

# Economic analysis of the us airline industry economics essay

[Environment](#), [Air](#)



An economic analysis on the nature of competition, collusion and pricing in the US domestic airline industry was conducted primarily on the nature of the oligopoly market structure of the airline industry. The impact of deregulation was performed and analysed including mergers and acquisitions. An analysis on the prospect for low-cost carriers (LCCs) was also conducted including measures to ensure their long term survival when competing with full fledged carriers. Finally, an impact analysis of the global recession on the airline industry was conducted. Measurements that could lead to a sustainable recovery for the airline industry was reviewed and highlighted.

## **INTRODUCTION**

The airline has experienced phenomenal growth since the first US airline began operating between Tampa and St Petersburg, Florida on January 1st 1914. Today, supersonic aircraft fly routinely across the oceans, providing travel and employment to many travellers. The airline industry has global operations and the competition between them is extremely high.

During the early days, strategic interest in aviation outpaced the financial viability of fledging airlines. Government support intensified worldwide as financial instability deepened due to the ' Great Depression' of 1930s. During this period, military interest in aviation received further boost from rising geopolitical tensions.

International service was governed by tightly controlled bilateral agreements, restricting the number of cities that could be served typically by

a single carrier from each country. In many cases, these agreements negotiated market allocations across carriers that were enforced through capacity restrictions or revenue division agreements. Prices generally were established jointly by the airlines themselves in consultation with the International Air Transport Association (IATA), the industry's largest trade group, subject to approval by each carrier's government. Nevertheless, government intervention failed to achieve satisfactory results in terms of overall economic performance. With deregulation in 1978, it has helped to stimulate more competition in the US airline industry with the influx of small, low-cost carriers.

A recent National Bureau of Economic Research (NBER) working paper analysed the changes that have occurred in pricing, service and competition in the airline industry since the industry was deregulated in 1978. The study found that fares have declined since deregulation and efficiency has improved, but the volatility in industry earnings has continued and average earnings have declined. The average returns that the airlines have earned since deregulation are almost certainly insufficient to sustain the industry in its current state. The profitability of the airline industry is quite cyclical because travellers' demand is sensitive to the overall performance of the economy. Yet, airlines must predict this demand accurately because of the lead time required to acquire aircraft. When airlines over predict demand, they would suffer losses.

The IATA has recently doubled its forecast for losses in 2009 to US\$9 billion and warned that the economic problems would continue for some time. The

forecast was slightly better than the loss last year. But it was significantly worse than the association's projections in March this year that estimated a loss of US\$4.7 billion for 2009. Coupled with competition from low-cost carriers (LCCs) could further undermine the profitability of full-service carriers (FSCs). However, some industry experts believe that both will survive in parallel without losing many customers to each other. It is argued that LCCs induced either an additional demand or won clients for the air traffic, which would have gone otherwise by train or car. There is however, a concern that LCCs have turned the luxury service of fast travel with its implicit environmental damages into a day to day service for more and more people.

The airline industry is in the midst of a dramatic restructuring. Many reasons have contributed to its fall in revenue. Some key success factors determine the success of the airline industry. Analysts say that the airline industry is likely to remain unstable and price increases are inevitable due to increasing costs. Furthermore, the rising concern for global warming and IATA's recent decision to cut emissions by 50% by 2050 is also likely to have some implications for cost of flying and profitability of the airline industry.

The report has reviewed the structure of the airline industry and the nature of its competitions with specified focus on the airline domestic market including emerging competition from LCCs and the impact of globalised recession on the airline industry.

