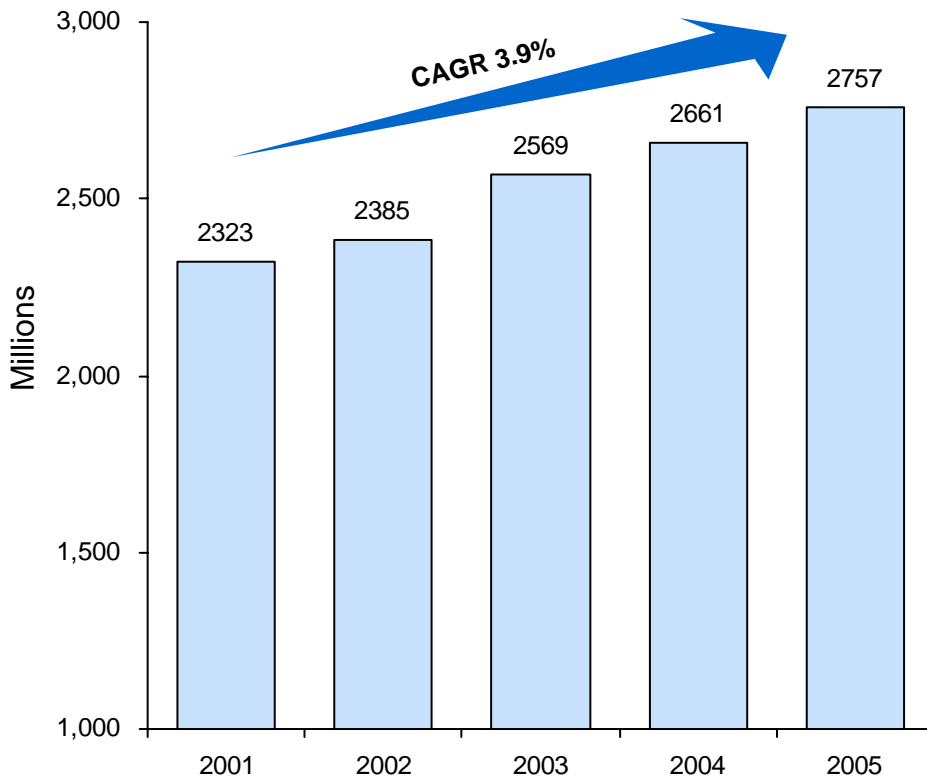
- The domestic RPMs is to grow at a rate of 7.1% in 2006 and 9.5% by 2007
 - While in a long term forecast, RPMs for regional airlines are poised to grow at 6.4% for the period between 2007 - 2017

