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AIRLINE DEREGULATION: AN EVALUATION

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AIRLINE DEREGULATION:
AN EVALUATION

A DISSERTATION

Submitted to the
Faculty of Miami University
in partial fulfillment of
the requirements for the degree of
Doctor of Philosophy
Department of Political Science

by

Michelle Anne Fistek
Miami University
Oxford, Ohio
1985

MIAMI UNIVERSITY - THE GRADUATE SCHOOL
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ABSTRACT

AIRLINE DEREGULATION: AN EVALUATION

by Michelle Anne Fistek

This dissertation is an analysis of the recent deregulation of the airline industry, and an assessment of the impacts of the Airline Deregulation Act of 1978 (ADA). The ADA allows airlines to enter and exit from routes with greater freedom. It encourages the entrance of new airlines into the industry. Airlines are allowed more decision-making power and control over their own operations.

The ADA is viewed as a benchmark for future attempts to narrow the scope of regulation by the national government in the lives of citizens and in the economy. The dissertation attempts to help answer the question of how successful the ADA has been.

The history of Airline deregulation and the provisions of the ADA are summarized, then each of nine impacts of the ADA are investigated. These impacts are: fares, productivity and efficiency, growth and response to deregulation, small community service, fuel consumption, mergers, airlines in trouble and new entries, airports, consumers and safety and finally, foreign airlines.

The results of the Act are mixed at best. The industry has improved efficiency and fares on the densest routes have been lowered. Service to small communities has suffered. Only three of the ADA's goals have been met fully, greater efficiency and the stimulation of competition, while two have been partially met, lower fares on the densest routes and increased control by the airlines has resulted in profits for local service airlines, but the major airlines have incurred

losses. Deregulation would have been better implemented slowly rather than in the abrupt manner it was accomplished.

For my parents, Verna and Anthony Fistek

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CHAPTER ONE: BACKGROUND AND FRAMEWORK OF ANALYSIS

In the wake of recent economic difficulties, there has been an outcry against the size, expenditures and intrusive regulations of the Federal Government. Indeed, we are experiencing broader and more intense questioning of the role that government generally should have in society. An early target of the quest to decrease the government's size and regulatory intrusions in the economy has been the airline industry. The airline industry is a useful case study because it has been one of the more heavily regulated industries in the United States.

This dissertation is an analysis of the recent deregulation of the airline industry, and an assessment of the impact of the Airline Deregulation Act of 1978 (ADA). The Act was adopted in 1978 amid much controversy. Advocates of deregulation argued it would result in lower fares and allow the airlines to operate more efficiently and profitably. Opponents to deregulation countered that it would lead to fewer airlines in the market, with resulting higher fares and less dependable and lower quality service. The legislative objective of the Act is to gradually free the airlines from Civil Aeronautics Board (CAB) regulation of fares and routes. The Act allows airlines to enter and exit from routes with greater freedom. Essential service is assured by the Act through 1988, and airlines are not allowed to exit from specific routes which are considered to be essential. Employees are also to be protected from loss of jobs as a result of deregulation. The Act makes it easier for airlines to raise and lower fares without CAB approval.

The airline industry has entered the seventh year of deregulation. Has the industry performed better without the interference of government? Has the deregulation of the airline industry thusfar been a success as measured against its goals? There has been little systematic

analysis of these issues.

The Airline Deregulation Act is viewed as a benchmark for future attempts to narrow the scope of regulation by the national government in the lives of citizens and in the economy. If the Act is deemed effective, it will be cited as a "success story" by advocates of less governmental intrusion to urge the deregulation of other transportation industries and other highly regulated sectors of the economy. Has it been a success as its supporters claim or a failure as its opponents claim? This dissertation attempts to help answer these questions. Such an evaluation is important if this act is to be used as evidence for further deregulation or as evidence that governmental intervention at times is necessary.

BACKGROUND

The substantial literature on airline deregulation can be classified as historical, advocative and evaluative. The historical literature is illustrated by David Corbett's *POLITICS AND THE AIRLINES* (1965) and William A. Jordan's *AIRLINE REGULATION IN AMERICA: EFFECTS AND IMPERFECTIONS* (1970), which offer detailed background information on the growth of the airline industry, and on the regulation of the industry by the Post Office and later the Civil Aeronautics Board. These studies trace the performance of the airline industry under regulation. Corbett and Jordan detail the perceived need for regulation during the early years of commercial aviation, and review the formulation of U.S. aviation policy. They address the question of why the industry was subject to such intense regulation, and why it has been regulated by the government since its inception. This literature focuses on how the industry was structured and molded by government

regulation. The various policies adopted by the CAB are examined. The Civil Aeronautics Act of 1938 outlined several often conflicting objectives for the Civil Aeronautics Administration (CAA) and later the CAB to achieve. The impossibility of maximizing all of these objectives simultaneously forced the CAB to choose the objectives it wished to stress. It chose to give priority to different objectives at different times. These choices led to a situation, according to critics of regulation, in which the airline industry was constrained and buffeted about by regulation with shifting emphases and consequences. This situation precipitated the call for deregulation.

The next category of literature, advocative, immediately predates the Airline Deregulation Act of 1978. This literature makes the arguments of those in favor of and those opposed to deregulation. The arguments against deregulation can be found in the writings of such aviation industry commentators as Esperison Martinez Jr. and C. V. Gline. Those opposed to deregulation feared that the airlines would abandon less-profitable routes to smaller communities. They also worried that the unregulated competitive market would cause problems with coordination of service, baggage claims, and fares. Regulation, to their minds, assured coordination and cooperation in these areas. If the airline industry were to be deregulated, opponents claimed, predatory practices would result from unleashed cutthroat competition. Deregulation would also lead to a monopoly situation. Weaker airlines would be forced out of the market once they were no longer protected by the CAB. Under regulation, the CAB could award profitable routes to the weaker airlines, thus assuring their survival.

Opponents further claimed that airlines are similar to public

utilities and as such have become necessary to our lives. Therefore, the airlines should be regulated to assure that service is dependable and of high quality. Without regulation, it was argued, these cannot be assured. The safety of airline travel under deregulation was also questioned. It was feared that airlines under pressure from competition would let safety slide. The CAB did not have authority over safety; it is vested in the Federal Aviation Administration (FAA). The abolition of the CAB would have no direct effect on safety regulations, but the anticipated increase in airlines entering the market after deregulation might put a strain on the ability of the FAA to maintain proper inspections of aircraft and personnel.

The final concern of the opponents of deregulation was the availability of financing for airlines and airports. Deregulation would cause uncertainty, making financing difficult in this environment of change.

The arguments in support of deregulation are illustrated by Paul MacAvoy and John W. Snow in *REGULATION OF PASSENGER FARES AND COMPETITION AMONG THE AIRLINES* (1977). MacAvoy and Snow argue that deregulation would allow the airlines to operate more efficiently and profitably. Artificially high fares would fall appreciably in an environment of competition. If the airlines remained under CAB regulation, fares would continue at unacceptably high levels.

Small community service, according to supporters of deregulation, would not suffer if the airlines were deregulated. Any loss of service would be picked up quickly by new commuter airlines. These new airlines would enter the industry because of increased market freedom resulting from deregulation.

Airlines would continue to cooperate in their coordination of service, baggage claims and fares because it would be in their best interest to do so. Deregulation would not create a monopoly situation because it would stimulate the entry of new airlines into the market by allowing easier entry into routes and allow airlines to set their own fares.

Safety will continue to be monitored by the FAA and was of no concern to the advocates of deregulation. Finally, financing for airports and airlines would not be affected by deregulation. Those airlines and airports in sound financial condition would have no problem obtaining funds. Deregulation would allow airlines to control their own profitability. Therefore, the supporters of deregulation claimed, airlines would become more profitable than they were under federal regulation.

The evaluative literature is more current and begins in 1978 when the Deregulation Act went into effect. Included are the hearings of the House Subcommittee on Aviation in 1979 and 1981, the Congressional Research Service's evaluation of deregulation (1981); Meyer, et al.'s, AIRLINE DEREGULATION: THE EARLY EXPERIENCE; and the General Accounting Office's (GAO) THE CHANGING AIRLINE INDUSTRY: A STATUS REPORT THROUGH 1979 AND 1980. The early evaluations contain much conflicting information. Meyer, et al.'s AIRLINE DEREGULATION found that while the Act has been successful thusfar, it is too early to tell how successful the Act will ultimately be. Their study was published in early 1981 and includes preliminary data through the second and third quarters of 1980. While its conclusions are cautiously optimistic, those of the GAO evaluation of 1979 are quite optimistic.

The three following years, 1980, 1981 and 1982 were disastrous years for the airlines, although improvements have been made in 1984 and through mid-1985. The recession of 1980 reversed many of the gains of deregulation. The evaluations so far have not dealt with the problems faced by airlines in 1980 and subsequent years, nor have they dealt with the effects of the air traffic controllers strike and its consequences in terms of restricting the ability of airlines to enter and exit from the twenty-three largest airports at will. The economic situation of 1980, 1981 and 1982 and the air traffic controllers strike have a bearing on the success of airline deregulation. It must also be remembered that the Act slowly decreased the powers of the Civil Aeronautics Board. Full deregulation took effect in 1985.

Another deficiency of these early evaluations is the failure to consider some of the other important aspects of deregulation, such as its effects on foreign airlines, airports, and consumers. The areas they evaluate--fares, traffic, productivity, performance, strategies, air service to small communities and fuel prices--are effectively treated in a preliminary fashion, but more current data and analysis are required before a more informed judgment can be made about the success of deregulation.

Harvey A. Levine, in NATIONAL TRANSPORTATION POLICY: A STUDY OF STUDIES (1978), criticizes past evaluations of transportation policies for their lack of focus on basic principles of transportation policy. This research is designed to pay careful attention to his first tenet of transportation policy evaluation: "Transportation is a derived demand." Levine warns that research should be centered on the user's needs and wants, not those of the supplier. The past evaluations of

airline deregulation focused on the needs and wants of the airline industry. They were more concerned with the profits and survival of the industry than they were with transportation needs and welfare of the passenger.

FRAMEWORK OF ANALYSIS

Most policy research deals with policies which distribute goods and services to the public. Airline deregulation policy, on the other hand, involves removing the "services" or regulations provided by the CAB and either discontinuing them or transferring them to other agencies. The deregulation of the airline industry cannot be studied in the same manner as, for example, the education policies of a city. There are no books, teachers or sports equipment to be distributed; indeed, the Deregulation Act discontinues services. This requires the researcher to adapt the frameworks and definitions of common policy terms to adequately deal with deregulation.

Levy, Wildavsky and Meltzner in URBAN OUTCOMES (1974), provide a useful discussion of the differences between outputs, outcomes and impacts. To summarize, outputs are defined as the "goods and services that the organization produces," and they "represent the way to classify goods and services supplied by a public agency and received by (or directed at) the public." Outputs can be listed in an objective way. Outcomes, on the other hand, are more subjective. Outcomes are how outputs are distributed, and therefore involve the placing of values on outputs--"values based on how they affect citizens now." Outcomes, then, are how the goods and services are distributed among citizens. Impacts are the long-range or final consequences of outcomes. Impacts, according to Levy, et al., are difficult if not impossible to assess in

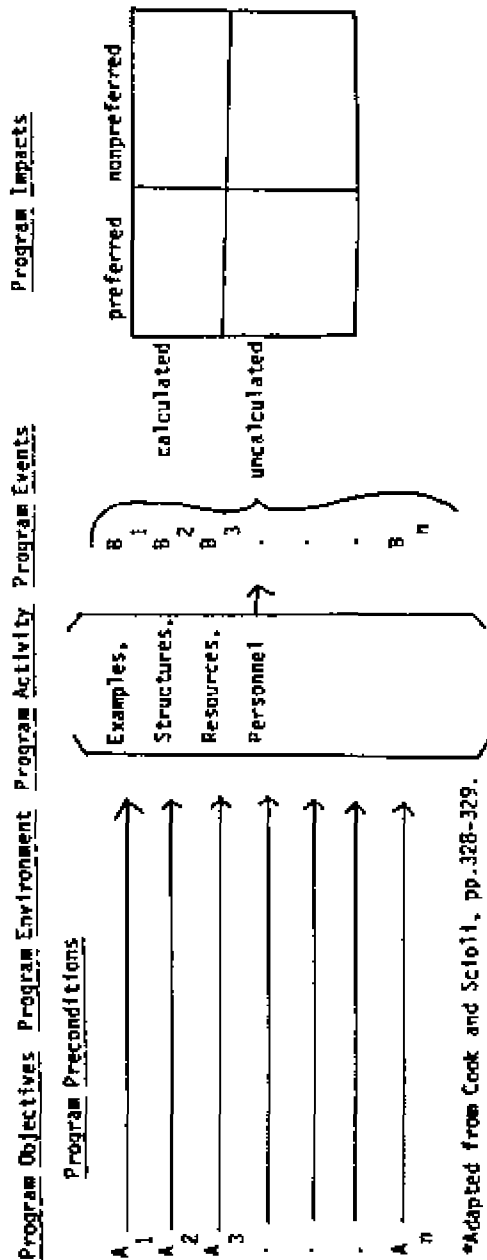
a definite way because of the intervening variables that are involved. Impacts involve long range issues, such as trying to ascertain the impact of a new road on the number of jobs in a city. The new road may bring in more industry, thus creating more jobs, but this would be almost impossible to demonstrate directly because of the possible effects of such factors as available transportation, the regional economy and the work force of the area, to name a few.