## **NATURE OF COMPETITION, COLLUSION AND PRICING**

The enactment of the Airline Deregulation Act of 1978 eliminated price and entry regulation of the US domestic airline industry. [1] Since then it has grown tremendously. The US domestic market basically competed in an oligopoly landscapes. Hence there is certain level of barriers to competition like control over the computerised reservation systems used by travel agents have provided main carriers with a powerful weapon for disadvantaging smaller competitors. For example, American Airlines' " Sabre" system and United's " Apollo" system together accounted for three quarters of all national computer reservation systems in the late 1980s. Control of this important avenue for travel agents to make reservations enabled the majors to discriminate against smaller firms in a variety of ways from instituting " screen bias" favouring the on-screen presentation of the controlling firm's flights, to charging exorbitant fees to other carriers for displaying their flights on these computer systems (transferring upwards of a half-billion dollars annually from the smallest to the largest carriers). [2]

More recently, the Big Five carriers have joined together to collectively market their tickets online through their Orbitz Travel Web site [6], an alliance that may enable them to better coordinate their non-competitive oligopoly pricing and to circumvent rules put into place to prevent them from anti-competitive using their computer reservation systems while, at the same time, disadvantaging competing distributors of air tickets. [3]

## **Predatory Pricing**

Dominant carriers were suppressing competition through predatory pricing. For example, when Spirit Airlines attempted to penetrate Northwest's Detroit hub with a one-way Detroit-Philadelphia fare of \$49, Northwest Airline responded by slashing its average fare on the route by 71% (from \$170 to \$49) and scheduling 30% more seats. Once Spirit abandoned the route, Northwest raised its fare to \$230 and cut its seat capacity.[4] Similarly, when Frontier Airlines initiated service from Denver (United-dominated hub) to Billings, Montana, it offered an average fare of \$100 which was half the prevailing fare charged by United. United, in turn slashed its fare to match Frontier. When Frontier exited the route, United raised its fare above its original level. [5]

## **Collusion**

Collusion is a difficult game to play when the number of conspiring rivals is large. It is hard to keep a hundred firms in line when their cost structures differ, when their production facilities vary, and when some have an incentive to cheat on a price agreement or to violate output restrictions. Numbers make a difference. When numbers are large, conspiracies are difficult to organize, difficult to conceal, and difficult to enforce.

However, public policy faces a serious challenge in oligopolistic industries like the case of the Airline industry where major carriers eschew outright collusion and rely instead on a course of conduct characterised as " tacit collusion," or " recognition of mutual interdependence" to resemble the effects of outright conspiracy. The mechanics of tacit collusion is apparent

particularly in an oligopoly market dominated by a few major players. Each carrier naturally recognises the mutual interdependence between it and its rivals. For example, Carrier X knows that if it were to cut price in order to increase its market share, its aggression would immediately be detected by carriers Y and Z, which would respond with retaliatory price cuts of their own. Market shares would be unaffected, but all carriers would now operate at lower prices and profits. Henceforth, Carrier X cannot expect to increase its market share or revenue at the expense of its rivals. It cannot afford to calculate in terms of maximising its own profits in isolation but instead must constantly ask whether a particular decision on price or output will be not only in its own self-interest, but also in the best interests of its rivals.

By recognising mutual oligopolistic interdependence, it must be concerned with group profits and group welfare. In other words, under oligopoly landscape, independent, aggressive, genuinely competitive behaviour is perceived as counterproductive-an “irrational” strategy for the individual carrier. In an oligopoly, groupthink will influence a carrier’s strategy when it is contemplating price increases as it cannot act alone. Hence, groupthink replaces the calculus of individual advantage, and each carrier must behave as a “responsible” member of the oligopoly group rather than as a reckless, self-seeking competitor. In oligopolies, this recognition of mutual interdependence may extend to non-price competition. For instance, if carrier X refrains from aggressive price competition but seeks to increase its market share through aggressive innovation program, it cannot expect its rivals to sit idly by. It must expect them to increase their research efforts as

a simple matter of self-defence, thereby nullifying its expected gains. Anticipating such retaliation which could erode oligopoly profits- carrier X might refrain from innovation for the same reasons it would avoid price-cutting. Rationality again commands “ responsible” nonaggressive behaviours; the most effective profit-maximisation rule under oligopoly is to “ get ahead by getting along.”