Note: RPM : Revenue per Mile

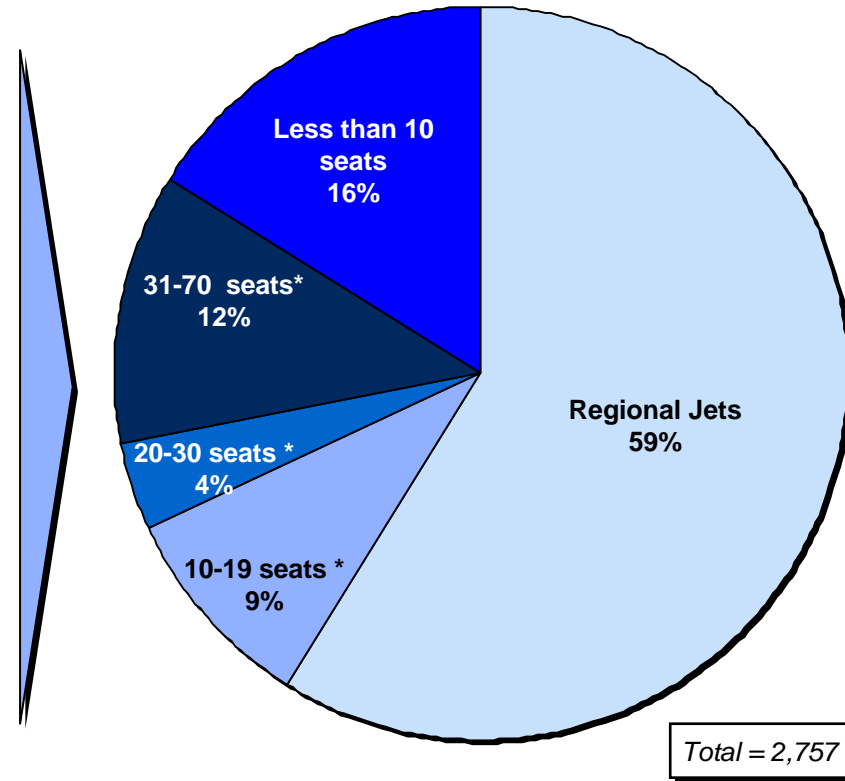
Source: Secondary Research

To match up with the increasing passenger traffic, regional airlines have increased their fleet size by a CAGR of 3.9% between 1999 to 2005...

Number of Aircraft - Regional Carriers, (2001 – 2005)



Regional Fleet Distribution, (2005)

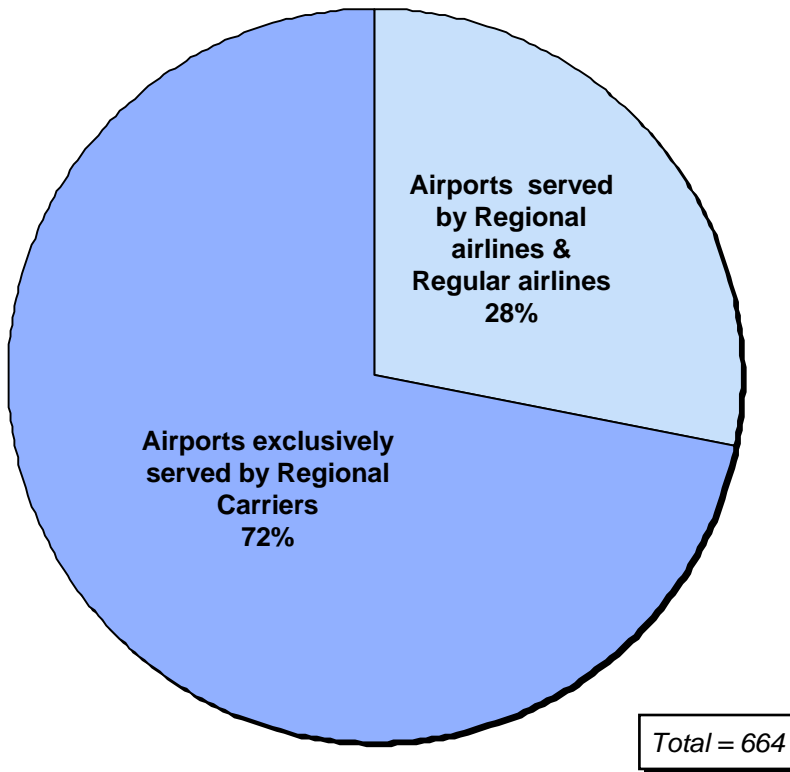


Note: * Stands for Turboprop carriers

Source: Secondary Research

... and 72% of the total commercial airports of US are exclusively served by the Regional Airlines

