

# RESEARCH PROJECT IN AVIATION



## Concept and importance of Airline economics

**SUBMITTED BY :**

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**SUBMITTED TO:**

**Prof. S.K SIR**

# Certificate

This is to certify that Mark Dycil (18SLAM1020092), final year student of BBA aviation management of Galgotias University has made his conceptual project on the topic “Concept and importance of Airline economics” under the guidance of Prof. Shiv Kumar Sharma.

Signature

# Acknowledgement

I would like to express my special thanks of gratitude to Prof. Shiv Kumar Sharma who gave me the golden opportunity to do this wonderful project on the topic “Concept and importance of airlines economics” which also helped me growing my knowledge and I came to know about so many new things.

I am really thankful to them.

Secondly I would also like to thank my parents and friends who helped me a lot in finishing this project within the limited time.

Thanks again to all who helped me.

Mark Dycil

# Declaration

I hereby declare that the work done on the conceptual project made on the topic of “Concept and importance of airline economics” is solely done by me. No part of it is taken from any other source and is my original work.

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# Introduction

Because of all of the equipment and facilities involved in air transportation, it is easy to lose sight of the fact that this is, fundamentally, a service industry. Airlines perform a service for their customers - transporting them and their belongings (or their products, in the case of cargo customers) from one point to another for an agreed price. In that sense, the airline business is similar to other service businesses like banks, insurance companies or even barbershops. There is no physical product given in return for the money paid by the customer, nor inventory created and stored for sale at some later date.

## Characteristics of the Airline Business

### Capital Intensive

Unlike many service businesses, airlines need more than storefronts and telephones to get started. They need an enormous range of expensive equipment and facilities, from airplanes to flight simulators to

maintenance hangars. As a result, the airline industry is a capital-intensive business, requiring large sums of money to operate effectively.

### High Cash Flow

Because airlines own large fleets of expensive aircraft which depreciate in value over time, they typically generate a substantial positive cash flow (profits plus depreciation). Most airlines use their cash flow to repay debt or acquire new aircraft. When profits and cash flow decline, an airline's ability to repay debt and acquire new aircraft is jeopardized.

### Labor Intensive

Airlines also are labor intensive. Each major airline employs a virtual army of pilots, flight attendants, mechanics, baggage handlers, reservation agents, gate agents, security personnel, cooks, cleaners, managers, accountants, lawyers, etc. Computers have enabled airlines to automate many tasks, but there is no changing the fact that they are a service business, where customers require personal attention. More than one-third of the revenue generated each day by the airlines goes to pay its workforce.

### Highly Unionized

In part because of its long history as a regulated industry, the airline industry is highly unionized.

### Thin Profit Margins

The bottom line result of all of this is thin profit margins, even in the best of times. Airlines, through the years, have earned a net profit between one and two percent, compared to an average of above five percent for U.S. industry as a whole.

### Seasonal

The airline business historically has been very seasonal. The summer months were extremely busy, as many people took vacations at that time of the year. Winter, on the other hand, was slower, with the exception of the holidays. The result of such peaks and valleys in travel patterns was that airline revenues also rose and fell significantly through the course of the year.

## The importance of the industry

### **Air transport provides vital economic benefits**

Aviation provides the only worldwide transportation network, which makes it essential for global business and tourism. It plays a vital role in facilitating economic growth, particularly in developing countries.

Aviation transports close to 2 billion † passengers annually and 40% of interregional exports of goods (by value).

40% of international tourists now travel by air.

The air transport industry generates a total of 29 million jobs globally (through direct, indirect, induced and catalytic impacts)

Aviation's global economic impact (direct, indirect, induced and catalytic) is estimated at US\$ 2,960 billion, equivalent to 8% of world Gross Domestic Product (GDP).

The world's 900 airlines have a total fleet of nearly 22,000 aircraft<sup>1</sup>. They serve some 1,670 airports<sup>2</sup> through a route network of several million kilometres managed by around 160 air navigation service providers<sup>3</sup>.

25% of all companies' sales are dependent on air transport. 70% of businesses report that serving a bigger market is a key benefit of using air services.