Nevertheless, the level of oligopolistic interdependence and collusion varies from situation to situation.[8] It depends on such factors as whether the oligopoly is tightly knit (small number of firms) or loosely knit (a larger number); whether it is homogeneous or heterogeneous; whether it is symmetrical (having firms of roughly equal size) or asymmetrical (with one firm disproportionately larger); whether or not the industry is mature (having had time to develop its internal arrangements and institutions to promote cooperation); whether the industry is populated by “ reasonable” managers or by a few mavericks. [9]

In the US domestic market, the advent of the Internet has increased the efficient of signalling or collusion. Carriers can see what the competition is doing immediately by going to the Internet that allows them to react quickly to adjust their own prices. This is a far cry from the days when price books were set in type and could not be changed for months. Now most prices can be adjusted several times a day, if needed. Apparently, this is a game that the airlines are particularly adept at. As consumers have more transparent access to real-time flight pricing through online services like Orbitz Travel [6], the airlines are almost obligated to adjust to each other. This is

particularly apparent on routes where there is no rogue player, like Southwest Airlines or JetBlue as they are (within limits) free to adjust prices upward. As long as the members of the oligopoly with real selling power tacitly agree that a major price war is not in their interest, chances are that prices can quickly readjust themselves, keeping in mind the balance of costs and optimal prices for maintaining profitable sales levels.

Fortunately, the combined market share of the “ Big Five” network airlines (Delta, United, American, US Airways, and Northwest) that peaked in 1992 has been declining since deregulation. [7] Furthermore, with the influx of several low-cost carriers, tacit collusion is becoming difficult to organise, conceal and enforce even though oligopolistic rationality and its collusive consequences are inevitable concomitants of oligopoly industry structure.

## **Pricing**

Pricing is important for the carriers. If prices are too low or too high, it can drag down profits. Thus, it is important for the carriers to derive profitable fares and discourages unprofitable one. To maximise profits, the carriers should set prices so that marginal revenue just equals marginal cost. In other words, it should use profit-maximising prices as the starting point based on the economic model of pricing as shown in Diagram 1.0 which is called marginal cost pricing that clearly identifies a pricing strategy that will maximise profits.

This pricing strategy also identifies the information needed to set prices, thus simplifying the process. In other words, the profit-maximising price is where

the incremental margin percentage equals the reciprocal of the absolute value of the price elasticity demand. [8] Based on pricing rule, the carriers should adjust its price where there are changes in the price elasticity of demand or marginal cost since the carriers compete under oligopoly landscapes with homogeneous services.

Airfares have dropped significantly over the years [10] since deregulation which helped to simulate competition resulting in the entrance of several low-cost carriers. This could partially be due to regulator and oligopolies increase efficiencies, putting direct or indirect price pressure on their suppliers as well as putting pressure on the wages and benefits of their employees. Hence, there is growing belief that oligopolies can be price-neutral as opposed to manipulating prices.

The strategic variable for airline carrier is pricing in the short run. Generally without product and service differentiation, the basic service offered by the carriers would be rather homogeneous. Under the Bertrand model, the carriers which produce at constant marginal cost and compete aggressively on price in order to gain a bigger share of the market. Under such condition, the market equilibrium is perfectly competitive pricing.

However, in a loosely knit oligopoly structure as in the case here, the individual carrier has incentive to offer heterogeneous services. Through heterogeneous services, it can charge personalised pricing or group pricing [9] based on passenger willing-to-pay to achieve higher profits.

For example, if carrier X sells its airfares at a uniform price, it loses in two ways. Firstly, some passenger would be willing to pay more than \$80 for a ticket during the last hour of the flight. Secondly the carrier does not sell to passengers who are willing to pay more than \$50 but less than \$60. This is illustrated in Diagram 2 below.

By charging passengers at different price, the carrier could profitably sell to a much larger passenger base.