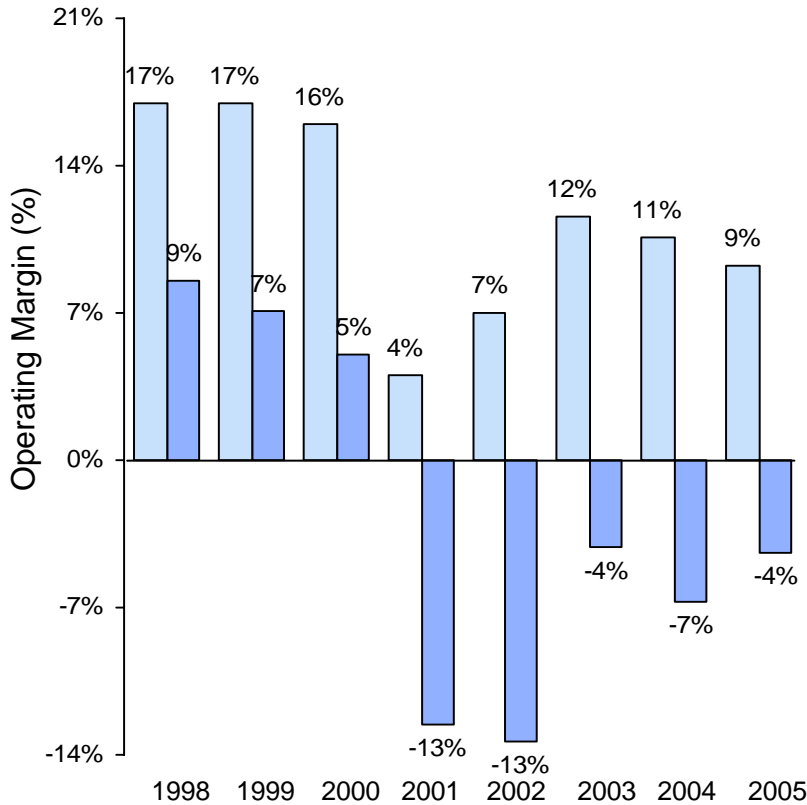
Airports Served by Regional Airlines, (2005)



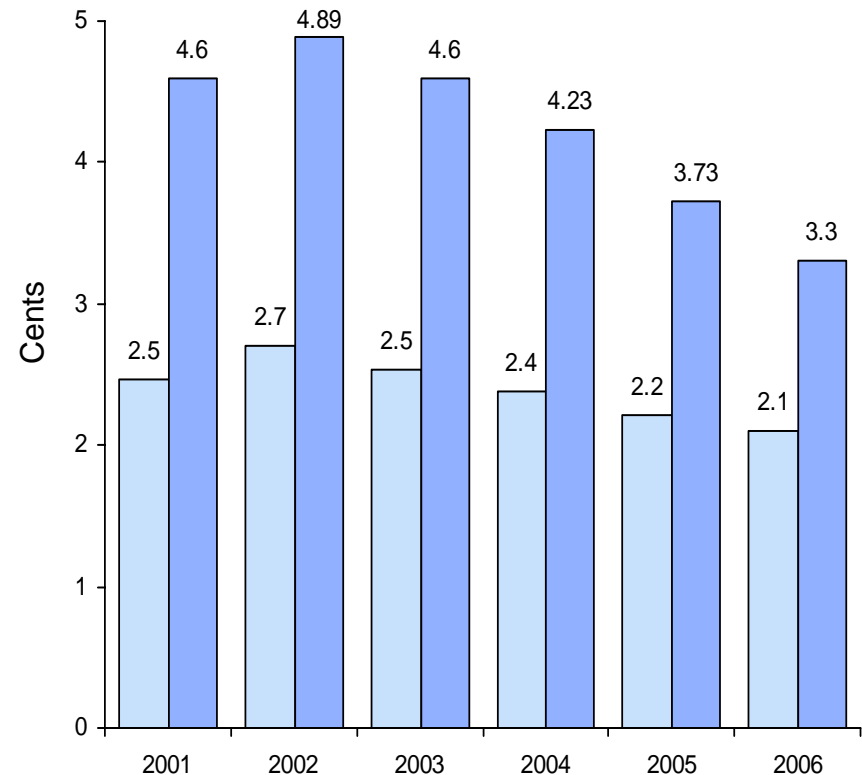
Top US Regional Carrier Airports	Jan. 2005 (Departures)
Chicago, IL	547
Washington, DC	498
Cincinnati, Ohio	480
Atlanta, GA	389
Dallas, TX	350
Houston, TX	318
Charlotte, NC	293
Detroit, MI	285
Denver, CO	279
Philadelphia, PA	252

Regional Airlines enjoy higher Operating Profit than conventional Airlines, driven by low labour cost and industry risk mitigation

Operating Margin of Regional & Legacy Airlines, (1998-2005)



Labor Cost Per Available Seat Mile, (2001-2006*)