In the case of airline deregulation, it is possible to go beyond the outcomes and to assess some of the impacts of the policy. While ultimate consequences cannot be analyzed, it is possible to go beyond describing, for example, the changes in airline fare structures since deregulation. The impact of fare changes is more important than looking at how and where they changed. What effects have the changes in fares had on airline productivity or the number of people traveling on airlines? To allow such an impact analysis, the framework of analysis used is an adaptation of the model presented by Cook and Scioli (Figure 1.1) (Cook and Scioli, pp.328-329). The general objectives of this strategy, according to Cook and Scioli, are first, a central focus on the form and strength of the relationships between the program activities and program impacts, and second, a strategy that allows the determination of the specific conditions under which program impacts approximate program objectives.

The model may be explained in the following manner:

Program objectives. The changes that are to be brought about by the implementation of the policy must first be specified (e.g., lower fares). There must be a link between the objectives of the program and the changes which occur in the environment that are relevant to the

Figure 1.1: Model for Impact Analysis*



*Adapted from Cook and Scioff, pp.328-329.

objectives of the program. Because it is not possible to prove a link between actions and impacts, any evaluation will be tenuous. The objectives are the changes which policy-makers wish to bring about by the policy. The model attempts to establish a causal link between the policy and changes in the environment.

Policy environment. This refers to the context in which the policy is implemented. The environment can affect the success or failure of the policy and can also have a bearing on the ability of the researcher to interpret the policy impacts. The amount of public support a policy enjoys, for example, is an environmental consideration. If a policy is not supported by the public or the target population, it may be doomed to failure.

Program activity. These are the activities undertaken to directly bring about the desired impacts, including not only the operating procedures for bringing about the desired results, but also the expenditures for personnel and equipment.

Program events. The episodes that may intervene or interact with the program outputs to produce program impacts are program events. A program event may interact with a program activity and produce an impact different than would have been the product of the program activity alone. An example might be the air traffic controllers strike in the case of airline deregulation. The strike may interact with the program activities and produce impacts different than those which might have been produced by the policy alone.

Program impacts. Impacts are "the most critical elements in the systematic evaluation of social programs" (Cook and Scioli, p. 331). Impacts are the measurable changes which have occurred in the areas

targeted by the program objectives. Differentiated are the calculated and uncalculated impacts, and the preferred and nonpreferred impacts. The difference between calculated and uncalculated impacts refers to the changes resulting from the program activity which were measured by the decision-makers and changes which were unmeasured but may be possible impacts of program activities. Those impacts which are unmeasured may be considered to be secondary consequences of the program. Impacts of deregulation on domestic airlines were calculated, but the impacts on foreign airlines were uncalculated by policy-makers. Not all impacts are self-evident. Preferred and nonpreferred impacts refer to the positive and negative consequences of a program. No policy has all positive impacts. The positive impacts must be weighed against the negative impacts of a policy before an evaluation can be made about the relative effectiveness and desirability of the policy. Some negative impacts may be acceptable if the positive ones are preponderant and/or more important.

Criteria for conclusions. After the impacts of deregulation policy have been evaluated and placed within the model, conclusions are drawn about the policy. The framework serves to organize the impacts. A simple counting of positive and negative impacts will not accurately evaluate the merits of the policy. Some impacts will be more important than others, and they must be weighted and summed by their relative importances. The first criterion for the weighting of impacts is to consider how the impact relates to the target population, the consumer, rather than simply being concerned with the health and profitability of the industry. Another criterion is the long-term or short-term impacts of the policy under study. Frequency, or the number of times an impact

or event occurs (does the impact constantly occur?), will be used as the final criterion for judgment of impact. After weighting the impacts, preliminary conclusions are drawn and prescriptions for improvement of the policy are offered.

The impact of airline deregulation policy is assessed by investigating: 1) the background and history of regulation of the airlines and the subsequent fight for deregulation; 2) the goals and provisions of the Airline Deregulation Act of 1978; 3) the fares charged by the airlines; 4) the productivity and efficiency of the airlines; 5) the growth and response to deregulation; 6) how small communities have been effected by deregulation; 7) fuel prices and consumption; 8) mergers, airlines in trouble and new entries; 9) how airports have been affected by the new freedom in choosing routes; 10) consumers; 11) foreign airlines, and, 12) how the air traffic controllers strike has affected deregulation.

DESIGN OF THE STUDY

CHAPTER TWO: HISTORY OF THE UNITED STATES CIVIL AVIATION INDUSTRY

The second chapter deals with the history and evaluation of regulation policy, and the background of the Airline Deregulation Act of 1978. This chapter answers such questions as: Why was regulation necessary? Why was it continued for so long? What were the promises of deregulation advocates and the warnings of its opponents as to its effects? Why was deregulation pursued as a policy alternative?

CHAPTER THREE: AIRLINE DEREGULATION: PROVISIONS AND OBJECTIVES

The third chapter summarizes the provisions and objectives of the Airline Deregulation Act of 1978. Program objectives are the changes which policy-makers expected to bring about through enactment of the

ADA. What was it they hoped to accomplish? Of course, policies may become different than envisioned by policy-makers when implemented. Certainly, the Program environment must be investigated. The support of the airline industry is imperative for the ADA to be successful. The next element to be investigated are the Program activities. The CAB, in implementing the ADA, set priorities for the various policy objectives. This process of prioritizing objectives may change the policy, emphasising or ordering objectives differently than intended. Finally, certain Program events interrupted the implementation of the ADA. These events included the Air Traffic Controllers strike and rising fuel costs. These program events will be investigated in the following manner:

Air Traffic Controllers Strike

The Air Traffic Controllers Strike "rescued the airlines from the ravages of deregulation," according to Frederick Thayer. In this section, the data described above are analyzed by comparing the pre-strike and post-strike periods of the post-deregulation years. If the airlines and their service have shown improvement outside previous patterns since the strike, Thayer's observation may be accurate. The performance of Pan American and Braniff, the two airlines in the weakest position, serve as cases to assess the impact of the air traffic controllers strike on the financial condition of the airline industry. Thayer also forecast a decrease in regular fares (coach and first-class).

Fuel Costs

Fuel prices rose sharply shortly after deregulation. These price

increases could give a false impression about the effects of airline deregulation. Rising fuel prices have made it more difficult for airlines to lower fares. How much has fuel risen? The price paid for fuel by trunk and local service airlines varies, with the local service airlines paying more. The effects of fuel prices on operating costs is analyzed, using data from the CAB.

CHAPTER FOUR: ASSESSING THE IMPACTS

Measurable changes which have occurred in the areas targeted by the program objectives are covered in this Fourth Chapter. The impacts of deregulation are assessed in nine targets of ADA policy objectives: A) Fares, B) Productivity and Efficiency, C) Growth and Response to Deregulation, D) Small Community Service, E) Fuel Consumption, F) Mergers, Airlines in Trouble and New Entries, G) Airports, H) Consumers and Safety, and I) Foreign Airlines. The calculated and uncalculated, and the preferred and nonpreferred, dimensions of each of the impacts provide the focus for summary discussions.

The nine target areas are investigated as follows:

A. Fares

One of the goals of airline deregulation is to lower fares that were set at artificially high rates by the CAB. Methods for setting rates are investigated to see if rates were artificially high. If fares have fallen since the ADA, then it is achieving its primary goal. To ascertain if fares have decreased, the average fares per passenger mile charged by the airlines are examined. Each year since 1972 is analyzed to determine if average fares per passenger mile have dropped for trunks, local service and other airlines. This offers an indication of the effect of deregulation on fares charged. Another useful indication

of how fares have varied since deregulation is the average fare charged per passenger mile divided into distance blocks. The distance traveled may make a difference in the fare charged. The number of discounts available since deregulation make any direct comparisons of fares between city pairs difficult. Finally, the strategies used by the airlines since deregulation to set their own fares and the consequences of those strategies are investigated. The data have been obtained from the CAB and the OFFICIAL AIRLINE GUIDE.

B. Productivity and Efficiency

Traffic, or the number of passengers using the airlines, should have increased after deregulation. The lower fares are expected to stimulate an increase in the number of airline passengers. The number of passengers can be measured by total revenue passenger miles (the number of miles traveled by paying customers), and by passenger load factors--the percentage of seating capacity actually sold and utilized (Meyer, et al., p.25). "Passenger load factors are often regarded as better indicators of airline performance than revenue passenger miles flown as they are a better measure of productivity" (Congressional Research Service, p.25). If deregulation is successful, the load factors should rise. The Airline Deregulation Act is expected to allow the airlines to run more efficiently, with more passengers. Outputs of the airlines are usually measured in terms of available seat miles and revenue passenger miles. The available seat miles and revenue passenger miles should be equal for the airlines to be running at peak efficiency.

Another indication of the changes wrought by deregulation is the number of hours airplanes spend in the air, carrying passengers. The more hours spent in the air, the more efficient is the use of equipment.

An additional indicator of how efficiently aircraft are used is the change in seating density: the more seats in the airplane, the more efficient is the utilization of the aircraft.

Corporate returns on investment and profits are also examined. If deregulation is successful, both of these should increase. Rate of return on investment is defined as: $\left(\frac{\text{net income} + \text{interest expense}}{\text{airline debt} + \text{equity}} \right)$.

Data for the preceding were obtained from the CAB and the Air Transport Association of America.

C. Growth and Response to Deregulation

Deregulation was expected to stimulate the growth of the airline industry by allowing airlines to make their own route decisions and by allowing easier entry by new airlines. If the airline industry shows growth and new entries, deregulation is meeting another of its goals. First, the number of newly certificated airlines should increase under deregulation, exhibiting growth within the industry. If the airlines have added more routes than they have exited from, deregulation is stimulating growth. Another indication of growth within the industry would be the number of aircraft in service. The greater the number of aircraft, the more growth would be indicated. The growth of the airline industry is also demonstrated by looking at the available seat miles and revenue passenger enplanements and how much available seat miles have grown since pre-deregulation (1976). Passengers might be flying longer distances rather than simply taking more trips. According to Meyer, et al., if the revenue passenger miles rise faster than revenue passenger enplanements, passengers are flying longer distances. These are investigated before and after deregulation to see if this is the case.

As a response to deregulation and the new freedom to enter routes, airlines might attempt to establish routes that are longer in distance. Fuel is used most quickly on landings and takeoffs. Because of this, the plane is most efficiently used on longer flights with fewer stops. The flight stage lengths for the trunk airlines and local service airlines are analyzed. The number of hours the airlines utilize their equipment and the stage length miles flown by each of the trunks and local service airlines also give an indication of how the airlines have responded since deregulation. Finally, since the ADA, airlines have the freedom to enter into and exit from routes at will. This freedom has given them the opportunity to "rationalize" their route systems to maximize the utility of aircraft. The way airlines have responded to this opportunity is discussed.

The data for this section were acquired from the CAB.

D.Small Community Service

Opponents of deregulation feared that many small communities would lose service since they are the least-profitable routes. Many of the routes to small communities were subsidized by the government. These subsidies were changed by the ADA. Proponents of deregulation felt that if large lines abandoned small communities, new commuter lines would emerge to provide the needed service. If small communities have retained airline service, deregulation is, in this instance, successful.

This aspect of airline deregulation is tested by first looking at the aggregate numbers of departures per week by market type (large, medium, small and non-hubs, see Appendix E for definitions of hub types), and the number of available seats per week. These data indicate the extent to which flights and available seats for small communities

have increased or decreased since deregulation. The number of small hubs which have increased and decreased the number of seats available and number of departures are compared to large and medium hubs. Seats per departure are investigated to see if smaller aircraft are serving small and non-hubs. This indicates how well the small and non-hubs have fared since deregulation.

Airlines must notify the CAB before they discontinue service to small communities. Proponents of deregulation asserted that new airlines, stimulated by the Act, would pick up any service terminated by the present airlines. The number of communities which have lost previously existing service are investigated to see whether or not service has been subsequently continued or has remained discontinued. Communities gaining competitive service where none existed before deregulation are also investigated.

Another facet of the loss of service to small communities involves the government subsidies paid to airlines providing service to certain unprofitable routes. The method of subsidizing these unprofitable routes has changed with deregulation. These changes may be of importance to the decision of airlines to continue or discontinue service to certain communities. The airlines receiving subsidies are scrutinized to see what type of airlines serve small communities. This indicates the type of service available to these communities. The relative levels of subsidies are also studied to determine if deregulation is more costly than regulation in terms of subsidies.