### **Air transport is a major employer**

The air transport industry generates a total of 29 million jobs globally. 5.0 million direct jobs

The airline and airport industry directly employ 4.3 million people globally. • The civil aerospace sector (manufacture of aircraft systems, frames and engines, etc.) employs 730,000 people.

5.8 million indirect jobs through purchases of goods and services from companies in its supply chain.

2.7 million induced jobs through spending by industry employees.



15.5 million direct and indirect jobs through air transport's catalytic impact on tourism. Some 6.7 million direct tourism jobs are supported by the spending of international visitors arriving by air.

As a capital-intensive business, productivity per worker in the air transport industry is very high, at three and a half times the average for other sectors.

### **Air transport is a highly efficient user of resources and infrastructure**

Aviation boasts high occupancy rates of 65 to 70% – which is more than double those of road and rail transportation.

Air transport entirely covers its infrastructure costs. Unlike road and rail, it is a net contributor to national treasuries<sup>4</sup> through taxation.

Modern aircraft achieve fuel efficiencies of 3.5 litres per 100 passenger-km or 67 passenger-miles per US gallon. The next generation aircraft (A380 & B787) are targeting an efficiency of less than 3 litres per 100 passenger-km or 78 passenger-miles per US gallon<sup>5</sup>, which exceeds the efficiency of any modern compact car on the market.

**Aviation provides the only worldwide transportation network, which makes it essential for global business and tourism. It**

**plays a vital role in facilitating economic growth, particularly in developing countries.**

### **Air transport provides significant social benefits**

Air transport improves quality of life by broadening people's leisure and cultural experiences. It provides a wide choice of holiday destinations around the world and an affordable means to visit distant friends and relatives.

Air transport helps to improve living standards and alleviate poverty, for instance, through tourism.

Air transport may provide the only transportation means in remote areas, thus promoting social inclusion.

Air transport contributes to sustainable development. By facilitating tourism and trade, it generates economic growth, provides jobs, increases revenues from taxes, and fosters the conservation of protected areas.

The air transport network facilitates the delivery of emergency and humanitarian aid relief anywhere on earth, and ensures the swift delivery of medical supplies and organs for transplantation.

### **Air transport is responsibly reducing its environmental impact**

Aircraft entering today's fleets are 20 decibels (dB) quieter than comparable aircraft 40 years ago. This corresponds to a reduction in noise annoyance of 75%.

A further 50% reduction in noise during take-off and landing (minus 10dB) is expected by 20206 .

Aircraft entering today's fleets are 70% more fuel-efficient than they were 40 years ago. Carbon monoxide emissions have been simultaneously reduced by 50%, while unburned hydrocarbon and smoke have been cut by 90%.

