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# Application of Microeconomic Tools on Market Present in the Airline Industry: A Law and Economics Approach

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## ABSTRACT

*The research paper on the topic 'Application of microeconomic tools on market present in the Airline Industry' aims to apply various concepts of economics such as the law of demand and supply, cost, revenue and pricing strategies to the airline industry. The paper also aims to explain the impact of Covid-19 on the airline industry. First and foremost, the author takes a glance at the market structure of the industry. Next, the author analyses the impact of several market factors on the demand and supply in the industry. Subsequently, we delve into the nuances of cost, revenue and pricing strategies alongside proposing solutions to the businesses on how to improve the pricing and revenue aspects in their respective ways. In the final segment of this paper, we study the effects of the Covid-19 pandemic on the airline industry and the economy in general.*

## I. INTRODUCTION

The airline industry encompasses a wide range of businesses, called airlines, which offer air transport services for paying customers or business partners and also freight services. These air transport services are provided for both human travellers and cargo, and are most commonly offered via jets, although some airlines also use helicopters. Airlines may offer scheduled and/or chartered services and the airline industry forms a key part of the wider travel industry, providing customers with the ability to purchase seats on flights and travel to different parts of the world. The airline industry offers a variety of career paths, including pilots, flight attendants and ground crew. The airline industry provides us with air transportation that improves our lives by shortening the time it takes us to reach a destination and also deliver goods. The airline industry undergoes an oligopoly market, where only a few sellers provide similar products or services but differentiated in their branding and the promotion method. There are four main categories in the airline industry, which is international, national, regional, and cargo. International flights provide services between countries; both national and regional flights are domestic flights within a country, but regional flights have shorter

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distances compared to national flights; cargo is mainly for the use of transport goods. In this assignment, we are going to look into and analyse the tools of microeconomics such as demand, supply, cost, revenue and pricing strategies that regulate the market presence in the airline industry.

## **II. MARKET STRUCTURE OF THE AIRLINE INDUSTRY**

The market structure of the airline industry is strictly oligopolistic in nature. An oligopoly is a kind of imperfect competition where a few firms dominate the industry. Oligopoly firms have the market power to either fix or alter prices for their commodities by establishing several output levels. Any action initiated by oligopoly firms is noticed by its competitor firms because of homogeneity in commodities produced and cut-throat rivalry amongst one another. Consequently, rival industries may indulge in price-cutting or other attempts to boost their market shares such as aggressive advertising and promotion techniques. The formation of cartels also can take place to prevent stiff competition. Hence, the firms in an oligopoly are dependent on each other, and each one is aware that its position in the market is vulnerable to being uprooted by existing competitors or novel entrants in the market.

The significant characteristics of the oligopolistic market structure are-

1. Few large firms with enormous market shares.
2. Product Differentiation.
3. Presence of barriers to entry and exit in the form of strict regulations, the large cost of initial capital and probable formulation of cartels.
4. High level of interdependency in decision making meaning no firm is a price maker.
5. Existence of third-degree price discrimination.
6. Implementation of peak load pricing.

## **III. DEMAND ANALYSIS BASED ON DETERMINANTS THAT AFFECT IT**

Few determinants will cause a change in the **demand curve** in the aviation industry. Let's look into how various determinants of demand alter and affect the aviation industry.

### **(A) Income**

The average income of citizens of a country increases with growth in its economy. In the case of airline companies, an air ticket acts as a normal good, this is because an increase in the income will lead to an increase in the demand for air ticket purchased, this is because an increase in income may raise the demand for flight tickets booked; for example, if a family's

financial situation improves, they may travel more frequently.

### **(B) Prices of related goods**

The demand for one good is affected by the price of another. The price of fuel has a direct impact on the demand for plane tickets in the aviation business. When the price of fuel rises, the airline industry is forced to raise ticket prices to sustain income. As a result, the fuel price and the demand for airline tickets have a complementary connection, with a rise in the fuel price resulting in a fall in the demand for airline tickets. However, in some rare circumstances, such as during a downturn in the economy, the airline industry will not raise ticket prices because passengers will be scared away.

### **(C) Number of buyers**

The higher the number of consumers in the airline business, the greater the demand for airline tickets. There will be more consumers buying air tickets when the industry airlines hold a promotion. This is due to the fact that air tickets are typically sold at a lesser price to attract more customers, particularly during off-peak seasons. As a result, even if air tickets are selling at a reduced price, demand for them will increase, and the airline business will profit more.