A final consideration of the loss of service to small communities is the issue of community acceptance of commuter airlines. Most of the replacements of air service are by commuter airlines. The commuter

airlines use smaller, more fuel-efficient aircraft to serve the small community. These smaller aircrafts may be perceived by the community as being unsafe or less desirable than the larger aircraft that previously served them. If the public accepts the commuters, the number of enplanements (number of passengers boarding) should remain constant or increase in the period of time prior to deregulation at the points where commuters have replaced larger aircraft. Data have been obtained from the CAB.

E:Fuel Consumption

Conservation has arisen as an important issue in the 1970's and 1980's. Opponents of deregulation claimed that deregulation would be wasteful because airlines will fly more planes than needed. Supporters felt that the market would control the consumption of fuel. If more fuel is being used per enplanement since deregulation, deregulation is proving to be wasteful of precious fuel resources. Airlines might try to combat the use of fuel by purchasing more fuel-efficient aircraft. The purchases of more fuel-efficient aircraft is investigated as a response to fuel consumption.

F.Mergers, Airlines in Trouble and New Entries

One of the goals of airline deregulation was to stimulate the entry of new airlines into the market. If more airlines are entering the market, it is reaching this goal. The opponents of deregulation feared the loss of many airlines and the creation of a monopolistic situation, since the CAB would no longer control the entries, mergers and exits of airlines. The entries, mergers and exits of airlines from the industry are investigated to determine the impact of deregulation. Several airlines are reporting record losses and several have filed for

reorganization. If profits have dropped considerably after deregulation in some of these airlines in trouble, deregulation may be responsible for at least part of that decline. The present pattern of profits for the industry are compared to the pattern of profits of earlier times of favorable and unfavorable economic conditions.

Airlines involved in mergers are investigated. Mergers create fewer airlines and more situations of industry concentration. If the number of airlines is declining since deregulation due to mergers and exits, deregulation is fostering industry concentration rather than stimulating competition in the airline industry. Information has been gained from the CAB as well as from the airlines affected by entries, mergers and exits and those finding themselves in economic difficulties.

G. Airports

Many airports have been overburdened by the new freedom of airlines to enter markets at will. Others are underutilized because of the loss of service. Overburdened airports are not meeting consumer needs and the underutilized airports are financial burdens on their communities.

If the number of airports has risen since deregulation, deregulation has stimulated the building of airports. The expansion of already established airports is also considered. Although data on airports was not readily accessible for the purpose of this dissertation, the affect of the ADA on airports must still be considered, however briefly.

Some opponents of deregulation feared that the financing of airport construction would become more difficult because of the uncertainty of the market, caused by the ability of airlines to freely enter and exit routes. If financing has become more difficult, then

deregulation is not beneficial for the airports. Airport construction costs and availability of financing are examined using data and other information obtained from the American Association of Airport Executives.

H. Consumers and Safety

Airlines provide a service. The consumers of that service should be the most important consideration when making policy decisions related to that service. Airline deregulation was to have lowered fares, making it cheaper for consumers to travel. Fares are not the only consideration when utilizing air travel. Service, including baggage handling, in-flight meals and other accommodations, treatment by ticket agents, comfort, and delays, as well as safety are major considerations of those traveling by air. If deregulation is causing the quality of service to decline, the consumer suffers. Even the lowest fare cannot make up for undependable, unsafe or uncomfortable conditions.

To investigate the quality of service offered by the airlines, a comparison is made of the number of complaints filed with the CAB by passengers before and after deregulation. The types of complaints are categorized and investigated utilizing data obtained from the CAB and the Consumer Action Project, the interest group of airline consumers.

Estimates of how much consumers have saved since deregulation are presented as an indication of how consumers have benefited from the ADA. The number of daily changes in flight schedules and fares indicates the amount of confusion caused by the Act and freedom it has fostered.

Another variable which affects the consumer is the safety of the industry. Many industry insiders and observers are voicing concern about the lessening of safety precautions taken by the airlines.

Aircraft fatality and accident rates are investigated along with the charges that safety has become a lower priority of the airlines. Data were obtained from the FAA and Congressional hearings.

I. Foreign Airlines

Foreign airlines, especially those in the Third World, were established and financed under the assumption that airline regulation in the United States would continue. As Peter Wolf writes, "The abrupt dismantling of the old air transportation order was plunging many airlines, especially in the Third World, into difficulties, as they are too small or are not suitably organized to exist under deregulation." Airlines serving Atlantic and Pacific routes are investigated, as well as the general performance of the international aviation industry. Data for this segment of the analysis were obtained from the CAB, and the International Air Transport Association.

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

The final chapter of this study summarizes and synthesizes the calculated and uncalculated, preferred and nonpreferred impacts, so that by taking into account the program objectives, environment, activities and events, some tentative judgements about the success of the ADA may be made. Recommendations will be offered as well.

The judgement of success depends primarily upon whether and to what extent the Act is serving the consumer, not simply the profitability of the industry. After all, the airlines exist primarily to serve.

CHAPTER TWO: HISTORY OF THE UNITED STATES CIVIL AVIATION INDUSTRY

Before discussing the history of the airline industry and regulation policy, some definitions and explanations are in order. First, the questions of what regulation is and why it is imposed in general, and why it was imposed upon the airline industry specifically, must be answered. Regulation is "best defined as a state-imposed limitation on the discretion that may be exercised by individuals or organizations, which is supported by the threat of sanction" (Stone, 1982, p.10). In the case of the airlines, this means that before fares were regulated, depending upon market conditions and other variables, airlines could set their own fares and establish service routes as they wished. Once under regulation, they lost this discretionary power and were forced to set fares at levels determined by the Civil Aeronautics Board (CAB) and to petition the regulatory agency for access to air service markets (routes). This government power to impose fares and decide who would service routes was backed by the sanction of having CAB-granted certification withdrawn.

In order to understand regulation, it is best considered as a public policy alternative. Peter D. Steiner presents a useful framework for discussion of regulation. He discusses regulation in terms of "public goods." Public goods are "any goods or services which are 'de facto' provided for or subsidized through government budget finance" (Birdsall, p.238). Therefore, any publicly induced or provided collective good is a public good according to Steiner. Public provision is a sufficient though not necessary condition for public goods. Private provision through government grants or subsidies is a possibility as well.

Public goods are created when demands arise from the public for

provision of certain goods and services in a way that is different from provision by the unhampered private market. The public must be willing to pay for those goods and services through public funds. These public goods require 1) an appreciable difference in either quantity or quality between it and the alternative the private market will produce, and 2) a viable demand for the difference which may be privately or publicly provided (Steiner, p.7).

There are three types of public goods which meet the above criteria:

- 1) those arising from intrinsic, perhaps technical characteristics of specific goods that result in externalities that are not effectively marketed,
- 2) those arising from imperfections in market mechanisms rather than in the nature of goods and services themselves, and
- 3) those arising from concern with the quality or nature of the environment rather than aspects of particular goods or markets (Steiner, p.9).

Issues which arise in the decision about whether a particular collective good ought to become a public good are: whether the free market provision of the good is impossible, impractical, costly or simply unwanted; why does the group demanding public provision find the free market alternative undesirable; who will benefit if this good becomes a public good; whether the benefits of public provision of the good (regulation) will outweigh its costs?

Regulation actually refers to two different types of governmental powers, the authority to regulate prices and practices of producers and the authority to promote commerce through grants and subsidies. The national government has used both of these powers on the airline industry.

Typically, the regulation of goods and services is left to independent regulatory agencies. These agencies are created to bridge

the two worlds of politics and economics (Kohlmeier, p.9). Independent regulatory agencies are typically governed by bipartisan, multi-membered boards, the members of which number between three and nine. Board members are appointed by the president with the advice and consent of the Senate. The president does not have removal power over board members. Terms of the members are longer than presidential terms, usually five to fourteen years in length. Although considered executive agencies, independent regulatory commissions also maintain quasi-legislative and quasi-judicial powers.

If regulation is chosen as a policy alternative, there are several problems policy-makers must consider. Implementation of regulation is difficult and costly. Regulation is "inherently incapable of bringing the system to a Pareto-optimal solution... because regulations are inherently inflexible" (Otto Davis in Haveman and Margolis, p.102). If regulations are inflexible and difficult to comply with, they are easily ignored, which leads to a situation where the industry is protected from the private market yet is unregulated.

The agency is likely to be captured by the industry it is regulating. The "experts" are usually those who have worked for the industry, creating a "revolving door" where industry people are hired to regulate, they then return to the industry when their terms with the agency are completed.

Legislation is often vague when it reaches the agency. This gives the bureaucrats substantial discretion in implementation. Conflicting objectives are common in legislation, again allowing for wide bureaucratic discretion in decision-making.

In discussing regulation, it must be understood that although

regulation is not the only alternative for providing public goods, it has been widely used by the public sector. The Interstate Commerce Commission (ICC) became the first independent regulatory commission on the national level in 1887. The states had regulated certain sectors of the market prior to 1887. The "era of regulation" continued through 1916 and saw the creation of the Federal Trade Commission (FTC) and the Federal Reserve Board (FRB), and the passage of the Sherman Antitrust Act and the Food and Drug Act (Stone, p.30). The 1920's saw a change in the prevailing philosophy; the public put more faith in private voluntary agreements between businessmen than in governmental intervention. However, no significant statutes were repealed or changed, in fact, some new regulations were passed during this decade.

Confidence in the free market was shaken by the Great Depression. The public demanded that the government regulate the market to stimulate recovery and to protect the economy and individuals against the recurrence of similar economic depressions. Regulation remained popular through the late 1960's. This era saw the creation of the National Industrial Recovery Act (later declared unconstitutional), the Federal Communications Commission (FCC), the Securities and Exchange Commission (SEC), the Civil Aeronautics Board (CAB), the Federal Deposit Insurance Corporation (FDIC), the Federal Home Loan Bank Board (FHLB), the National Labor Relations Board (NLRB), the Atomic Energy Commission (now the Nuclear Regulatory Commission (NRC)), and the Federal Aviation Administration (FAA). Fueled by Ralph Nader and his supporters, the late 1960's saw the rise of consumer demands. The Government's response to these issues was the creation of the Environmental Protection Agency (EPA), the Consumer Product Safety Commission (CPSC), the Occupational

Safety and Health Administration (OSHA), and the National Highway and Traffic Safety Administration (NHTSA). By the mid-1970's, however, there was a growing opposition to regulation, especially from Washington. The economy was slowing down and governmental regulation was blamed for impeding growth.

Regulation has been used as the remedy for several different types of "market failures." A market failure is defined as an episode in which the free market does not efficiently regulate the optimum use of resources. Efficiency may be thought of in both a technical sense and a welfare sense. Technical efficiency "measures output through different production techniques employing identical inputs." Welfare efficiency "requires that each resource must be employed in its most productive alternative use" (Stone, p.67). In other words, an industry may be technically efficient, producing goods in the most cost-effective manner and using the best production techniques and yet be inefficient in a welfare sense. The welfare inefficiency may result from utilizing inputs (capital, labor, equipment and raw materials) to produce an unnecessary or harmful product. These inputs could have been put to better uses. Regulation may be used to correct either technical or welfare inefficiencies, or both.

Economic regulation has been aimed at preventing and correcting inefficiencies, such as monopolies, whether natural or collusive, at protecting and assisting industries to promote the full use of resources, and at coordinating industrial and economic activities. Monopolies are considered to be inefficient for both welfare and technical reasons. Monopolies do not encourage innovation or the most efficient use of resources in production. Regulations aimed at

protecting new industries may be justified in a technical sense to assure that the industry is efficiently using resources and in a welfare sense to assure that the industry puts resources to their best use. Regulation for the purpose of coordination seeks to insure that resources and activities are used and directed optimally toward the achievement of specified objectives.

Public utilities are examples of natural monopolies. Government agencies established to regulate utilities have jurisdiction over rates, accounting practices, licensing, improvements, service standards, safety, financial practices and services (Stone, p.68). Public utilities are natural monopolies because the services they provide are most efficiently produced by a single firm. According to Stone, a natural monopoly is an enterprise that supplies, directly or indirectly, continuous or repeated services through more or less permanent physical connections between supplier's plants and the premises of consumers. The bargaining power of most consumers relative to the supplier of the service is low. The services tend to be necessities for which there usually are no close substitute products or services. In addition, services are not storable and are not transferable from one customer to another. Regulation is necessary because there are no alternatives to the service offered by the monopoly. Monopolies are not always natural, they may be coerced or deliberately planned by those involved in business.

Government regulation is also employed to coordinate an industry. Examples of coordination include regulation of airline safety and regulation of television and radio. In some industries, it is more efficient for the government to step in and coordinate the different

aspects of the industry than to allow the market to control the industry. The market may not be able to accomplish the coordination necessary to certain industries. The Federal Communications Commission (FCC) coordinates the television and radio industries. Without such coordination, stations might assume the same call letters, broadcast on the same or closely located frequencies or try to block the transmissions of competitors. The Federal Aviation Administration (FAA) performs a similar coordination function for the airlines and airports, providing coordination of scheduling and rules governing safety. The final category of regulation is promotional regulation. Regulation is used to promote certain important industries, allowing them to continue or grow without competition or with restricted competition. As Stone points out, promotional regulation cannot be considered to be permanent. After the industry has matured or stabilized, it can no longer be justified in terms of promotion.