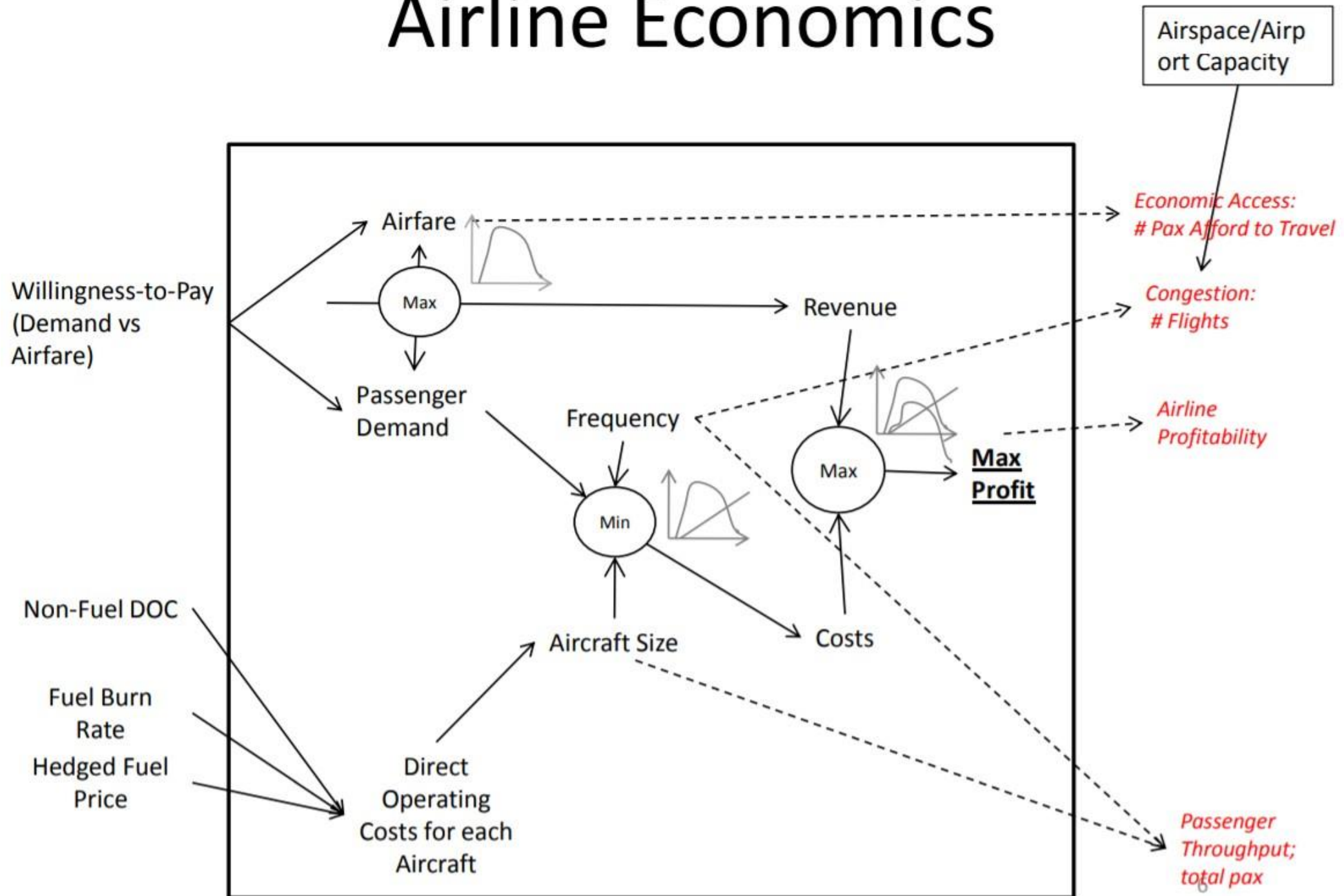
Research programmes aim to achieve a further 50% fuel saving and an 80% reduction in oxides of nitrogen by 2020 .

Enhancements in air traffic management have the potential to reduce fuel burn by 6-12%, while operational improvements can bring an additional 2-6% fuel saving<sup>8</sup> .