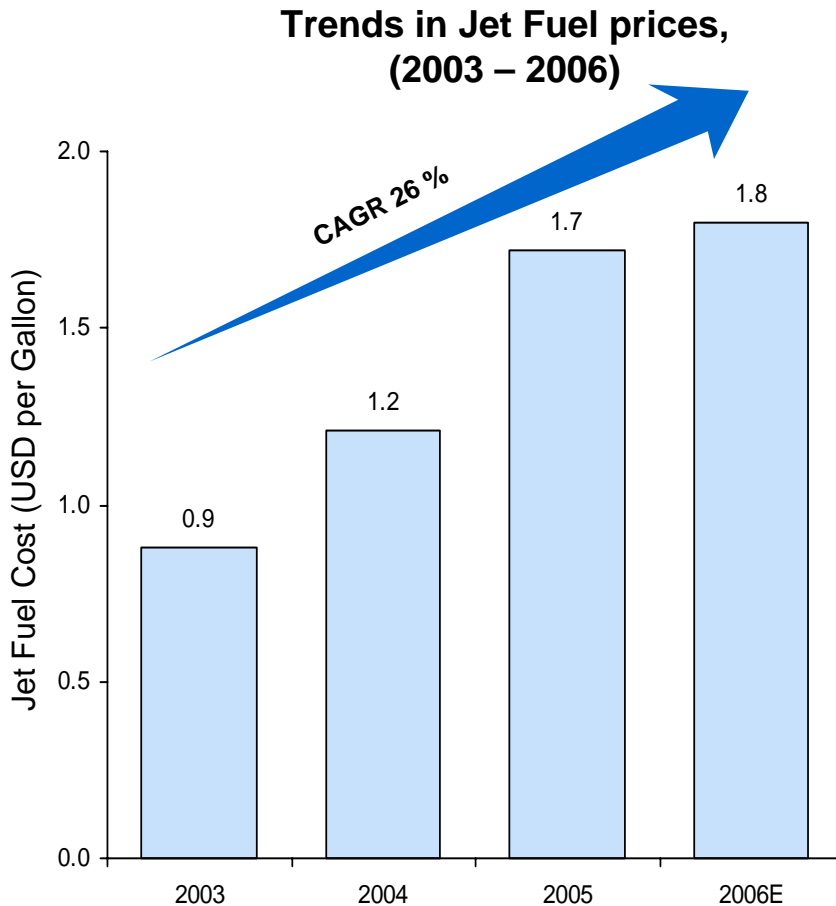


Legend: Regional (light blue), Legacy (dark blue)

Note: 2006* stands for First half of 2006

Source: Secondary Research

But the rising trend of Jet fuel prices can bring margins of regional airlines under threat and can have a detrimental effect