The regulation of the airline industry can be justified for promotional reasons. The Civil Aeronautics Act acknowledges the importance of the airlines in the national defense and mail carriage. The Act discourages new entrants into the industry by requiring the Civil Aeronautics Board (CAB) to certify them. It was felt that by protecting the existing carriers, domestic and international commerce would be furthered (Stone, p.86). In order to protect and promote the fledgling airline industry, the CAB was given the power to set fares and to regulate scheduling, routes and quality of service.

Many of the opponents of the Airline Deregulation Act (ADA) claimed that regulation of the airline industry was necessary because the airlines constitute a natural monopoly. According to Lucille S.

Keyes's study of the Civil Aeronautics Act, however, this justification for regulation was not a factor in the creation of the CAB (Keyes, 1951, p.85).

The airline industry is an industry suited for competition. The national government had created a cartel situation under regulation. Regulation, as Kohlmeier points out, can be successful in areas where monopolies or near monopolies exist. The airline industry is not one of these industries. Some parts of the United States may only have service from one airline, creating a monopoly situation, but this could be dealt with using other alternatives beside the regulation of the entire industry. When regulated, industries enjoy near complete immunity from anti-trust laws. Kohlmeier claims that anti-trust laws are more successful at dealing with market failures than is regulation.

Not only did domestic airlines escape competition, the internationals formed a cartel to eliminate price competition. Ninety "Foreign Flag Airlines" met twice a year under the auspices of the International Air Transportation Association (IATA), to set rates on international routes. IATA had the authority to fine members who did not comply.

The airline industry existed in a very structured and protected environment until 1978. As we will discuss in the following section, regulation of the airline industry was initiated at the inception of the industry and had remained in effect for over forty years. The market was viewed as an unwanted alternative. In order to further the growth of the industry and ensure the delivery of mail and as a tie in with national defense, regulation was thought to be the best alternative to the unfettered marketplace. The public was to benefit from the

establishment of a national aeronautics system, however, the greatest benefit eventually may have accrued to the industry itself.

The call for regulatory reform has been a recurrent theme throughout American history. It has been the battle cry of those opposing governmental intrusions since the late 1970's. In the lexicon of regulatory reform, deregulation refers to economic matters such as rates, routes or entry barriers (Stone, p.250). Deregulation has been applied mostly to the transportation, communication and banking industries. "Overregulation" is used to refer to the areas of health, safety and consumer affairs.

It is a misconception to believe that deregulation means the complete withdrawal of government intervention and a complete return to market mechanisms. Indeed, more often deregulation denotes either the reduction of regulations or exchanging of one set of regulations for another set. In the case of airline deregulation, the regulations placed upon the airlines have been severely restricted. The demise of the CAB does not mean that all airline regulation will come to an end. Certain CAB functions will be transferred to other agencies, particularly the FAA. The banking industry, to use another example, has seen many of the regulations of the past phased out, but new ones regulate other aspects of the banking industry, as provided by the Financial Institutions and Monetary Control Act of 1980.

HISTORY OF THE AIRLINE INDUSTRY IN THE UNITED STATES

Regulation by the government began at the very inception of commercial air transportation. The origins of regulation can be traced to 1916 when the United States Post Office provided funds to private airplane owners to carry air mail. The first congressionally approved

air mail service was organized on May 15, 1918, using U.S. Army pilots and aircraft. This service came under Post Office control in August of 1918 and was known as the U.S. Aerial Mail Service. Private aircraft owners continued to be subsidized for carrying mail. At first, passenger air transportation could not compete with ground transportation. Early ventures in air passenger service were rarely successful, but once air mail service was established the potential for passenger air travel also was recognized. By 1925, the Post Office had developed landing sites and installed a system of night lighting from New York to San Francisco (Davies, 1972, p.18). The availability of Post Office funds stimulated the growth of the commercial air transportation industry; companies began to fill extra space on aircraft with passengers.

Because of this early influence of the Post Office on the Air Transportation Industry, the authority of government to regulate the industry seemed to be expected rather than questioned by the public. The first major legislation to affect the airlines was the Contract Air Mail Act of 1925. Commonly known as the Kelly Act, it molded the future of the airline industry (Meyer, et al., 1981, p.14). The Kelly Act empowered the Postmaster General to award air mail contracts to private airlines, with compensation tied to the number of units of mail carried. The 1926 Amendment to the Kelly Act tied compensation to poundage. However, the poundage system was abused by the airlines because postage was less than compensation. Some airlines mailed packages back and forth to add poundage. President Herbert Hoover and Postmaster General William Folger Brown became concerned with these abuses and the disorganized coverage of routes. Their concern led to the Waters Act of

April, 1930, the last amendment to the Kelly Act. The Waters Act offered incentives for flying longer routes and authorized the Postmaster General to decide who could make bids on contracts. The Postmaster insisted that bidders have established routes and that they had flown those routes for more than six months. He also required night flying experience. The Waters Act thus made entry into the industry more difficult. Brown used his authority to enlarge the airline system. He avoided competition and attempted to "streamline and rationalize" the industry (Meyer, et al., p.16). By 1933, 94% of the compensation paid to contractors went to the "Big Four" airlines--United Airlines, American Airlines, Trans World Airlines, Eastern Airlines (Meyer, et al., p.16). Without Brown, there probably would have been many more companies entering the market.

Congress investigated reports of irregular practices by Postmaster Brown and as a result of these findings, President Franklin D. Roosevelt canceled the Air Mail Contracts in February, 1934. He ordered the U.S. Army Corps to continue air mail service. This ill-equipped and untrained air mail service lasted for two months. Roosevelt then ordered that competitive bids be taken for temporary contracts. The "Big Four" were the only companies with the equipment and staff capable of carrying the mail by air, so they again received the bulk of the contracts. The Black-McKellar Act of 1934 extended the temporary contracts and allowed for subsequent extensions. Contract rate setting responsibility was given to the Interstate Commerce Commission in 1935.

Congress dealt with the awarding of contracts for air mail service in a more permanent way by passing the Civil Aeronautics Act in 1938. The Act was conceived in an environment deeply affected by the Great

Depression. The trend at the time was to eliminate "excessive" or "cutthroat" competition which was thought to be wasteful (Meyer, et al., p.17). There also was perceived a need to closely regulate an industry as heavily subsidized with federal funds as was the airline industry. Companies could use subsidies to make up cost differences when bidding below cost for new business (Meyer, et al., p.17). It is important to note that regulation was supported by the industry.

The major objective of the Civil Aeronautics Act was to end confusion of regulatory responsibility by concentrating economic regulatory authority in a single agency (Corbett, 1965, p.288). Before the Act, such authority was split among the Post Office, the Interstate Commerce Commission, and the Bureau of Air Commerce. The Civil Aeronautics Act transferred authority to the five-member Civil Aeronautics Administration (CAA). CAA members were appointed by the president with the advice and consent of the Senate. No more than three of the members could belong to the same political party. They were appointed for six-year terms and could only be removed in cases of serious malfeasance. Members could not be involved in civil aeronautics in any way outside of their CAA responsibilities. The CAA was to regulate the airline industry to serve "the public interest and in accordance with public convenience and necessity." These goals were to be accomplished through the use of the following six powers:

1. regulation of fares;
2. granting or withholding the charters of companies seeking to operate air services;
3. giving or withholding permission for companies to merger;
4. punishing companies for collusion and various restrictive monopolistic practices;
5. deciding how many and which operators could operate scheduled and non-scheduled services on every designated air route within the United States;

6. determining standards of passenger service and quality of equipment (Corbett, p.289).

These powers were to be used to foster the following and often conflicting objectives:

1. development and encouragement of an air transportation system properly adapted to the present and future needs of the foreign and domestic commerce of the United States, of the Postal Service and of national defense;
2. regulation of air transportation in such a manner as to recognize and preserve the inherent advantages of, assure the highest degree of safety in and foster sound economic conditions in such transportation, and to improve the relations between and coordinate transportation by air carriers;
3. the promotion of adequate, economical and efficient service by air carriers at reasonable charges, without unjust discrimination, undue preferences or advantages or unfair or destructive competitive practices;
4. competition to the extent necessary to assure the sound development of an air transportation system properly adapted to the needs of the foreign and domestic commerce of the United States, the Postal Service and of national defense;
5. promotion of safety in air commerce;
6. promotion, encouragement and development of civil aeronautics (Meyer, et al., p.18).

The agency was left to decide the priority of the goals to be pursued (Caves, 1962, p.127). One of its first acts was to adopt "grandfather rights" over routes. Airlines already holding certificates for routes were granted permanent certificates for those routes. This action "froze" entry into the airline industry for the next four decades. The airline industry consisted basically of the "Big Four" and twelve independents (Caves, p.128).

In June of 1940, the CAA was reorganized into the Civil Aeronautics Board (CAB). (See Appendix A for the organizational chart of the CAB.) Safety was to be regulated by the CAB, but airport and airway development activities were transferred to the Department of Commerce. During the 1940's, the CAB favored competition among airlines and paid little attention to fares. World War II proved to be a boon to

the airlines, with 80-90% load factors (percentage of capacity of the seats utilized) being common. These high load factors led to high profits, profits considered too high by the CAB. It was at this point in time that the CAB became interested in regulating fares.

In March of 1943, the CAB initiated an experiment to see if "feeder" airlines were feasible. Feeder routes are short-distance routes in low-density areas. They were of little interest to the established airlines, which did not have the equipment necessary (i.e., smaller aircraft) to make routes like these profitable. These routes were given to new carriers, and the experiment was very successful.

Load factors declined after the war, and the lower fares set during the war led to lower profits. The fares were raised to keep the airlines profitable. The CAB generally undertook policies to limit competition to bolster the sagging industry.

The Federal Aviation Act of 1958 took the CAB's safety function and placed it within the new Federal Aviation Agency (later renamed the Federal Aviation Administration (FAA)). This act also reaffirmed the role of the CAB in regulating the airline industry.

The CAB began hearings to change fare structures in 1970 as a response to the falling airline profits registered in 1969. This Domestic Passenger Fare Investigation (DPFI) was announced on January 19, 1970. Airlines had increased their capacities in the 1960's to meet the anticipated increases in demand. These increases never materialized. During the DPFI, the airlines urged the CAB to simply accept the airlines' current costs and then set revenues to give a fair rate of return. Opponents of this plan argued that the public should not have to pay for the excess capacity of the airlines (Douglas and

Miller, pp.52-53).

The DPFJ concerned itself with two issues, fare levels and fare structure (Meyer, et al., p.32). The CAB realized that if fare levels were set high, the airlines would expand their capacities and lower load factors would result. Conversely, if fare levels were low, carriers would offer lower capacities and the resulting load factors would be high (Douglas and Miller, p.97). In an attempt to deal with this situation, the CAB issued standard seating densities by aircraft type. The number of seats abreast and the distance between seats was set, but it could be reduced by the airlines willing to pay a surcharge. Load factors of 55% for trunk airlines and 44% for local airlines were recommended. The locals were later exempted from load factor standards because of their inability to meet them. In decisions about general fare levels, a target rate of return of 12% was suggested, but not required (Meyer, et al., p.32).

The Fare structure moved closer to a structure which accurately reflected costs of service in different markets. The CAB announced that in the future it would move even closer to a system in which fares conformed with costs (Meyer, et al., p.33). Discount fares were to be allowed if they were judged to be nondiscriminatory. At the same time the DPFJ was concluded, the CAB declared a moratorium on new competitive route awards to raise the flagging airline industry profits.

In an effort to further control profits, several airlines attempted to reach agreements to restrict capacities on long distance routes. The ability to add more passenger capacity was one of the few competitive elements left in the industry. The CAB discouraged these agreements, but encouraged the airlines to reduce their capacities on

their own. The CAB finally allowed airlines to make capacity limiting agreements after the 1974 Arab Oil Embargo which forced fuel prices to rise dramatically. The first of these agreements was made between American Airlines, Transworld Airlines and United Airlines, affecting twenty of their markets. Other agreements followed, most lapsed at the end of 1974. The CAB allowed the extension of these agreements in transcontinental markets. The smaller airlines objected to these agreements. Their objections were followed by a Justice Department suit against the CAB which forced it to disallow these agreements after July 21, 1975.

This suit against the CAB and the discontent within the airline industry pointed out the shortcomings of regulation and stirred policy debate. As Meyer, et al., point out, regulation of the airline industry had "reached its zenith" in the 1970's. The airlines lost the ability to attract customers through the use of discounts, there was an increase in rigidity and standardization in pricing, the moratorium on competitive route awards and the capacity limitation agreements even further limited the industry's decision-making powers. The future prospects for regulation pointed toward even greater standardization and rigidity in fares and routes (Meyer, et al., p.41).