Furthermore, with differentiated services, should one carrier cut its price below other carriers' price; it would take away only part of the other carriers' entire demand. Thus, carriers should have strong incentive to differentiate its offering in order to raise their equilibrium prices. However, there is a risk of loosing the market if the services are not on par with its pricing and demand. The carriers must balance their desire for market share at the same time avoid head-to-head price competition since the less differentiation in their services, the more direct will be in price competition among them and the lower would be incremental margins.

## **IMPACT OF DEREGULATION ON THE US AIRLINE INDUSTRY**

The 1978 deregulation has path the way that allowed competition to begin to function as the prime regulator of decision making in the airline industry.

Competition would allow the airline industry to develop and maintain an air transportation system that rely on actual and potential competition to provide efficiency, innovation, low prices, variety, quality air transportation services at the same time, emphasising safety as the highest priority in air

travel.[11] In addition, carriers are free to determine their prices in response to particular competitive market conditions on the basis of such air carrier's individual costs.[12]

With deregulation, the number of certificated carriers offering passenger service in US has grown rapidly; in real terms after accounting for inflation, airfares averaged 13% lower by 1982; the proportion of air travellers flying on discount fares grew from 48% in 1978 to 80% by 1982. [13] The airline industry expanded at rates significantly greater than before. In fact, its load factors rose to the highest levels in fifteen years while industry's productivity increased with an estimated cumulative savings of some \$10 billion.

## **SUBVERSION OF COMPETITION**

Due to the lack of regulation or antitrust laws to regulate the newly deregulated airline industry, it has allowed large carriers to systematically acquire smaller, regional carriers that were rapidly expanding their routes and competitiveness in the newly deregulated environment. For example, Northwest acquired Republic Airlines, one of its major competitors in the upper Midwest; as a result of the merger, Northwest controlled more than 80 percent of the Minneapolis market and in excess of 50 percent of air travel in and out of Detroit [14]. Texas Air, which earlier had acquired Continental and New York Air, purchased Eastern Airlines and People's Express. In all, the Transportation Department approved every airline merger proposed to it once it had been assigned antitrust oversight of the field.[15] This has resulted in large carriers erecting additional barriers.[16][17][18], obstacles[19][20] and predatory pricing[21][22][23][24] thus crushing what

competition might appear. Subjected to such predation, only thirteen new “start-up” airlines have emerged in the industry since 1989 and that only eight of these have managed to survive as independent entities. [25]

By 1988, the major carriers had reportedly gained control over 48% of the nation’s fifty largest commuter lines, either through outright ownership or through operating and marketing links. [26]

Table 1 show the downward trend of concentration in the immediate aftermath of deregulation was reversed after 1985 and trend upward. At the same time, a powerful system of fortress hub monopolies was erected across the United States as shown in Table 2.

Table 1: Airline Concentration, 1978-2001

Combined Share of U. S. Market (%)

1978

1983

1992

2001

Four Largest Carriers

57.7

54.7

69. 9

63. 1

Eight Largest Carriers

80. 4

74. 1

95. 7

90. 3

Source: U. S. Congressional Budget Office, Policies for the Deregulated Airline Industry, Washington, DC, July 1988; Aviation and Aerospace Almanac (Washington, DC: Aviation Week, various years).

Table 2: Airline Hub Monopolies, 1980 and 2001

Airport

Leading Carrier Market Share (%)

1980

2001

Atlanta

52. 5

79. 2

Chicago O'Hare

31. 6

45. 9

Cincinnati

38. 1

92. 2

Dallas/Ft. Worth

36. 0

61. 6

Denver

27. 3

65. 1

Detroit

20. 9

77. 1

Memphis

41. 6

62. 1

Minneapolis

41. 7

80. 4

Pittsburgh

53. 4

75. 9

St. Louis

43. 3

73. 0

Salt Lake City

28. 4

61. 8

Source: Julius Maldutis, “ Airline Competition at the 50 Largest U. S. Airports-Update,” Salomon Brothers, Inc., May 6, 1993, and Aviation and Aerospace Almanac (Washington, DC: Aviation Week, 2003), pp. 373-80.