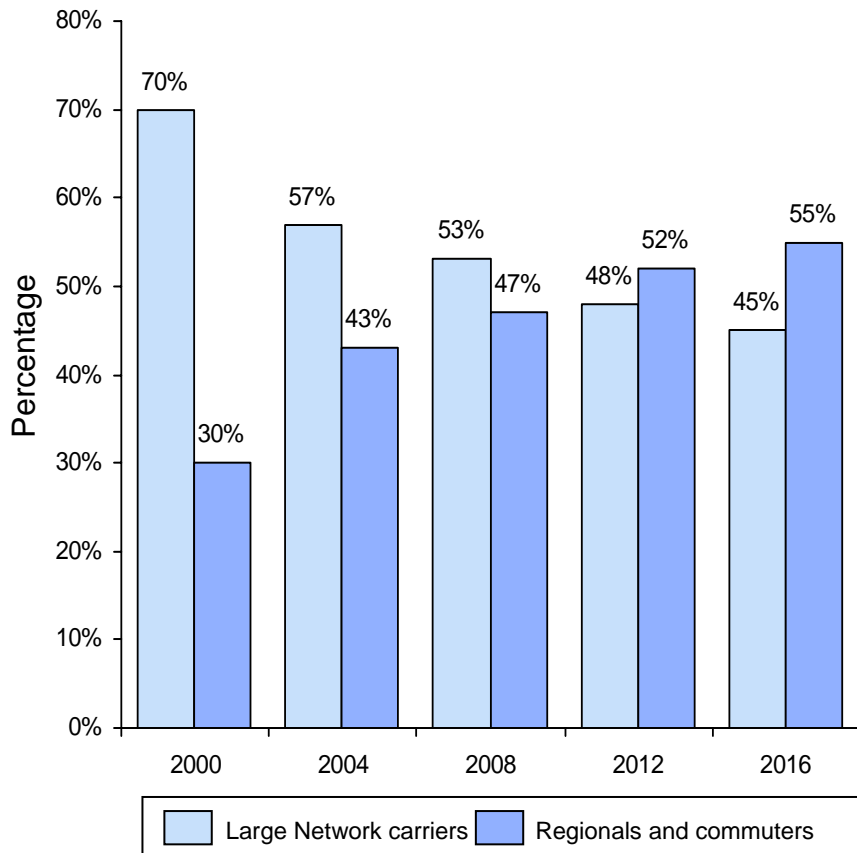


Jet fuel cost rise – Impact on Airlines

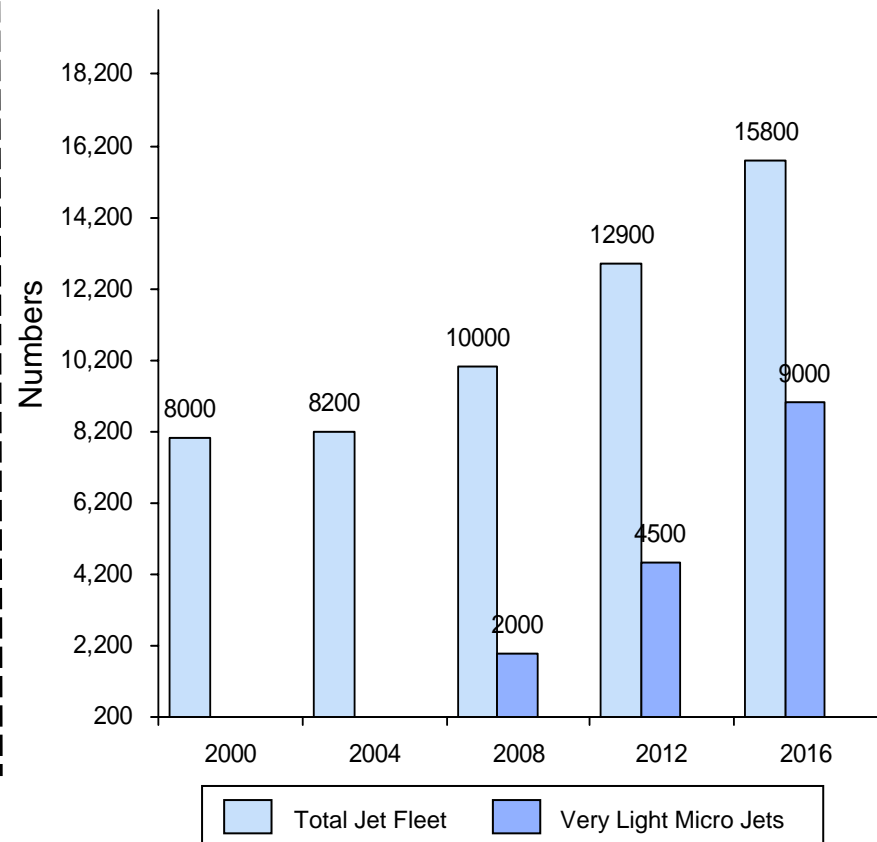
- In July 2005, jet fuel averaged \$1.66 per gallon – 52 cents more than in July 2004
 - This meant that for a 592 gallons of fuel required for a 40 seat regional jet to fly approximately 600 miles will cost \$1,024 in July 2005 compared with \$600 in 2004

By 2016, Zinnov predicts shift of commercial air-passengers to point-point travel and use of general aviation aircraft as opposed to commercial airlines

Commercial Airline Passenger Share (2000- 2016)



Carriers used for Short Haul routes (2000- 2016)



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Additional information on the these topics are available in our full report.