Regulation by the CAB in sum, did not allow airlines to abandon or add any route without CAB approval, required airlines to publish and make public the fares charged for their services, and provided for CAB review of any changes in air fares. The CAB could suspend proposed fare changes for 180 days and then set the fares to be charged (Congressional Research Service, 1981, p.4). Competition between airlines took the forms of adding flights to established routes and offering in-flight

amenities. If competition became too intense, the CAB would allow mergers to take place.

By the mid-1970's, the CAB regulation of the airline industry was such that, according to critics of the CAB, the industry could not control its own profitability. While prospects for a loosening of CAB control were dim, the agency's practices came under increasing criticism. The CAB was accused of fueling inflation and stifling efficiency and innovation. In 1974, Senator Edward Kennedy, chairman of the Senate Judiciary Subcommittee on Administrative Practice and Procedure, began a preliminary investigation for oversight hearings on the CAB (Meyer, p.42). In January of 1975, a CAB internal task force undertook its own investigation of CAB policy and recommended in its report that there should be less regulation by the agency.

President Gerald R. Ford joined the ranks of those seeking to loosen CAB control when he announced in February, 1975, that legislation should be proposed "to remove most of the Federal Government's control over determining the price of airline tickets and in designating which companies may enter the airline business and what routes they may fly" (NEW YORK TIMES, 18 February 1975, p.37). This announcement drew heavy industry and CAB opposition.

At the Kennedy hearings, conducted in February of 1975, airline executives testified against deregulation. They felt that deregulation would eventually lead to less competition. Weak airlines would be forced out by competition when no longer protected by the CAB. Less competition would in turn lead to higher fares and diminished quality and dependability (Meyer, et al., p.43).

Deregulation began, without a legislative mandate, with the

appointment of Paul Robeson as chairman of the CAB in 1975. Although the industry objected to deregulation, consumer groups and Congress were pressuring the CAB to ease its regulation of the airlines. Robeson initiated policies allowing competition on selected routes.

Senators Kennedy and Howard Cannon introduced a joint bill (S.R. 2493) to deregulate the airline industry in March of 1977. Those groups opposing this bill included most of the airline industry, air transportation labor unions, airport operators, and the financial community. United Airlines, however, broke with the rest of the industry and announced its support of deregulation.

The CAB accelerated its commitment to deregulation with the appointment of Alfred E. Kahn by President Carter to the chairmanship on June 10, 1977. Kahn encouraged airlines to reduce fares by using fare reductions as a factor in the selection of applicants for new routes. The CAB also ended its policy of awarding high-density routes to airlines in financial difficulties.

Air West and Continental Airlines joined United Airlines in support of deregulation. Supporters of deregulation formed the Ad Hoc Committee for Airline Regulatory Reform. The Ad Hoc Committee was made up of the American Conservative Union, Ralph Nader groups, Sears, Roebuck and Company, the National Association of Counties, and Common Cause.

The furor over deregulation came to a resolution in April, 1978 when the Senate unanimously passed a bill which reduced the regulatory powers of the CAB. The House passed its version of the bill in September of the same year. The House and Senate versions of the bill differed slightly on how rates were to be set and how routes were to be

granted. The final version, the Airline Deregulation Act of 1978, was adopted by the House on October 12, 1978, and by the Senate on October 14, 1978. President Carter signed the bill into law on October 24, 1978, as Public Law 95-504.

CHAPTER THREE: AIRLINE DEREGULATION: PROVISIONS AND OBJECTIVES

PROGRAM OBJECTIVES

Section Three of the ADA outlines the goals and priorities of the Act. The highest priority is that of safety, followed by the provision of an efficient and low-priced air transportation system. These goals are to be reached through the competitive market. Further, the ADA emphasized the maintenance of a sound regulatory environment which is responsive to the requirements of the public; the encouragement of the establishment of secondary or satellite airports in major urban areas to improve service; the prohibition of the use of unfair or anti-competitive practices and monopolies; the maintenance of service to small communities; the encouragement of new entries into the industry and the expansion of existing airlines.

The procedures for attaining these goals are specified in the subsequent sections of the Act. The CAB is instructed to simplify its requirements for issuing certificates to airlines. To assure an efficient, convenient industry, the Act allows air carriers to establish agreements on joint fares, rates and services.

Deregulation was to occur gradually. The CAB can no longer determine or limit the airlines serving routes in the United States, except for essential service communities. Neither schedules nor policy statements need to be filed with the CAB.

After January 1, 1983, carriers are no longer required to file thirty-day notices of tariff changes. The CAB also lost its rate making powers. The Justice Department is granted the power to deal with mergers and interlocking relationships. Finally, the CAB itself ceased to exist on January 1, 1985.

The airline industry is not completely free of regulation after January 1, 1985. Remaining CAB authority is transferred to other governmental agencies. Mail compensation and assurance of small community service (until 1988) is transferred to the Secretary of Transportation. Foreign air transportation is controlled by the Department of Transportation in consultation with the State Department. Rates for carriage of mail is determined by the Post Office.

The Act also provides for employee protection from loss of employment or wages as a result of deregulation. Authority for compensating these employees rests with the Secretary of Labor. In order to be eligible for compensation, employees must have been employed with a certificated air carrier on a full time basis for four years prior to ADA enactment. Members of corporate boards and corporate officers are not eligible for compensation. Employees are eligible for the ten year period following the enactment of the ADA. Research, however, has indicated that there have been no payments to airline employees adversely affected by deregulation.

The Act restructures the way in which subsidies are paid to air carriers serving the 319 small communities designated as essential service communities (see Chapter Four, Section D: Small Community Service).

The CAB gave up its rate making powers immediately after the ADA was enacted, although it was directed by the Act not to allow fares which were 50% below the standard industry fare level (SIFL). The SIFL is the fare level charged between pairs of points for which service existed on July 1, 1977. The CAB was to adjust the SIFL not less than semi-annually. Airlines which set fares at lower than the allowed 50%

were not sanctioned.

PROGRAM ENVIRONMENT

The ADA was enacted in an environment of mixed support at best. Its goals and objectives were heartily supported by public officials and by consumer and business groups hoping to lower fares, and legislators. The Act was supported by only a few members of the airline industry: United Airlines, Air West, and Continental Airlines. The greater part of the industry, although unhappy with CAB control, feared the unregulated environment. This reluctance may have caused some of early problems encountered by the industry after passage. Perhaps the industry created a "self-fulfilling prophesy" by their opposition. As time passed however, the industry began to accept deregulation and when asked at a meeting of airline executives, they unanimously agreed that they did not want regulation to return.

The CAB's first priority after ADA enactment was to end regulations on routes and fares as quickly as possible. Competition and new entries were encouraged. In the opinion of industry insiders, the goal of the ADA was to allow the free market to take over so that the industry could make its own decisions on fares and routes. The primary goal of safety as stated in the Act was never mentioned in discussions and publications about the Act. The industry and law makers failed to anticipate the extent of competition which would occur in the deregulated market. That competition has forced many established airlines into bankruptcy. This cutthroat competition has resulted in accusations that the airlines are placing safety as a lower priority. Airlines are urging pilots to remain on schedule and fly before safety

checks are complete and in inclement weather conditions. Crews are flying longer hours, and oil seals have been left off of oil plugs. (For a more complete discussion of safety, see Chapter Four, Section H: Consumers and Safety).

It would appear that the CAB in implementing the ADA has prioritized goals differently than those expressed in the Act. Safety is of highest priority in the Act, yet little concern is being paid to this goal. One of the problems with implementing the goal of safety is that safety is within the authority of the Federal Aviation Administration not the CAB. The CAB may have abdicated its powers too quickly. The industry was not prepared to make its own rate and route decisions immediately. Newer airlines have fared much better in the deregulated environment because they were organized to deal with market uncertainties, the older airlines were not. The expansion of existing airlines has not been successful, rather they are tending to contract. Airlines which expanded quickly found the market was unable to support them and they collapsed.

PROGRAM EVENTS

Air Traffic Controllers Strike

On August 3, 1981, the Professional Air Traffic Controllers Organization (PATCO), went out on strike. Despite the oath all Federal employees take, which states that they will not strike, PATCO felt it had no alternative but to strike. American controllers were working (and continue to work) longer hours with fewer days off than any of their counterparts in the Western world" (Thayer, p.18). Nine out of ten controllers will not survive to retirement age (Poll, CINCINNATI ENQUIRER, 31 January 1982, p.D-1). The good faith of the government in

negotiations has been called into question (Thayer, December, 1981, p.18).

President Reagan promptly gave the controllers forty-eight hours to return to work. Those who did not comply were fired. Public opinion lined up squarely behind the President. PATCO received very little support even from other unions. The Air Line Pilots Association (ALPA) especially opposed the strike. Not only were the controllers fired, but PATCO can no longer represent controllers in collective bargaining.

To replace the fired controllers, many controllers were moved from small airports to large ones. This helped Reagan's budget cuts by reducing the number of controllers on the federal payroll. The number of flights into and out of twenty-two major airports was curtailed. A specific number of "slots" were allocated to airlines already serving those airports. This limited the ability of the airlines to enter and exit at will. If an airline didn't use its slot, it would lose it.

Frederick Thayer, writing in December of 1981, believed that the PATCO strike might help to save the airlines from the huge losses they were suffering by limiting the number of flights allowed. The assigning of slots would severely limit the competition on the routes serving the twenty-two largest airports. By inspecting the Revenue Passenger Miles (RPMs) and Load Factors after the strike, as presented in later sections, it appears that the strike had little or no effect on these indicators. Braniff Airlines still filed for reorganization and the losses in 1982 remained high. Instead of saving the industry, Roy J. Harris, Jr., has suggested that the strike was detrimental to the industry. Airlines, instead of pulling out of unprofitable routes, remained in them, fearful that they would lose their slots. There was

always the chance that the economy might turn around and these routes would again prove profitable. They did not reduce their capacity as the demand went down, instead they hoped to ride out the recession. Airports finally began to handle 100% of the traffic they serviced before the strike in May of 1983.

Summary

The government's response to the PATCO strike inhibited the airlines from entering and exiting routes at will. The strike made efforts at rationalizing route systems difficult, if not impossible because of the restrictions placed on the airlines through the slot system. Despite efforts by the FAA, people may not have trusted the post-strike controllers since both RPMs and Load Factors continued their slide. The state of the economy at the time surely explains more of the industry's debts, however.

Fuel Costs

Large increases in fuel prices have complicated the deregulated environment. Fares did not fall as predicted because of the rise in fuel prices. Since 1979, fuel costs have risen 150%. This escalation adds six billion dollars a year to operating expenses (Scheffres, 1983, p.63). Airlines spend around \$.30 out of every dollar on fuel.

Fuel costs doubled in the first year of deregulation. It continued to climb to an all time high of \$1.03 per gallon in December of 1981 (see Table 3.1). Rising fuel prices, coupled with the recession, sent the airline industry into a tailspin. The oil glut of late 1982 and early 1983 may have been a lifesaver for the airline industry. Fuel prices fell to around \$.95 per gallon. Every penny drop in fuel prices is worth \$10 million to American Airlines and \$14 million

Table 3.1: Fuel Costs for Domestic Trunks and Local Service Airlines,
1973-1982

<u>Month</u>	<u>Average Price Per Gallon in Cents</u>	
	<u>Trunks</u>	<u>Local Service</u>
Dec. 1973	14.279	14.178
Dec. 1974	23.977	23.891
Dec. 1975	NA	NA
Dec. 1976	30.416	32.169
Dec. 1977	35.239	36.879
Dec. 1978	39.130	40.244
Dec. 1979	73.614	75.037
Dec. 1980	90.420	90.614
Dec. 1981	101.514	103.170
Dec. 1982	94.509	96.449

Source: CAB FUEL PRICES AND CONSUMPTION

to United (Schiffres, p.63). These savings have had a positive effect on the industry.

As shown in Table 3.1, local service airlines pay more for fuel than do the majors. Majors use greater volumes of fuel and are able to negotiate better contracts with fuel providers. Fuel costs account, therefore, for a greater share of the local's operating costs. As discussed earlier, the locals have fared better than the majors since deregulation. They have been able to show profits, unlike the majors. Fuel costs alone then, have not caused the enormous losses of the majors.

Summary

Although fuel costs have added another aspect to the already complicated deregulated environment, they cannot be blamed for the huge losses suffered by the major airlines. The smaller local airlines have been able to make profits despite rising fuel costs.

CHAPTER FOUR: ASSESSING THE IMPACTS

A:FARES

The Civil Aeronautics Board's primary concern when determining fares, was with airline industry profitability, rather than costs incurred. The CAB attempted to set fares to achieve an average rate of return for the industry of between 10.5% and 12% (Docket 8008, U.S. CAB 1974). Fares were usually raised across the board for the industry, creating thereby a large number of markets with no relationship between costs and fares. Proposed changes in fares had to be brought before the CAB, which then conducted hearings on the proposed rate hike. Consequently, fare changes could not be made quickly. The industry was unable to react promptly to economic cycles. There was usually a lag in the response time, since all changes had to be made through the Board.