### **(D) Expectation on future income and future price**

The factor refers to a consumer's projection of how much they will earn and the worth of a product in the future. For example, if the economy is improving and people anticipate a larger income in the future, they may take a vacation, shifting the demand curve for airline tickets to the right. However, if they anticipate an increase in flight ticket prices in the future, most likely owing to peak season, they will choose to buy now rather than later, shifting the demand curve to the right. We shall overlook the other component, tastes, which can alter the demand curve, because it is based on individual behaviour and is unpredictable to the airline business.

## **IV. SUPPLY ANALYSIS BASED ON FACTORS THAT AFFECT IT**

There are few determinants that will cause a change in the **supply curve** in the aviation industry. Let's see how various determinants of supply alter and affect the aviation industry.

### **(A) Input prices**

When the cost of producing goods increases, the supply will decrease. In airline industry, one of the main input prices is the fuel price. As other variables are constant, when the price of fuel increases, the number of flight per day will decrease to reduce the cost of airline industry.

**(B) Technology**

An improvement in technology will shift the supply curve to the right. Advancement of technology is critical in airline industry. The airline industry is working hard to develop improve technology for conservation of fuel. They also collaborate with airframe and engine manufacturers to build aeroplane components that cut fuel consumption throughout each flight. As a result of technological advancements, airlines can now deliver more flights with the same quantity of fuel as before.

**(C) Weather**

Because this is air transportation, weather is frequently a major concern for the airline business. The takeoff and landing of planes are frequently disrupted by heavy snowfall in the winter or poor pollution. Because humans cannot control the weather, the airline sector can only do their best to provide complete and safe facilities to protect their passengers. Although poor weather does not stay very long, it does have a short-term impact on flight.

**Expectation on future price**

When a company anticipates an increase in prices in the future, it will supply less today until the price of the product rises. When the airline industry expects the price of an airline ticket to soar in the next peak season, resulting in increased profits, the number of flights will be reduced or retained now. As a result, when comparing the number of flights during two periods, the current supply can be stated to be lower than the future supply. The factor of the number of vendors will be omitted because the airline sector is an oligopoly market. Other non-uncertain variables, such as taxes and subsidies, will also be removed.

As we can see from above, airline industry is concerned with many determinants that can affect the airlines demand and supply. Besides, they have to observe carefully on the changes in market condition and take immediate action if there is any unexpected issue. According to the Air Transport Association (ATA), labour is the largest expenses of the airline industry, followed by fuel cost. Other variables like weather and technology also have to put well attention to ensure the safety and revenue of the airline industry. The study of economics may help the airline industry when making a decision and better choice by providing knowledge on the efficiency use of resources. Let us now look at two questions that might arouse your curiosity.

**Why is demand so fickle?**

Demand in the aviation industry is highly cyclical meaning that is dynamic and changes with

change in business cycle and varies depending on time of day, day of week, and season etc.

Demand is adversely affected with major changes in the economy. A situation of recession can erode disposable income, Gross Domestic Product (GDP) and consumer confidence, which can further reduce demand for air travel. In mature markets, air travel growth slows.

Due to increased globalization, there is a decrease in domestic growth because of the fact that production has moved off-shore. Further, development in telecommunication, teleconferencing and other technological advances has led to decline in market share for air travel. The inability of the airlines to cover costs and commoditization of air travel has led to service and cost cuts thereby reducing product differentiation. Air travel is hence a fungible commodity, especially for short flights.

### **Why are there periods of relentless overcapacity in the airline industry?**

Overcapacity refers to the situation where an industry is unable to supply as much it has produced due to whatsoever reasons. Supply in the aviation industry is highly cyclical meaning that is dynamic and changes with change in business cycle. Hence, supply is higher in periods of economic expansion and prosperity and is lower in periods of economic recession and contraction. The inventory cannot be stored for longer period of time since it is perishable.

Therefore, an economic downfall leads to a situation of overcapacity in the airline industry. High fixed costs and the fact that aircraft remain in operation even when the airlines are unable to recover costs adds insult to injury. The S-curve above depicts relationship between frequency (along one axis) and unit revenue, (along the other) and encourages airlines to offer relatively more flights than their competitors in the market since frequency enables a consumer to differentiate a commodity from the others. This scheme is especially beneficial for the relatively price-inelastic business traveller.