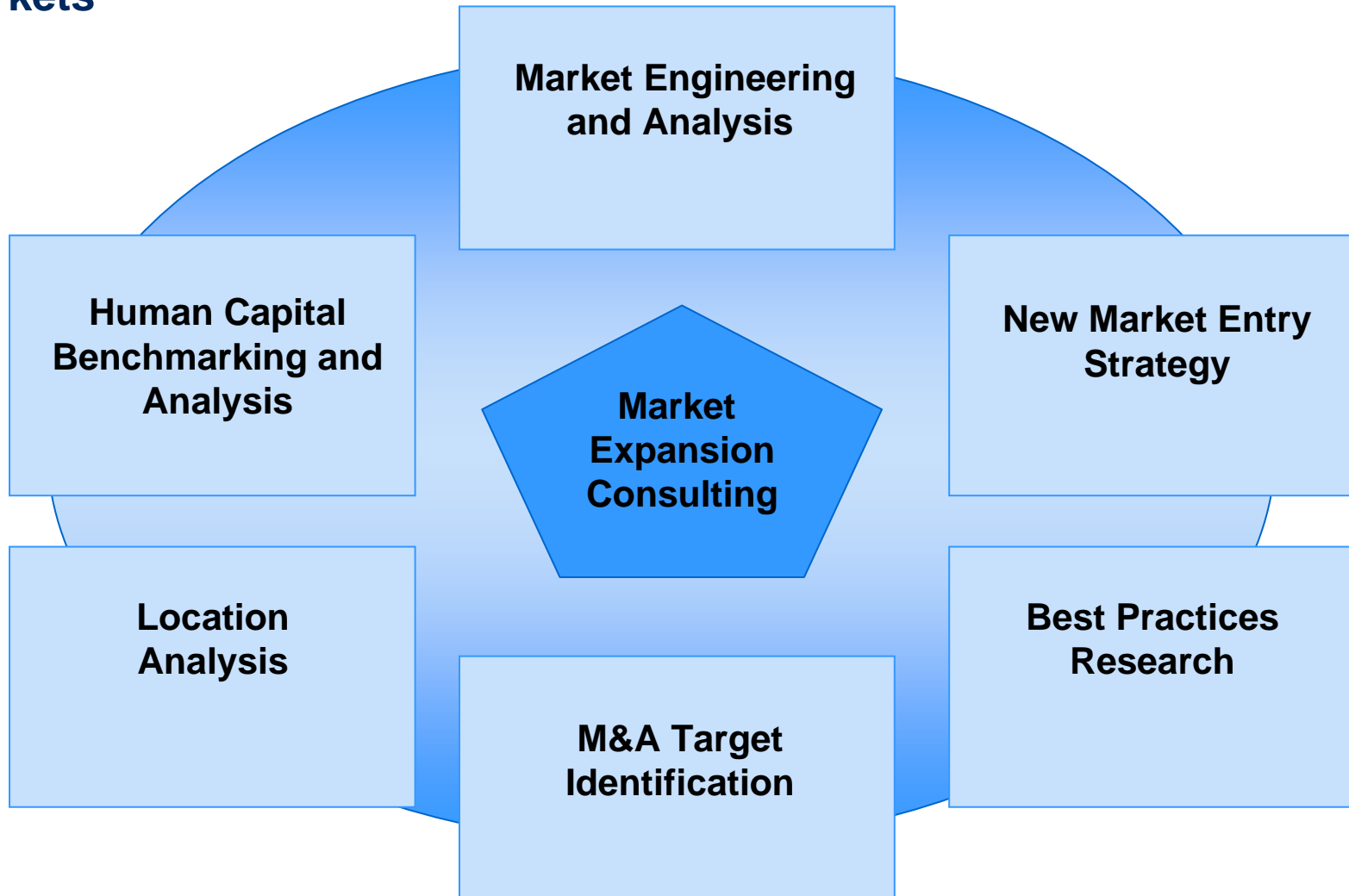
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- **Business Models**
 - Domestic Models
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- **Challenges**
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Zinnov's research based "market expansion" consulting helps customers create sustainable competitive advantage through the creation of new markets



Thank You !

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