Prior to World War II, fares were set at the prevailing Pullman rates for train travel. These rates were set according to distance traveled. With technological improvements in airplanes and the increased load factors achieved during the war, the airline industry showed large profits. These profits were deemed excessive by the CAB and it allowed the airlines to offer lower priced coach service and to introduce a variety of discounts. Profits dropped after the war, but then rose again as technology continued to improve and aircraft became more efficient. More discounts were offered. These discounts did not match the declines in costs. As Graham and Kaplan point out, between 1960 and 1969, the trunks' average seat mile cost declined by 21%, while average fares declined by only seven percent.

Rather than lowering fares, carriers involved in competitive markets offered special services to attract customers. They removed seats to make seating more comfortable, offered flights at popular times

of day, served extravagant meals and free alcoholic beverages.

Efficiency and economy were not encouraged.

Load factors declined steadily after the Second World War. These declines negated many of the advantages of new aircraft. The fares in many short-haul markets were kept artificially low by the Board. The fares in many cases, did not keep up with costs. Passengers received lower quality service in these short-haul markets as a result (Graham and Kaplan, December, 1982, p.67).

By 1969, load factors had fallen below pre-World War II levels. The industry demanded that the CAB approve rates which reflected costs. This led to the Domestic Passenger Fare Investigation (DPFI). The DPFI was concerned with both fare levels and fare structures. It first set a standard number of seats by airplane type to make rates easier to set. Fares were to match costs more closely. As a result of the DPFI, the CAB decided to base fares on distance. However, they did not take the density of the market into account. This again created situations in which fares were out of line with costs. The more dense a market, the less the average cost of service. Therefore, markets that were less dense cost more to provide service. The Board also limited the availability of discounts because they were discriminatory to those not qualifying. They discouraged the use of off-peak pricing. Some airlines, Delta for example, charged less on flights departing between 10 PM and 4 AM, to encourage those on a less sensitive time schedules to fly at these off-peak hours.

When Paul Robeson became Chairman of the CAB in 1975, the Board began to pursue a course toward deregulation. The industry was allowed

to experiment with discounts. "Super-Saver" discounts were aimed at discretionary travelers. Most had minimum length-of-stay stipulations and had to be purchased in advance. The number of discount seats available on any given flight was limited. These fares were 40-50% lower than coach fares.

Since deregulation, airlines have used one of two strategies for lowering fares: using restricted discounts like the Super-Saver discounts begun before deregulation, or unrestricted lower fares at or below the Super-Saver fares, with higher fares during peak travel hours. The latter was adopted by many of the new entrants into the market.

These discounts have become very popular. According to an Air Transport Association survey, the percentage of travelers paying the standard coach fare has fallen from over 60% of the total coach revenue passenger miles in 1977 to just under 25% in 1982. Between January and March of 1983, 89.5% of passengers took advantage of these discount fares ("Airlines Quietly Ending Discounts," CINCINNATI ENQUIRER, 29 June 1983, p.D-4). These discounts have cut into profits.

Proponents of deregulation claimed that fares would fall once the industry was free to set its own fares. Has this occurred? The answer to this question is quite complicated. It depends upon what type of fare one looks at, and what routes one considers. If one considers discount fares between New York and Los Angeles, which have fallen as low as \$99, one way, the answer is unequivocally yes. If one looks at a less dense market, such as between Cincinnati and Baltimore, Super-Saver fares rose from around \$100. in 1978 to nearly \$200. round trip by 1983. If viewed in the aggregate, fares have risen steadily since 1972, but dropped in 1982 (Table 4.A.1). Locals have charged higher

Table 4.A.1: Average Fare Charged Per Mile by Carrier Group,
Second Quarter in Cents, 1972-1982

<u>Carrier Group</u>	<u>Year</u>										
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Trunks	6.16	6.25	6.73	7.44	7.44	8.16	8.44	NA	12.03	13.07	11.98
Locals	8.87	9.02	9.58	10.52	11.59	11.81	11.99	NA	16.83	17.95	16.07
Other	11.54	9.74	10.68	11.48	12.12	12.68	13.18	NA	14.13	14.95	13.91

Source: Origin-Destination Survey of Airline Passenger Traffic

average fares per mile because of the type of service they provide. The most expensive part of the trip are take-offs and landings. Airlines that serve small markets with shorter distances between destinations then, accrue higher costs than the long-haul airlines. (To illustrate this point, see Table 4.A.2.) The longer the trip, the less fare per mile is charged.

As Graham and Kaplan point out, "Ideally, we would like to compare the actual fares before and after deregulation. Unfortunately, reliable market fare data is available only since late 1979." Even if reliable fare data were available, it would be very difficult to compare fares since there may be as many as a dozen different fares charged between two points on any one airline. A comparison of coach fares would be misleading since so many passengers are taking advantage of the discount fares. Business travelers and other nondiscretionary passengers must still pay full fares, making it misleading to compare coach fares before deregulation to economy fares since deregulation.

In an effort to investigate what has happened with fares since deregulation, the strategies used by airlines between 1978 and 1982 and in 1983 will be considered. Between 1978 and 1982, airlines were attempting to accommodate to their new found freedom. The established airlines found themselves faced with competition from small lower-cost airlines. Fare wars broke out on the most heavily traveled routes (e.g., New York to Los Angeles, New York to San Francisco, New York to Miami). Newer carriers, like PEOPLExpress entered the market, charging lower fares to attract passengers. These new carriers were able to make profits on these lower fares because of the lower wages they paid employees and lower overhead. As the established airlines attempted to

Table 4.A.2: Average Fare Charged Per Mile by Distance, Second Quarter
in Cents, 1979-1982

<u>Mileage Block</u>	<u>Year</u>			
	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
0-150	22.92	34.13	37.70	34.47
151-250	18.68	24.51	24.91	24.35
251-350	15.15	19.52	21.55	19.57
351-450	13.56	18.00	18.94	18.23
451-550	13.09	17.62	19.93	17.55
551-850	11.31	15.30	17.38	16.08
851-1150	9.17	11.44	13.52	12.87
1151-1450	8.92	11.90	12.95	11.24
1451-1750	8.54	10.53	11.51	11.25
1751-2050	8.09	9.45	10.80	10.66
2051-2350	7.68	9.55	10.06	9.34
2351-2650	7.57	8.21	8.47	7.77
2651 and over	<u>7.45</u>	<u>7.99</u>	<u>8.22</u>	<u>7.78</u>
Total	9.97	12.90	14.03	12.89

Source: CAB, Form 41

meet these prices to retain their markets, they incurred substantial financial losses, (see section B, Productivity and Efficiency). Fares on less densely traveled routes remained high to help off-set losses on these discount fares.

Two recessions and rising fuel prices made the market place treacherous for the airline industry. Fares did not drop as predicted before deregulation because of the rise of fuel prices (see section 3, Fuel Costs). The two recessions suppressed the expected increase in passengers. Airlines attempted to fill empty seats by offering more discounts. These discounts instead of stimulating the industry, further plunged it into debt. By March of 1982, World Airways Inc., one of the more successful new entrants, called upon the CAB to once again regulate fares because they were too low. World Airways lost \$8 million in 1981 and around \$10 million in 1982. The CAB had the power to prohibit these predatory pricing policies through January 1, 1983. It failed to do so. World Airways, a former charter airline, had been one of the most strident supporters of airline deregulation before 1978.

1983 proved to be a much better year for the airline industry, with the easing of the recession. The numbers of passengers flying rose 12% in 1982 over 1981, and rose 6% in 1983 over 1982 through August. These increases in passengers have allowed the airlines to begin to raise fares and to put an end to the predatory pricing that had occurred. In late March, 1983, American Airlines announced it was going to rationalize its fare structure. It would offer four basic fares: first class, coach fare, a new unrestricted off peak discount fare that is 25% less than coach, and a "Super-Saver" fare with a 50% average discount. The Super-Saver fares require that the purchaser stay over a Saturday

night and pay for the ticket seven days in advance. American's fares would be based on distance. The longer the flight, the lower the cost per mile. The range, in eleven mileage blocks (similar to Table 4.A.2) is from 53 cents a mile for flights of less than 250 miles to 15 cents a mile for flights exceeding 2,500 miles. Note that these fares per mile are much higher than those charged between 1979 and 1982. American said that the change to fares based on distance would decrease coach fares on 720 routes and raise fares on 543 routes. The average fare change is less than \$15 (Table 4.A.3).

Paul W. MacAvoy, Beinecke Professor of Economics at Yale University and Member of the Board of Air 1, a new St. Louis based airline, in an article in the NEW YORK TIMES (3 April, 1983) has accused American of attempting to reduce competition and overcharge the consumer with its new plan. He felt the competitive price structure was better for the consumer.

In his testimony before the CAB, Paul B. Gaines, Director of Airports, Salt Lake City Airport Authority, paints a different picture of the effects of the competitive price structure. Mr. Gaines asserts that fares to and from Salt Lake City, a medium sized city, decreased at first but then increased at rates ranging from 70-90% to major destinations such as Chicago, New York, San Francisco, and Seattle. He feels that traffic to and from Salt Lake City would have increased if fares had dropped as they had between major markets. Fare increases in Salt Lake City generally exceeded the 31% industry increase by a wide margin. Salt Lake City's round trip fare to New York is \$419 higher than the Los Angeles to New York fare and \$412 higher than the San

Table 4.A.3: The Proposed New Fares

New Fare Structure Proposed by American Airlines on Normal One-Way Coach Travel

<u>Route</u>	<u>Current Fare</u>	<u>New Fare</u>	<u>Percent Change</u>
New York- Detroit	\$150.	\$183.	+22.0
Houston	297.	320.	+ 7.7
Los Angeles	399.	423.	+ 6.0
Nashville	223.	205.	- 8.1
Tuscon	419.	391.	- 6.7
<hr/>			
Chicago- Houston	229.	249.	+ 8.7
Phoenix	306.	327.	+ 6.9
Washington	220.	188.	-14.5
New York	240.	228.	- 5.0
San Francisco	394.	378.	- 4.1
<hr/>			
Los Angeles- Cincinnati	356.	386.	+ 8.4
Detroit	382.	402.	+ 5.2
St. Louis	337.	340.	+ 0.9
Tampa	418.	393.	- 6.0
Washington	399.	395.	-1.0

Source: New York Times

Francisco to New York fare. The fare from Salt Lake City to New York was 94% higher than the Los Angeles to New York fare. The trip between Salt Lake City and New York is only 71% as long. The fare between Salt Lake City and New York is 88% higher than the San Francisco to New York fare for a trip 2/3 as long (67.7%). The fare between San Francisco and New York was \$129 over 2586 miles and was lower than the fare between Salt Lake City and San Francisco which was \$135, for a distance of 599 miles. As Mr. Gaines observed:

... public interest is not served by a system which flagrantly favors the larger cities and thereby deprives the smaller cities of service which they would adequately support but for artificial pricing preferences given to larger cities. Nor does it serve the public interest to subject the residents of the smaller cities to the crippling effects of extreme discrimination which impairs their ability to compete in the marketplace for business which relies on air travel.

The tourist trade is one such business which relies on air travel. Salt Lake City's tourist trade suffers when skiers pay 9.7 cents per mile to Denver from Chicago and 19.5 cents per mile to Salt Lake City from Chicago. Again, in Mr. Gaines' words:

I know of no real or imagined cost difference preference for the larger markets. I firmly believe that the smaller markets are subsidizing heavy losses in the larger long-haul markets. Whether or not such preference and prejudice can be justified under the existing law, I submit that the situation is so flagrant that it warrants investigation by the Board and by Congress as a matter of public interest.

I do not advocate a return to the rigid price regulation which existed before deregulation, but I am strongly convinced that there must be a system under which cities such as Salt Lake City can be protected from the flagrant fare increases and the extreme discrimination which we are presently enduring.

Daniel F. May, President and Chief Executive Officer of Republic Airlines, Inc., told the Subcommittee of the House Public Works and Transportation Committee that in small and medium sized markets where the variety of discount fares is limited and therefore, the coach fare

is the most commonly paid fare, fares have increased 116.6% while average airfares in the nation increased 48%. He advocates a system like the one proposed by American Airlines.

The day after American announced its plan for rationalizing airfares, Pan American World Airways announced that it would cut some fares on its domestic routes. This announcement would not affect American's proposal except in such heavily traveled routes as New York to Florida and New York to the West Coast. These fares would be about 50% lower than American's. The fares would be limited to seats left over after regular coach fare passengers were seated. They were only in effect for two months. Pan Am was attempting to fill its domestic flights which are scheduled to service its international flights.

American's plan has seemed to bring a bit more sense to the fare structure. Since 1982, the variety of discounts has declined, but it is still very confusing to find the lowest fare and changes in fares and schedules occur hourly.

While average fares on air routes have risen since deregulation, due basically to the rise in fuel prices and inflation, they have not risen as fast as costs. From 1972 to 1977, airline costs rose by 72% while fares per passenger mile increased by 33%. Since deregulation, costs have risen by 87% and per mile passenger fares have increased by 46%. In 1982, for the first time in history, average air fares fell by 6% below the prior year average, while costs rose 2% (General Accounting Office, THE CHANGING AIRLINE INDUSTRY; A STATUS REPORT THROUGH 1983). The airlines have developed other ways to attract passengers in addition to discount fares. These incentives include reduced connecting fares, special arrangements with travel agents and businesses, frequent flier

programs and luxury service.