Nevertheless, it should be noted that the fault is not with deregulation. Instead, the main issues have been the failure of US government to enforce antitrust laws to enable competition to effectively regulate the field. It failed to recognise that deregulation is not synonymous with laissez-faire and that antitrust enforcement is vital if competition is to perform its function in a newly deregulated industry.

Effective competition would prevent carriers from charging high and highly discriminating airfares. This is simply because passengers have the option of patronising competing air carriers. Effective competition would prevent carriers from offering deteriorating service at higher fares, which again, because passengers could choose to fly on alternative carriers. An effective competition would surely prevent an industry from being dominated by carriers with the highest costs rather than the lowest. [27]

Therefore, a new regulation regime like antitrust law from the Justice Department is necessary to promote and protect competition. [28] With Antitrust law, mergers and alliances by the carriers could have been blocked to prevent any artificial barriers to competition and prosecuting any predatory practices or actions by carriers to ensure competition function effectively.

## **PROSPECTS FOR LOW-COST CARRIERS AND PRICE-CUTTING WARS**

Low-cost carriers (LCCs) have experienced phenomenal growth in recent years in term of load factors, airlines launched, aircraft order and worldwide distribution. Its growth has come to a momentous point where LCCs is posing

exciting challenges and opportunities to the airline industry. According to IATA and ICAD projections, LCCs will outpace their full service rivals in terms of traffic growth and earnings in 2009. With tougher economic conditions and lower fuel prices, LCCs will have a major advantage

Ten years ago, LCCs did not have access to as many cities. Now, their reaches are broader thus making it easier for passengers to turn to them as choice selection. Moreover, the amenities cut by larger airlines mean that their offerings are not all that different from their low cost competitors. [29] Cost-conscious mainstream airlines are cutting cost in order to provide the lowest fares. As mainstream airlines slim down, it has given passengers more option to fly both comfortably and affordably.

LCCs are able to keep their prices down by flying out of low cost terminals. In other words, it is very much dependent on the airport that can lower its charges [30]. It also relied on the Internet for online booking and providing very basic onboard services. Furthermore, LLCs usually stock their fleets with one type of aircraft to minimise the amount of training for crews. [31]

With fluctuating fuel prices, economic downturn and continuing environmental pressures, LCCs need to be able to continue to create value to their target customers in order to gain the market trust. It must continuously evaluate its models carefully in order to identify new revenue streams, attract profitable customers to ensure its long term survival in a highly challenging and competitively industry. The bigger challenge will come from mainstream airlines as they embark on low fares flights. As more and more

countries are adopting an open sky policy, this has opened up new routes for LCCs amid tough competition and new entrants. [32]

As low cost carriers, it has to constantly keep its cost down. One of the fundamental issues with LCCs is economies of scale. By exploring new routes, it can enjoy increasing returns to scale; the marginal costs will be lower than the average costs. Since the marginal units of production or service cost less than the average, any increase in production will reduce the average cost. Therefore, the average cost curve slopes downward as shown in diagram 3.

This will be more apparent if the aircrafts, maintenance and crews have minimum fixed costs including a fixed quota on the airports charges.

Apart from economies of scale, LCCs like JetBlue offers a relatively simple product, with little meal service, at relatively low fares. This helps JetBlue distinguish itself from other carriers like Southwest by offering reserved seating, leather seats, and LCD TV at every seat. [31] Furthermore, it has offered a more traditional hub-and-spoke route structure and a more traditional mix of long and short-haul flights. Coupled with its friendly service and hassle-free technology (ticketless travel), no discount seats, all fares would be one-way with a Saturday night stay over never required. It strives to be truly customer-friendly with computer terminals that could be rotated to show the customer what the agent was looking at, giving a \$159 voucher whenever a flight was delayed for more than 4 hours for reasons other than weather or air traffic, and giving a \$25 voucher for misplaced bags. Its

attempts to bring humanity back to air travel. JetBlue's target market was "people who are not going to travel, people who are disgusted with their current choices, people who would drive, or people who would not go at all."