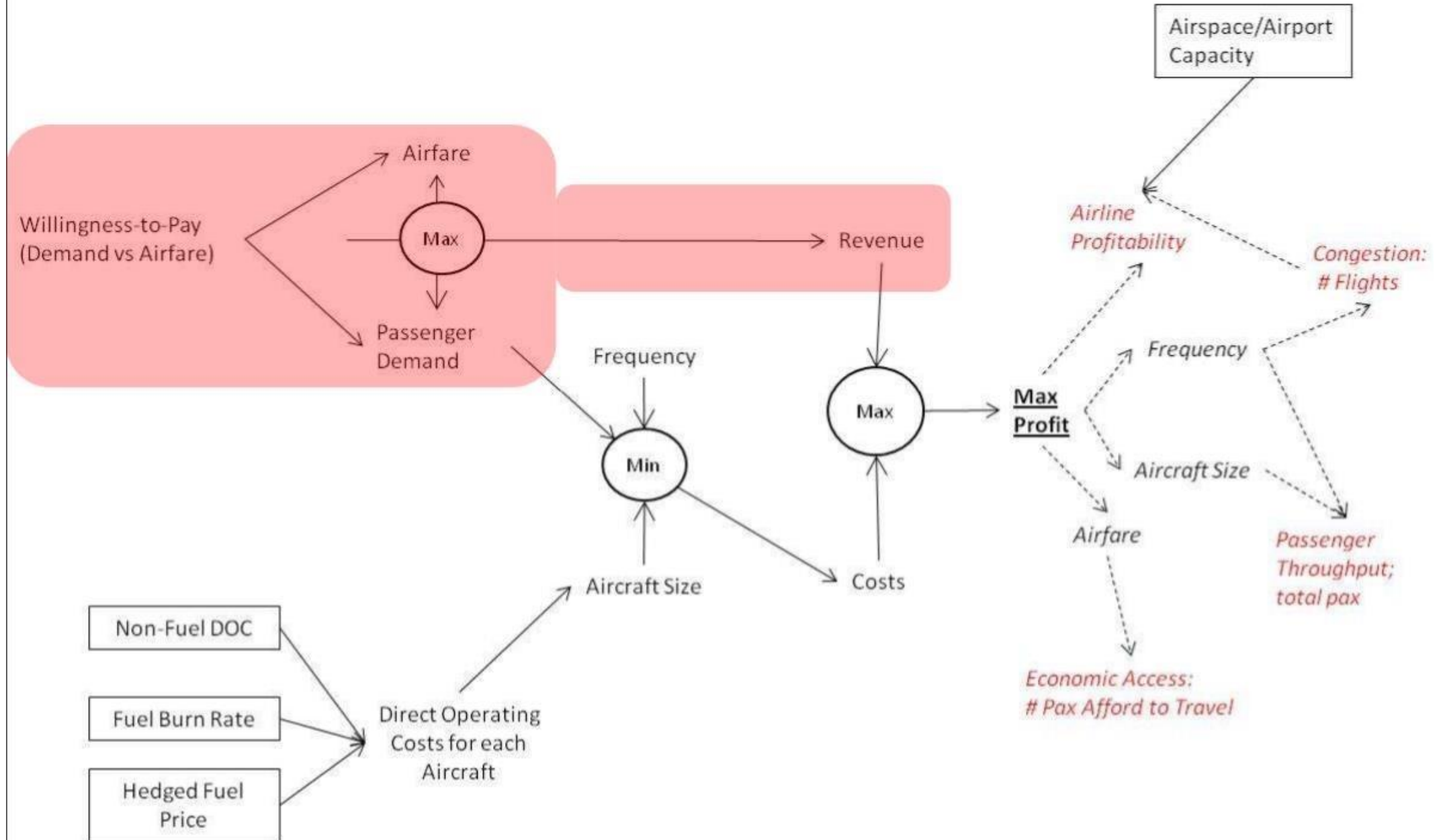
#### Model Airline Economics – Assumptions

- Assumptions: – Airline are rational economic agents
- Select aircraft type and schedule to maximize profit – Profit maximized across network (e.g. connecting) – Profit = Revenue – Costs
- Revenue = (Airfare + Fees) \* Pax
- Costs = (Non-fuel Costs Rate \* Block-hours) + (Fuel Burn Rate \* Fuel Price \* Block Hours) – Revenue is driven by (economic health sensitive) demand – Cost is driven by fuel prices, labor, aircraft performance (i.e. technology)