In order to encourage passengers to remain on their airline when making connecting flights, airlines have offered lower connecting fares. If the passenger desires to take another airline, s/he will pay more. Airlines are developing hub and spoke systems where they base flights from one central location rather than flying many non-stop flights point to point (see Section C, Growth and Response).

Some airlines have sold blocks of tickets to high volume travel agents and businesses. The travel agent is encouraged to sell tickets on this particular airline and may charge whatever price they wish. Businesses are also encouraged to use that one airline.

Business people are encouraged to use the same airlines by offers of prizes or plane tickets for flying specific numbers of miles on any one airline. Since their companies pay for their tickets, they are not as interested in prices as are passengers paying for tickets themselves. The prizes are awarded to the traveler, not the company. These frequent flyer programs are aimed at the nondiscretionary flier who is ineligible for other discounts.

Another ploy to attract attention has been adopted by a new airline, Regent. Regent offers only luxury service between New York and Los Angeles. For around \$1500., the passenger receives gourmet food, alcoholic beverages and double beds with satin sheets.

Summary

Fares did not drop appreciably after deregulation, as predicted by the supporters of the Act. The average fare charged per mile by trunk airlines rose from 8.44 cents in 1978 to 11.98 cents in 1982. There were many reasons for this; the rise in fuel prices and inflation kept

most fares high. Average fares may not have decreased, but fares in some large markets fell because of discounts offered to attract passengers. These discounts were off-set by rising prices in less dense markets. However, fares were lower than the projected fares in regulation had remained. This then may be considered to be a Calculated, Preferred impact.

Impacts which were Uncalculated but Preferred are the suprisingly low fares offered by new entrants and the institution of lower connecting fares to encourage passengers to remain on the same carrier.

The deregulated environment gave rise to unprecedented cutthroat competition and predatory fare wars on the most heavily traveled routes. In order to finance these low fares, airlines raised prices on the less densely traveled routes. Passengers found it difficult to keep up with the changes in fares and discounts offered. These were the Uncalculated, Nonpreferred results of the ADA.

The easing recession has revitalized the airline industry, allowing them to discontinue many of the predatory pricing practices of early deregulation. Although average fares charged per mile fell in 1982, from 13.07 cents to 11.98 cents for trunk airlines and 17.95 cents to 16.07 cents for local service airlines, it is too early to tell if this trend will continue.

B:PRODUCTIVITY AND EFFICIENCY

In order to serve the customer conveniently and safely, airlines must be profitable, and to increase profitability, they must be efficient. Deregulation allows the airlines to make their own decisions and to control their own profitability. Airlines were not encouraged under regulation to be efficient. If their profitability fell, the CAB would protect them by limiting competition and/or allowing higher fares. Without the CAB, airlines have been forced to become more efficient in order to survive in the new competitive atmosphere.

In order to determine how the industry has fared since deregulation, Revenue Passenger Miles (number of miles traveled by paying customers) (RPMs) and Passenger Load Factors (percentage of seating capacity which is actually sold and utilized) (PLFs) will be investigated to see if they have changed before and after the ADA was passed in 1978. 1978 will be used as the year in which deregulation began officially. Deregulation has been a long, slow process, beginning as early as 1975 and continuing through the present. The early attempts at giving airlines more freedom were not as encompassing as those after 1978. The CAB continued to control routes and pricing, even though some freedom was allowed.

Airline deregulation was supposed to stimulate the industry by lowering fares. The lower fares would then encourage more passengers to take advantage of the lower prices. In Tables 4.B.1a and b, Revenue Passenger Miles are recorded by month, by majors and locals by year. This table not only shows how RPMs have increased since 1974, but also how RPMs vary seasonally within years. June, July and August tend to be the busiest, as these are considered to be vacation months. Table

Table 4.B.1a: Monthly Revenue Passenger Miles for Major Airlines, 1974-1982

Majors	Month					
	January	February	March	April	May	June
1974	9,376,562	NA	10,118,497	10,044,661	9,625,999	10,894,692
1975	9,095,657	8,153,858	10,007,684	9,142,301	9,423,116	11,045,310
1976	10,259,298	9,551,902	10,694,384	10,967,610	10,654,995	11,839,111
1977	11,112,431	9,688,240	11,601,107	11,358,197	11,062,556	12,362,379
1978	12,116,366	11,594,828	13,838,324	12,920,370	12,919,664	12,828,259
1979	13,629,722	21,977,120	15,528,704	19,346,110	13,640,772	16,191,555
1980	14,537,516	13,801,456	15,338,075	15,034,438	14,683,427	16,566,131
1981	13,863,034	12,315,806	14,392,867	14,320,514	15,282,637	15,571,300
1982	13,818,751	12,988,017	15,997,279	15,287,390	14,761,248	NA
Percentage Change						
1974-1978	23%	30%	27%	22%	26%	30%
1978-1982	12	11	14	16	13	5
Majors	Month					
	July	August	September	October	November	December
1974	10,952,318	11,963,983	NA	9,165,585	8,143,183	9,821,849
1975	11,607,830	12,552,418	9,225,241	9,835,462	8,071,051	10,186,028
1976	12,739,310	13,135,373	10,071,313	10,508,984	9,632,853	11,369,378
1977	13,576,425	14,141,740	11,073,572	11,700,605	10,958,474	12,640,546
1978	15,999,821	17,041,943	13,215,773	13,444,716	12,906,759	14,033,976
1979	17,534,534	19,008,993	14,182,011	14,677,474	13,888,307	14,202,784
1980	16,965,085	16,656,000	13,177,533	14,250,678	12,737,961	14,535,135
1981	16,487,312	16,190,321	13,019,832	13,757,496	12,689,535	14,274,013
1982	16,751,208	16,980,007	13,174,639	14,254,883	13,689,020	15,194,797
Percentage Change						
1974-1978	32%	30%	30%	27%	37%	30%
1978-1982	4	0	0	6	6	8

Source: CAB

Table 4.B.1b: Monthly Revenue Passenger Miles for Local Airlines, 1974-1982

<u>Locals</u>	<u>January</u>	<u>February</u>	<u>Month March</u>	<u>April</u>	<u>May</u>	<u>June</u>
1974	796,573	NA	935,617	940,452	941,497	984,142
1975	757,115	683,596	813,709	820,037	802,771	956,301
1976	907,636	864,147	966,885	1,006,897	997,352	1,056,492
1977	982,258	913,145	1,088,895	1,089,497	1,109,039	1,165,056
1978	1,119,080	1,057,746	1,327,678	1,262,399	1,397,219	1,501,747
1979	1,428,616	1,373,064	1,668,638	1,911,425	1,918,225	1,887,213
1980	1,287,078	1,288,833	1,957,802	1,583,294	1,587,887	1,798,475
1981	1,782,919	1,663,368	1,955,603	1,951,545	1,992,436	2,057,206
1982	1,972,492	1,662,311	2,108,061	2,110,634	2,139,045	NA
Percentage Change						
1974-1978	29%	36%	30%	26%	33%	34%
1978-1982	43	37	38	41	35	27
<u>Locals</u>	<u>July</u>	<u>August</u>	<u>September</u>	<u>October</u>	<u>November</u>	<u>December</u>
1974	969,234	1,052,230	NA	918,860	816,169	841,405
1975	975,658	1,067,409	871,803	963,276	881,790	1,062,203
1976	1,098,802	1,142,815	985,736	1,043,584	994,573	1,063,545
1977	1,233,255	1,273,245	1,117,650	1,186,218	1,150,728	1,233,672
1978	1,516,493	1,638,828	1,386,605	1,431,982	1,381,392	1,466,495
1979	1,918,523	2,016,461	1,348,100	1,321,685	1,479,692	1,644,273
1980	1,878,444	1,931,702	1,581,114	1,504,479	1,466,710	1,770,330
1981	2,320,091	2,337,752	1,928,312	2,032,079	1,848,791	2,159,943
1982	2,642,045	2,799,379	2,103,985	2,141,691	1,909,281	2,059,779
Percentage Change						
1974-1978	36%	36%	34%	36%	41%	43%
1978-1982	43	42	34	36	28	29

Source: CAB

4.B.1a and b also show the percentage change in RPMs between 1974 and 1978, and 1978 and 1982. The RPMs for major airlines had greater increases before deregulation than after. In fact, during August and September, there was no change between 1978 and 1982. The locals, for the most part, have greater increases in RPMs in the period after deregulation. The locals, then, have fared better and had greater increases in RPMs than did the majors in the period since deregulation.

Another measure of productivity is the Passenger Load Factor (PLF). This indicates what percent of the seats available were sold and utilized. The higher the PLF, the more productive the airline. Table 4.B.2 shows the monthly load factors for majors and locals between 1974 and 1982. Load factors increased in 1979, the year after the Act went into effect. As the economy weakened in 1980 and 1981, the load factors decreased significantly for the majors, especially in April of 1980, down from 73.4% in 1979 to 58.3% in 1980. Load factors remain about the same in 1981 and 1982 for both locals and majors. Locals again seem to be profiting from deregulation more than the majors. The prederegulation load factors for locals were quite low, dipping as low as 45%. The locals had load factors below 55% for 33 months between 1974 and 1977, while the majors load factors were below 55% for only 24 months in the same period. After 1978, load factors for the locals fell below 55% for only 11 months, and 9 months for the majors. Load factors for 1983 continued to improve by at least 5% over 1982.

Table 4.B.3 shows the aggregate Available Seat Miles (ASMs) and RPMs for 1971-1982. In order for the airlines to reach peak efficiency, ASMs should equal RPMs. The airlines would be providing the correct amount of seats for the same number of paying customers. Before

Table 4.B.2: Monthly Passenger Load Factors for Major and Local Airlines, 1974-1982

Majors	Month											
	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1974	55.6	NA	59.0	59.5	55.8	60.2	57.4	63.0	NA	51.7	46.2	51.5
1975	48.3	48.6	53.5	51.6	51.9	58.7	58.2	63.3	52.3	54.6	53.1	62.9
1976	54.1	53.2	54.9	57.5	55.5	59.2	60.1	61.2	51.5	53.2	52.5	55.3
1977	53.7	51.5	55.5	56.1	54.1	57.7	59.9	61.7	53.3	54.9	53.8	57.5
1978	56.0	55.3	61.4	59.7	62.2	67.4	67.9	70.8	58.0	57.9	57.4	58.3
1979	56.8	59.3	65.3	73.4	68.3	69.8	67.7	68.4	52.2	58.4	59.1	55.8
1980	53.7	55.4	62.0	58.3	56.5	61.9	60.7	65.0	53.4	56.9	54.3	57.8
1981	52.9	53.0	55.6	56.9	60.1	58.4	58.3	67.0	55.6	56.0	53.6	57.0
1982	54.5	55.7	61.6	61.3	58.2	NA	62.4	62.4	52.8	55.6	55.6	58.6
<u>Locals</u>												
1974	51.0	NA	56.1	57.3	54.4	57.0	53.5	56.6	NA	49.8	46.5	48.9
1975	45.0	46.0	50.2	49.0	50.4	54.6	53.0	57.8	49.6	53.0	51.1	57.7
1976	50.0	50.6	52.0	54.6	52.4	55.1	55.4	56.8	51.3	52.5	51.7	52.5
1977	49.7	49.4	52.4	53.4	52.6	55.7	56.9	57.7	53.1	54.4	54.5	55.7
1978	53.1	53.2	59.5	57.4	60.5	64.7	62.3	64.9	57.2	56.9	56.6	56.0
1979	53.7	54.7	59.8	67.6	64.1	64.2	62.0	63.8	53.0	54.4	52.2	52.1
1980	53.4	55.8	59.0	56.1	57.9	60.0	60.3	56.8	56.8	58.3	58.1	61.4
1981	59.5	60.6	62.9	62.6	61.4	62.6	63.2	65.7	59.2	60.5	57.8	59.2
1982	54.6	53.3	57.7	59.9	58.8	NA	63.8	67.3	55.1	54.8	55.8	56.6

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.B.3: Total Certificated Domestic Available Seat Miles and Revenue Passenger Miles, 1971-1982

<u>Year</u>	<u>Available Seat Miles</u>	<u>Revenue Passenger Miles</u>	<u>RPMs/ASMs</u>
1971	279,823,351	135,657,702	.48
1972	287,418,092	152,406,702	.53
1973	310,597,107	161,957,307	.52
1974	297,004,332	162,917,241	.55
1975	303,006,243	162,810,057	.56
1976	322,820,561	178,987,543	.55
1977	345,566,005	193,218,837	.56
1978	368,750,530	226,781,368	.61
1979	416,126,429	262,023,375	.63
1980	431,166,439	254,179,944	.59
1981	424,897,230	248,887,801	.58
1982	438,956,310	259,037,643	.59

Average RPM/ASMs

1973-1977- .55

1978-1982- .60

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

deregulation, airlines were forced to keep unprofitable routes if these routes were deemed necessary by the CAB. After deregulation, airlines had more freedom in deciding to drop routes which were not providing enough customers. The new freedom should allow the airlines to make their own decisions as to how many seats to offer. The closer to 1.0 is the RPMs/ASMs ratio, the more efficient the airlines. The airlines have proportionally improved the relationship between RPMs and ASMs. The average ratio for 1978-1982 is .05 higher than the average for the previous five year period, 1973-1977. They have been able to provide a closer match between the number of seats offered and the number of paid seats. The airlines might not be able to take full credit for these improvements. The Traffic Controllers Strike forced the Federal Aviation Administration to curtail traffic in twenty-two of the largest markets to provide for safe travel. The airlines were not able to offer as many flights to these airports as they may have wanted to.