Another differentiation was that JetBlue used new airplanes as opposed to other LCCs that used second-hand planes. In another words, it provided passenger another layer of comfort and safety factors.

## **IMPACT OF GLOBAL RECESSION ON THE AIRLINE INDUSTRY**

Global recession and rising oil prices have major impact on the airline industry. Industry passenger revenues have declined nearly 15% which is equivalent to \$80 billion. The impact was far greater than September 11 disaster.

According to International Air Transport Association (IATA), the forecasted revenue loss has gone up by 50% from \$4. 7 to \$9 billion. [33] Generally, first class and business class fliers have switched to economy class. Many businesses have freeze travelling and instead used video conferencing for meetings etc...

On top of this, cost pressures from rising jet fuel prices in 2008 forced up the industry's fuel bills to \$165 billion and precipitated losses of about \$10. 4 billion. Coupled with softer travel demand due to the spread of the H1N1 virus, have created a difficult business environment. [34] These forces that are affecting the industry are creating significant headwinds for the industry.

## **SUGGESTED MEASURES**

Several carriers have taken the following measures:

Reduce capacity on domestic and international routes. Aircrafts were grounded as a result including crews taking no-pay leave or shorter working week.

Suspending non-stop services to certain routes. For example, Delta airline suspended its flight between Atlanta to Seoul and Shanghai.

Reduce weekly frequencies of flights to certain destination while extending more flights to profitable routes

Move quickly to rebrand and consolidate facilities, repaint aircraft and ramp-up our frontline training activities.

accelerate integration like mergers and acquisitions

## **MERGERS AND ACQUISITIONS**

In time of tough operating environment, merger makes more sense than ever particularly for air carriers. This would provide competitive advantage and strengthens its financial foundation. It also will maintain tight controls on its costs and capital spending. [8]

Mergers acquisitions (M&As) is the easiest way to add to gross income is through mergers. By buying an established business with developed services and markets is a lot easier than focusing on internal innovation or better business processes. Many companies add 30 percent, 50 percent, even 100

percent to the gross income line simply by making a strategic purchase. Furthermore, there is synergies like greater economic efficiency, economies of scale, critical mass or greater customer base. At the same time, with lesser competition, it helped to stabilise airfares.

## **CONCLUSION**

The airline industry operates in an oligopoly structure. By recognising mutual oligopolistic interdependence, it must be concerned and be aware of the group profits and group welfare. Under oligopoly landscape, independent, aggressive, genuinely competitive behaviour is perceived as counterproductive-an “ irrational” strategy for the individual carrier.

With declining market share by the “ Big Five” network airlines and influx of several low-cost carriers, tacit collusion is becoming more difficult to organise, conceal and enforce. Through innovative and differentiated services, airline carrier could increase its equilibrium prices and avoid head-to-head price competition.

New regulatory regimes like Antitrust laws is necessary to promote and protect competition. With Antitrust law, mergers and alliances by large carriers could have been blocked to prevent any artificial barriers to competition and prosecuting any predatory practices or actions to ensure competition function effectively.

The prospect of LCCS can be sustained if can offer differentiated services like JetBlue which differentiated itself from the suite of no-frill services to its passenger that is niche and unique. LCCS should focus on cost efficiency and

economies of scale by exploring new routes so that marginal costs will be lower than the average costs.

The global recession has severely reduced the revenue of the airline industry. Several measures have been taken and adopted by many carriers in order to pull through the bad times. However, to ensure long term survival and competitive edge, carriers need to consolidate through merger and acquisition in order to enjoy greater synergies like greater scale, economic efficiency, economies of scale, critical mass or greater customer base and keeping airfares stable.