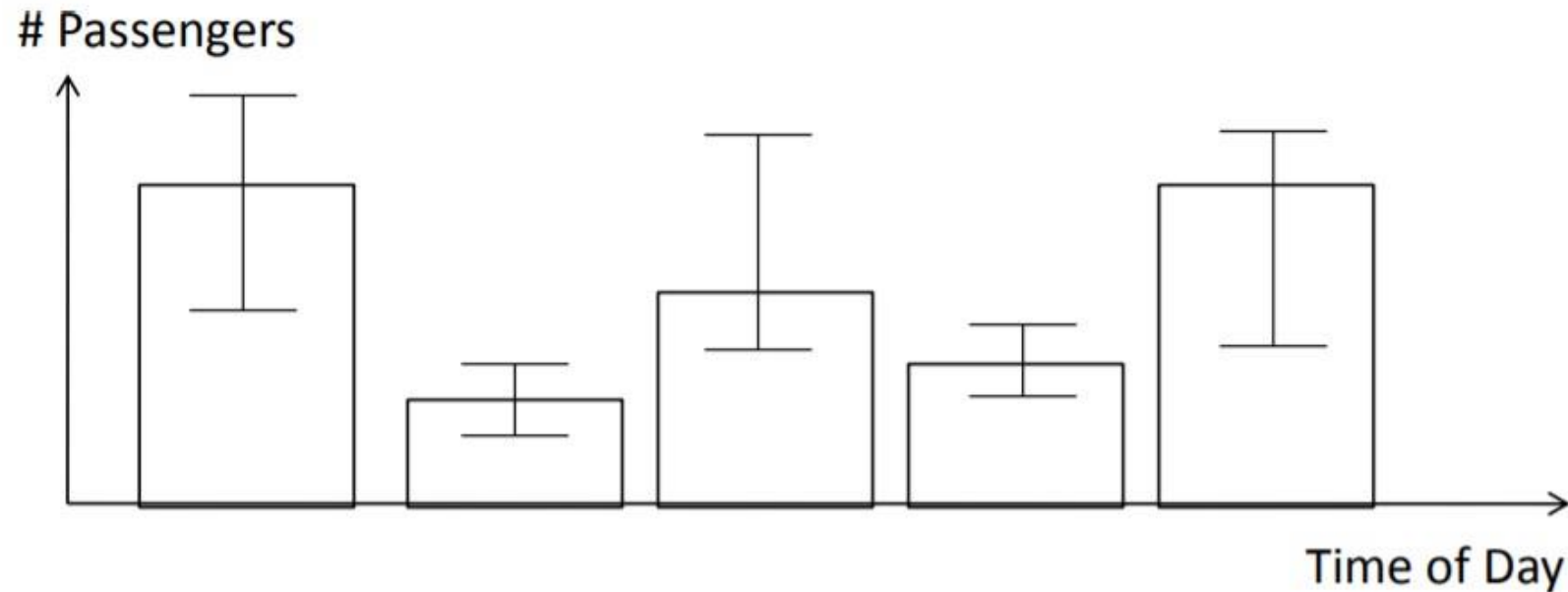
# Airline Economics



# Revenue



# Every Market Pair has a Travel Demand



Number of passengers that have an interest in travelling from Market A to Market B during each time period.



## Air passenger demand has been falling by more than capacity cut

### International passenger number: originally-planned (baseline) vs. actual (estimated)

Region	Scenario 1			Scenario 2		
	January 2020	February 2020	March 2020	January 2020	February 2020	March 2020
AFRICA	-0.6%	-2.9%	-33.5%	-0.6%	-2.9%	-33.5%
ASIA/PACIFIC	-0.4%	-26.2%	-58.4%	-0.4%	-28.3%	-59.4%
EUROPE	2.2%	1.0%	-34.6%	2.2%	1.0%	-34.9%
LATIN AMERICA/CARIBBEAN	0.2%	0.9%	-22.2%	0.2%	0.9%	-22.2%
MIDDLE EAST	4.3%	2.1%	-37.4%	4.4%	2.0%	-37.6%
NORTH AMERICA	1.2%	-1.2%	-26.8%	1.2%	-1.2%	-26.8%
<b>Total</b>	<b>1.1%</b>	<b>-7.7%</b>	<b>-40.2%</b>	<b>1.2%</b>	<b>-8.3%</b>	<b>-40.7%</b>