## **V. THE REVENUE AND COST ANALYSIS**

The various airlines in operation could be divided into two broad categories- Full service carriers and low cost carriers. Full service airlines usually charge higher fares whereas low cost airlines have considerably cheaper tickets.

The revenue-generating ability of an airline depends on many factors. Generally, the sources of revenue of both full service network and low cost carriers mainly includes passenger, freight, mail, excess baggage, charter, duty-free sales, services performed and leasing income. The basic revenue for the airlines comes from domestic and international flights, lease back and aircraft sale, sub lease of aircrafts, cargo and auxiliary and finally several interests and taxes.

Whereas, the cost structures of airlines can be divided into two parts: Direct-Operating-Cost (DOC) and Indirect-Operating-Cost (IDC). The direct-operating-cost includes crew, fuel and oil, flying operations, maintenance burden, insurance and depreciation. The indirect-operating-cost includes landing fees, navigational fees, station costs, passenger service, aircraft servicing, traffic servicing, reservation and sales, advertising and publicity, ground property, general and administration.

Both, full service and low cost airlines have very similar revenue and cost structure. However, they differ in the ways in which they operate them. Full service carriers emphasize on providing several sorts of service to its customers whereas low cost carriers have a goal to provide its consumers with a cheap ticket and a simple transportation.

Full service carriers spend considerable amount of money in providing better services to its customers such as robust in-flight entertainment system, catering, sumptuous meals and beverages, checked baggage, web check-in, and comforts such as blankets and pillows. Also, they might purchase larger aircrafts (for instance, Boeing 747 or Airbus A380) to have a much better environment and more number seats. This may cost a large amount of the annual budgets and needs a new flight schedule which also cost a lot.

Larger aircrafts provide number of business class and first class seats with in-built aircraft lounges and common areas. This enhances the chances of the the airline company to gain more profits.

Low cost carriers, on the other hand do not have to spend this much funds as they do not focus about on-board services but on providing cheap ticket to its consumers. They do face some other problems in meeting their revenue requirements. One such instance is the high fuel price, they may not be able to purchase as much fuel as large airline company could by buying fuel in bulk in order to save finances. Another such instance is that low cost carriers sell most of their tickets through the internet. Hence, they rely more on technological resources compared to full service carriers.

### **Why do airlines face difficulty in covering their fully allocated costs?**

Fuel costs are volatile (they change fast and unpredictably, usually for the worse). The airlines can protect themselves from incurring heavy losses by hedging fuel and thereby reducing volatility, but hedging is an expensive and risky gamble. The costs are disproportionately fixed. The marginal costs of adding an extra passenger to a scheduled flight are none and the seat of an aircraft being a perishable commodity, it cannot be stored and sold on any other day. Joint costs are difficult to ascribe to individual passengers crossing a network hub. Hubbing and

maintaining a frequent flight schedule drives costs up by needing a relatively smaller aircraft, creating congestion and delay during the hub rotation, and idle ground facilities between hub banks, resulting in lower equipment and facilities utilization and higher fuel consumption.

### **Maximising Revenues**

The first method that can be adopted to maximise revenues is code-sharing. Code sharing refers to an alliance between two airline companies wherein an airline is allowed to place its two-letter identification code on the flight schedules of another airline. This allows one airline to market a flight and the other airline to operate it. Code sharing also provides passengers with a wide choice of flights. Code-sharing does not incur extra costs in exploring new routes or continuing with the current routes. Code sharing enables airlines to earn more profits and provide its consumers with more choices. The second method is advertising. It is a fast method of earning revenue. Advertising enables to uplift people's willingness to travel by air. An attractive advertisement about either the exemplary on-board services or the fascinating destinations might attract the potential customers into booking the tickets immediately and without further ado.

### **Reducing Costs**

The first and foremost way in which an airline company could lessen its costs is by cutting down its fuel cost. Because of the fact that the fuel price is not stagnant, large airline carriers could purchase more fuel when the price is low and warehouse it and use it when the price of fuel increases again. For small companies, they can buy fuel in bulk so that they could spend less money. Making a better flight plan may also help in saving fuel. Fuel can be purchased in bulk by smaller companies in order to save money. Making a better flight plan could also save you money on fuel. The second way is to reduce advertising expenditure. Instead of engaging professional actors for TV commercials and posters, the airline can save money by using its own employees and reducing the length of the commercials from two minutes to 1.5 minutes. Controlling the human cost is the third alternative. As a firm grows, there may be more and more employees in various positions. Controlling essential staff numbers and timely payment of compensation is a simple and effective strategy to reduce human costs. Cooperation with airports is the fourth alternative. A discount on the landing charge or navigation cost may save a lot of money if the airline carrier has a good relationship with the airport.