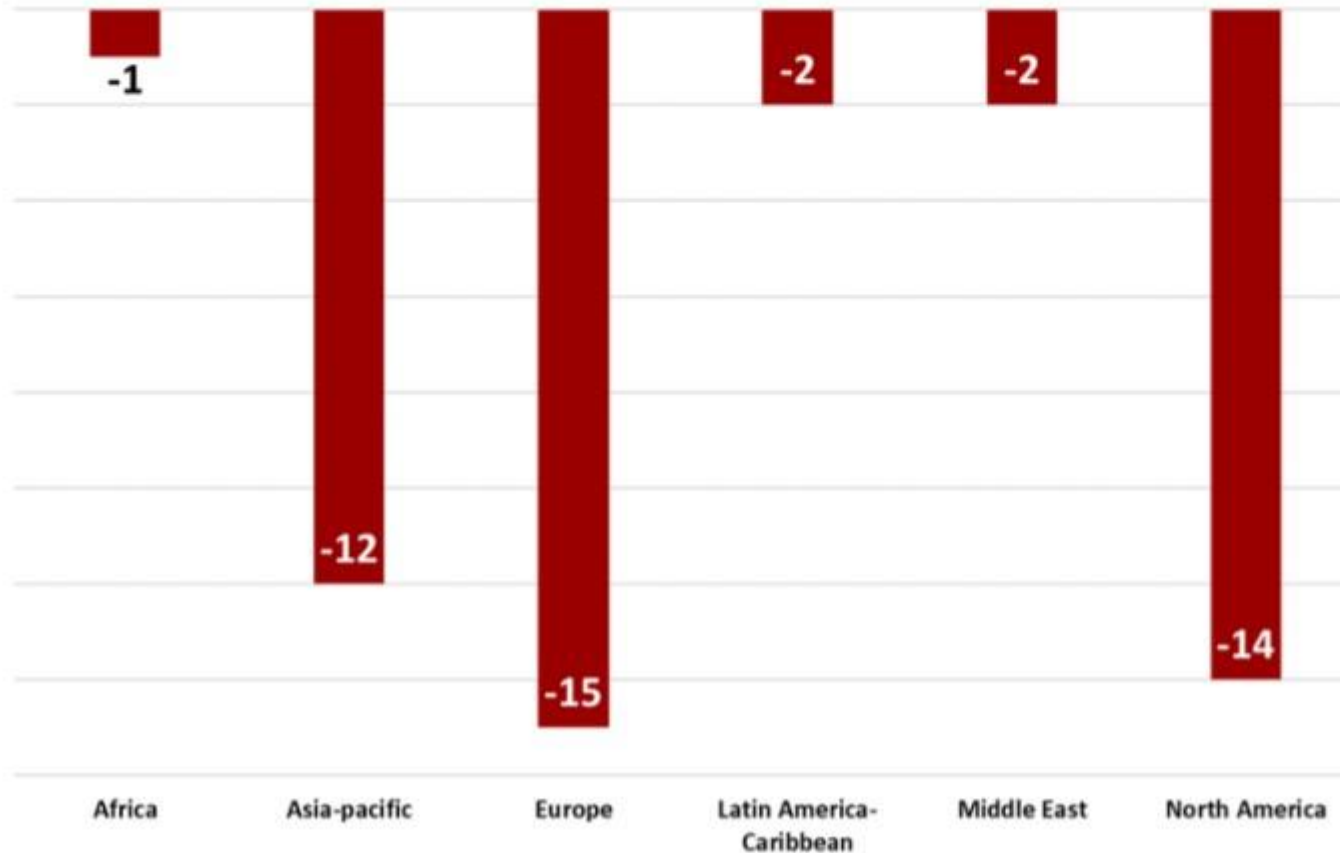
Note 1: Scenarios 1 and 2 are based on the State-level analysis of China (Hong Kong SAR of China, Macao SAR of China and Taiwan, Province of China), Republic of Korea, Italy and Iran (Islamic Republic of)

Note 2: In calculating the number of passengers, it is assumed that "originally-planned" load factor for 1Q 2020 is the same as 1Q 2019 results; and "actual" load factor in January 2020 is a reported result (February and March are ICAO's preliminary estimates)



**Airport may lose approx. USD 46 billion for 2020 (estimated by ACI)**

### Potential losses for 2020 (billions USD)



Total airport industry losses:  
**> USD 46 billion**

Decline in industry revenues:  
**>25%**



Estimated impact of COVID-19 outbreak on scheduled international passenger traffic during 1Q 2020 compared to originally-planned:

- China (including Hong Kong/Macao SARs and Taiwan Province): 40% seat capacity reduction, 30.8 to 32.6 million passenger reduction, USD 6.9 to 7.3 billion loss of gross operating revenues of airlines from/to the country
- Republic of Korea: 29% seat capacity reduction, 7.8 to 8.6 million passenger reduction, USD 1.5 to 1.7 billion loss of gross operating revenues of airlines from/to the country
- Italy: 23% seat capacity reduction, 6.7 to 7.1 million passenger reduction, USD 0.8 to 0.9 billion loss of gross operating revenues of airlines from/to the country
- Iran (Islamic Republic of): 25% seat capacity reduction, 730,000 to 810,000 passenger reduction, USD 120 to 130 million loss of gross operating revenues of airlines from/to the country