## **VI. PRICING STRATEGIES OF THE AIRLINES**

As discussed above, the market in airline industry is structured as a distinct oligopoly. The relationship of demand and supply determines price. However, because there are so many



purchasers, the airlines have enough market power to affect the price. They engage in third-degree price discrimination here. Where demand is inelastic, a higher price is charged, and vice versa. For example, corporate travel rates remain high. Non-price differences, like as free meals on board, more friendlier service, pinnacle fares, brand loyalty, and corporate discounts, are also used by airlines to compete.

In the airline industry, disparity in pricing is a common practice. Despite the fact that it may appear unfair, the aviation business has one of the most dynamic pricing systems of any industry. Demand-based pricing is one of the most frequent pricing mechanisms in the airline industry. Airline costs are generally at their highest during festive seasons or other times of great demand, while during the off-season, the same tickets are priced at substantially lower rates. Aside from that, airlines frequently employ a variety of additional pricing techniques.

### **Total customization**

The aviation industry's conventional price division is based on classes such as economy, business, and first-class. Airlines, on the other hand, have a plethora of sub-divisions. The number of seats assigned to each pricing class is routinely adjusted by airlines. The sale price will rise to the following class if one is sold out. Companies in the aviation business want to better understand their clients through loyalty programmes, registered users, and cookie tracking in order to provide customised pricing.

### **Competitive pricing**

Over the last few decades, the airline industry has become increasingly complicated and intensely competitive. The expansion of the aircraft network and the decrease in the cost of commuting have raised the complexity of revenue management to new heights. Airlines have learned that pricing tactics such as Expected Marginal Seat Revenue (EMSR) are the most effective means of optimising rates in real time. This method is effective not only on a specific route, but also across the entire airline network, as it considers revenue-generating prospects.

### **Customer profiling**

Airlines frequently make some broad assumptions about the traffic profile on a certain route and then adjust their fares appropriately. If the airline anticipates that passengers flying to leisure destinations would book well in advance of their vacation, it may begin pricing seats on that route at a premium. The pricing would then be adjusted in accordance with the market response.

**Brand image**

Because of the increased competition in the aviation business, airlines have good motivation not to overcharge customers. They must, however, be cautious not to undercharge customers. When there are still empty seats on a flight before it departs, airlines prefer to aggressively decrease costs. However, if this becomes the standard, the brand could be harmed and higher-value passengers alienated.

**Why do airlines offer prices below fully allocated costs?**

Seats are becoming more commoditized, and their perishability is driving down prices.

A carrier with unsold seats has two possibilities if a competitor with excess inventory drops or needs a cash infusion prices below fully allocated costs:

1. Match the pricing of a competition and lose money; alternatively
2. Maintain its price and lose even more money.

The variable costs are minimal. The carriers frequently charge a fee that covers variable costs and contributes to fixed overhead, but falls short of fully allocated expenditures. Individual carrier behaviour is typically sensible; industry-wide behaviour can be illogical. The Antitrust Laws make it illegal to work together to attain rationality.

**VII. IMPACT OF COVID-19 ON THE AIRLINE INDUSTRY**

Today, the influence of Covid-19 is having gradual impacts akin to a significant economic depression equivalent to the 2007-08 financial crisis. Countries affected by a virus (an unforeseen and abrupt disease) witness a reduction in overall economic activity, which spills over into businesses. The economy's contraction would begin with a decline in the travel and tourism industries, which would affect all airlines around the world. Nonetheless, the pandemic has cascading effects on the national and global economies, and estimating the economic consequences of such a pandemic would be extremely difficult. In terms of economics, any economic shock to one country swiftly spreads to neighbouring countries via telecommunications and increased financial connections because of globalisation. According to the United Nations Conference on Trade and Development (UNCTAD), the cost to the world economy in 2020 will be at least \$2 trillion. All of these forecasts have a direct impact on the aviation sector, as airlines throughout the world have grounded planes as passenger numbers have plummeted and governments have closed borders and restricted international travel. Aviation is without question one of the better and safer modes of transport in the world per number of people transported as expounded by the International Civil Aviation Organisation

(ICAO). Accidents grew infrequent to the point of becoming unusual events globally, notwithstanding regional rises, and serious incidents were fewer and further apart. However, there have been massive layoffs in the business, with more to come. For example, due to the collapse of the business and the need for a restructuring and redundancy programme, British Airways is scheduled to slash up to 12,000 jobs from its 42,000-strong staff, an almost 30% reduction.

### **Impact on demand and supply**

Passengers' behaviour has changed as a result of the Covid-19 issue, travel restrictions, and the consequent economic crisis, resulting in a significant decline in demand for aircraft services. According to IATA, revenue per passenger in passenger air transport was down 90 percent year over year in April 2020 and was still down 75 percent in August 2020. The drop in economic activity and commerce had an impact on freight, which was about 30% down year over year in April and was still around 12% down in August 2020. The magnitude of the shock has put pressure on airline companies' liquidity buffers, even though a significant portion of their costs are variable (around 50% according to IATA, with fuel accounting for 25% of total costs) and airline operating costs have decreased as a result of the recent drop in oil prices.

In all cases, the impact on supply, as measured by international passenger seat capacity, is enormous. Airlines had planned to boost seat capacity by 4.2 percent in the first nine months of 2020 compared to the same time in 2019. However, based on the most recent projections and utilising our two scenarios, the U-shaped approach would result in a 57 percent to 67 percent reduction in passenger seat capacity, compared to a 41 percent to 56 percent reduction for the V-shaped road. This capacity level is likewise expected to be lower than the 2019 level by similar percentages. As can be seen in the graph above, Asia/Pacific and Europe are likely to lose the most capacity, followed by North America. The least affected will be Africa unless there is a greater outbreak in North America. The least affected will be Africa unless there is a greater outbreak in future.

The combination of negative demand and supply shocks, as well as uncertainties about the medium-term forecast, gives airline firms a bleak outlook. This uncertainty impacts the entire aviation business due to inter-sector links. Furthermore, the business is still vulnerable to a resurgence of the pandemic, since governments may impose new air travel restrictions in response to flare-ups or a potential second wave of infections. Some companies in the industry may face closure as a result of this, as production and revenues are expected to remain below pre-crisis levels for some years.

**Impact on operating revenues**

Airline gross passenger operating revenues were expected to rise by about \$15 billion in the first nine months of 2019 compared to the same period in 2018. This must take into account the expected demand growth trend line as well as the projected seat capacity for the 2020 year. According to the most recent estimates, airline revenue would tumble dramatically in the U-shaped path scenario, falling between \$203 and \$238 billion, a \$40 billion loss more than in the V-shaped path scenario, which is expected to fall between \$145 and \$204 billion. Europe and Asia/Pacific would lose more than two-thirds of the gross passenger operating revenue loss, as earlier.

**Impact on airport industry**

Major airports are one of the neglected aspects of aviation infrastructure that receive insufficient attention. They serve as the major hubs for all international and domestic flights. According to early projections from the Airports Council International (ACI), in a pre-covid-19 scenario, airports globally are anticipated to lose over half of their predicted baseline revenue. To put it another way, global airport revenue losses are predicted to drop by roughly \$77 billion by 2020.

**VIII. CONCLUSION**

The goal of this paper was to establish application of concepts of microeconomics in the market of airline companies and potential scenarios for the Covid-19 outbreak and its impact on the aviation industry including airlines and airports. We have outlined that the determinants which affect the market demand of any airline company are income, price of related goods, number of buyers and expectation on future income and prices. Whereas, the factors that govern the market supply of the aviation industry are industry prices, technology, weather and expectations on future price. We also answer two most likely questions regarding demand and supply being uncertain and occurrence of overcapacity in the airline industry. We then analyse cost and revenue with respect to its significance in the aviation industry and illustrate some effective pricing strategies that could help a airline company overcome its cost and revenue problems. Talking about Covid-19, not only international flights have been badly hampered, but domestic and regional air travel has also been badly impacted and shut down. The Covid-19 has the greatest impact in the Asia/Pacific and Europe regions, where the situation could deteriorate over the summer season if cross-country mobility is curtailed.

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