### **Airline Revenue - Where the Money Comes From**

About 75 percent of the U.S. airline industry's revenue comes from passengers; about 15 percent from cargo shippers, the largest of which is the U.S. Postal Service. The remaining 10 percent comes from other transport-related services. For the all-cargo carriers, of course, cargo is the sole source of

transportation revenue. For the major passenger airlines which also carry cargo in the bellies of their planes, less than 10 percent of revenue comes from cargo (in many cases far less).

Most of the passenger revenue (nearly 80 percent) comes from domestic travel, while 20 percent comes from travel to and from destinations in other countries. More than 90 percent of the tickets sold by U.S. airlines are discounted, with discounts averaging two-thirds off full fare. Fewer than 10 percent pay full fare, most of them last-minute business travelers. The majority of business travelers, however, receive discounts when they travel. A relatively small group of travelers (the frequent flyers who take more than 10 trips a year) account for a significant portion of air travel. While these flyers represent only eight percent of the total number of passengers flying in a given year, they make about 40 percent of the trips. Travel agencies play an important role in airline ticket sales. Eighty percent of the industry's tickets are sold by agents, most of whom use airline-owned computer reservation systems to keep track of schedules and fares, to book reservations, and to print tickets for customers. Airlines pay travel agents a commission for each ticket sold. There are more than 40,000 travel agents in the United States, providing a vast network of retail outlets for air transportation.

Similarly, freight forwarders book the majority of air-cargo space. Like travel agents, freight forwarders are an independent sales force for airline services, in their case working for shippers.

### **Airline Costs - Where the Money Goes**

According to reports filed with the Department of Transportation in 1999, airline costs were as follows:  
Flying Operations - essentially any cost associated with the operation of aircraft, such as fuel and pilot salaries - 27 percent;

Maintenance - both parts and labor - 13 percent;

Aircraft and Traffic Service - basically the cost of handling passengers, cargo and aircraft on the ground and including such things as the salaries of baggage handlers, dispatchers and airline gate agents - 16 percent;

Promotion/Sales - including advertising, reservations and travel agent commissions - 13 percent;

Passenger Service - mostly in-flight service and including such things as food and flight attendant salaries - 9 percent;

Transport Related - delivery trucks and in-flight sales - 10 percent;

Administrative - 6 percent;

Depreciation/Amortization - equipment and plants - 6 percent.

Labor costs are common to nearly all of those categories. When looked at as a whole, labor accounts for 35 percent of the airlines' operating expenses and 75 percent of controllable costs. Fuel is the airlines' second largest cost (about 10 to 12 percent of total expenses), and travel-agent commissions is third (about 6 percent). Commission costs, as a percent of total costs, have recently been declining, as more sales are now made directly to the customer through electronic commerce. Another rapidly rising cost has been airport landing fees and terminal rents.

## Conclusion

Demand is highly cyclical, and inventory cannot be warehoused; Fixed costs are high, and aircraft remain aloft even when operations fail to cover fully allocated costs; Hubbing geometrically increases city-pair product offerings; airlines create overlapping hub networks; New aircraft must be ordered years ahead of delivery; aircraft are ordered in good times, and delivered in bad; The S-curve relationship between frequency, along one axis, and unit revenue, along the other, encourages airlines to offer relatively more flights than their competitors in all important markets; frequency is a means of product differentiation for the relatively price-inelastic business traveler.

### Bibliography

<https://www.avjobs.com/history/airlineeconomics.asp#:~:text=Airlines%20perform%20a%20service%20for,a nother%20for%20an%20agreed%20 price.>

[https://www.mcgill.ca/iasl/files/iasl/airline\\_economics\\_psd.pdf](https://www.mcgill.ca/iasl/files/iasl/airline_economics_psd.pdf)

<https://www.icao.int/sustainability/Documents/COVID-19/ICAO%20Coronavirus%202020%2003%2026%20Econ%20Impact.pdf>

THANK YOU



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