Another measure of productivity is the number of hours planes spend in the air.* The more air time, the more efficient the use of equipment. Table 4.B.4 shows the number of hours different airlines utilized their airplanes. These particular airlines are investigated because they existed before and after deregulation, to allow for comparison. The majors spent the most time in the air in 1979 and decreased steadily through 1982. This could be attributed to both the recessions and the Air Traffic Controllers Strike which curtailed the

* Revenue Hours are used to measure the number of hours airplanes spend in the air. These are hours where there are paying customers on board the airplane. Hours spent testing and transporting airplanes without customers are not included.

Table 4.B.4: Number of Hours Airplanes Spend in the Air, as measured by Total Aircraft Revenue Hours, by Airline, 1976-1982

<u>Majors</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
United	737,167	786,621	855,001	791,696	936,028	804,140	723,532
American	574,107	588,261	605,882	647,709	641,082	583,395	566,894
Delta	514,480	532,836	565,968	606,383	636,192	654,044	627,803
Eastern	581,267	607,081	617,265	639,524	663,218	685,069	623,484
TWA	466,407	464,443	465,377	483,442	442,455	371,422	315,967
Western	194,515	216,188	219,168	225,952	215,312	173,140	177,761
Braniff	204,417	214,463	244,752	301,948	267,624	197,543	127,758
Continental	172,177	161,710	193,165	220,742	220,562	171,997	195,431
National	92,038	155,099	161,873	169,044	53,578	NA	NA
Northwest	212,546	214,228	149,288	193,898	219,168	215,360	195,431
Pen Am	124,861	121,185	122,782	121,420	140,606	171,097	144,055
<u>Locals</u>							
Allegheny	209,010	214,166	224,472	233,621	237,297	238,423	251,093
Hughes	95,258	105,499	114,108	129,336	108,061	385,500	394,559
Frontier	120,429	130,973	138,849	161,987	159,527	155,133	146,253
North Central	104,238	106,287	112,237	111,520	NA	NA	NA
Ozark	88,821	91,671	97,052	106,353	76,185	94,869	92,806
Piedmont	101,464	105,711	107,842	112,800	122,995	130,925	144,171
Texas Int.	70,018	69,859	77,503	88,842	101,069	91,858	93,400
Southern	77,072	78,005	92,379	84,728	NA	NA	NA

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

number of flights allowed in and out of twenty-two major airports. This pattern does not apply to the locals. Allegheny (now US Air), Hughes, and Piedmont continued to expand their ARNs. Ozark and Frontier match the major's pattern, while Texas International peaked in 1980, but again showed improvement in 1982. The locals have again shown better performance than the majors since deregulation.

Seating density is a way in which airlines can control their efficiency. By placing more seats in each plane, they have the capacity to carry more passengers without adding more aircraft. Seating density can be measured by available seats per aircraft mile (Table 4.8.5) or by seats per aircraft (Table 4.8.6). Both of these are quite similar and show small increases in the number of seats per airplane since 1978. In the ten year period, 1971-1981, majors added about 50 seats per flight, only seven of which were added after deregulation. The change in the number of seats locals average per aircraft has been even smaller, only six. There was an 8% change in available seats between 1974 and 1978, and a 10% change between 1978 and 1982. Seats have been added, but the airlines do not seem to be relying on added seats per airplane to make their operations more efficient and productive.

The final part of our discussion of productivity and efficiency deals with profits and losses incurred by the airline industry. Table 4.8.7 displays operating profit margins and rate of return on stockholder's equity as measures of profitability. Data from 1957 are used to detect whether the current downturns in profitability are due to business cycles or can be attributed to the ADA. The majors have not had as many negative operating profit margins in the twenty years preceding deregulation as they have had since the Act went into effect

Table 4.B.5: Seating Density as measured by Available Seats Per Aircraft Mile, 1970-1982

<u>Year</u>	<u>Seats Available</u>	<u>Percentage Change</u>
1970	110.4	
1971	115.3	4%
1972	118.1	2
1973	123.8	5
1974	127.7	3
1975	132.6	4
1976	132.4	0
1977	136.2	3
1978	138.7	2
1979	139.5	1
1980	142.5	2
1981	152.2	6
1982	154.5	2

Percentage Change

1974-1978- 8% change

1978-1982-11% change

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.B.6: Average Seating Density (Seats Per Aircraft), 1971-1981

<u>Year</u>	<u>Majors</u>	<u>Locals</u>
1971	158.09	96.9
1972	177.9	97.9
1973	182.7	98.1
1974	186.8	98.0
1975	192.2	98.1
1976	192.6	98.9
1977	195.4	99.2
1978	202.9	99.7
1979	206.4	102.3
1980	207.5	105.7
1981	209.1	105.9

Source: CAB

in 1978. They have had negative operating profit margins in 1979, 1980, 1981 and 1982. They also had negative rates of return on stockholder's equity in 1981 and 1982. The locals again have fared much better than the majors in the deregulated environment. The locals had a very difficult period between 1967 and 1971. 1974-1978, with the exception of 1975 were quite profitable for the locals. The deregulated market has not been as lucrative as the pre-deregulation period, but it has been profitable for them. The locals have been able to maintain operating profit margins above 4, unlike the majors who have reported losses.

Table 4.8.8 presents the operating profits or losses of domestic passenger service from the beginning of passenger service in 1938. Again, the data are reported from 1938 to determine if the current profit/loss situation is cyclical or due to the factors which have occurred since 1978. As discussed earlier, 1942-1945, the war years were very profitable for the airline industry. Losses occur after the war in 1946 and 1947. There is a return to profitability in 1948 and it continues until 1957 when profits fall. Any cycles that might occur would be easier to see in graphic form. (See Figure 4.8.1). It is doubtful that the huge losses suffered by the airline industry could be attributed simply to a business cycle. Profits should have turned upward in 1980 instead of a continuous loss slide. Indeed, the airline industry has never suffered such large losses in its forty year history as it has since deregulation. It had been a very stable, profitable industry. However, 1983 looks to be profitable for the airlines.

Even though RPMs have increased over those before deregulation, the industry has still suffered huge losses. They may be free to control their own profitability since deregulation, but they have not

Table 4.8.7: Operating Profit Margins and Rate of Return on Stockholder's Equity for Domestic Operations of Major and Local Airlines, 1957-1982

Year	<u>Trunks</u>		<u>Locals</u>	
	<u>Operating Profit Margin</u>	<u>Rate of Return on Stockholder's Equity</u>	<u>Operating Profit Margin</u>	<u>Rate of Return on Stockholder's Equity</u>
1957	3.0	4.8	-0.9	-11.4
1958	6.3	7.7	1.7	10.7
1959	5.9	9.6	0.5	0.5
1960	1.8	0.0	1.5	14.8
1961	-0.5	-5.2	5.3	21.1
1962	3.3	1.3	6.5	19.3
1963	5.3	1.9	5.3	13.1
1964	10.6	17.1	6.7	16.3
1965	12.8	21.6	8.3	19.3
1966	12.4	17.2	6.7	12.7
1967	9.3	13.3	0.2	-4.4
1968	6.4	6.3	-1.8	-28.8
1969	5.6	4.7	-2.9	-71.3
1970	0.3	-4.5	-1.2	-63.3
1971	3.4	1.6	3.5	-7.4
1972	5.8	6.6	5.6	8.5
1973	4.9	5.0	6.0	12.8
1974	6.5	10.5	7.7	18.1
1975	0.8	-2.1	2.3	0.5
1976	4.0	8.5	5.6	16.0
1977	3.8	11.2	6.8	22.4
1978	5.5	17.7	6.3	20.2
1979	-0.4	3.4	4.6	4.3
1980	-1.1	4.2	4.5	9.3
1981	-2.2	-3.7	4.8	6.7
1981*	0.1	6.2	6.6	15.2
1982*	-4.5	-15.1	4.1	1.9

*12 months ended June 30

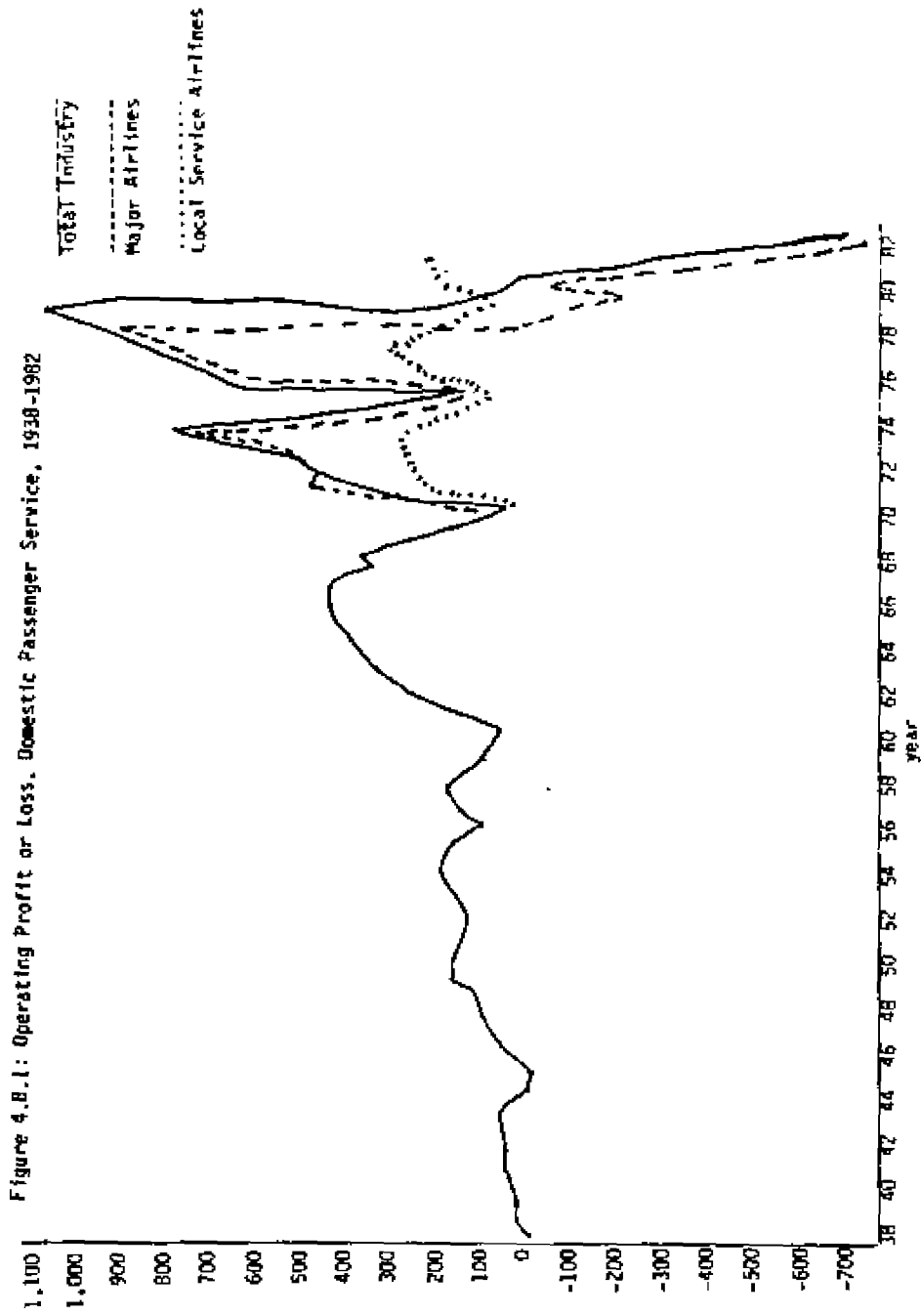
Source: Form 41 and Federal Trade Commission Quarterly Financial Report

Table 4.B.8: Operating Profit or Loss, Domestic Passenger Service, 1938-1982

(\$000)			
<u>Year</u>	<u>Profit/Loss</u>	<u>Year</u>	<u>Profit/Loss</u>
1938	-1,018	1965	443,433
1939	4,556	1966	479,697
1940	5,974	1967	410,978
1941	7,388	1968	308,111*
1942	26,531	1969	323,749
1943	27,403	1970	2,970
1944	36,413	1971	258,181
1945	34,084	1972	491,300
1946	-5,009	1973	493,795
1947	-21,278	1974	785,035
1948	3,024	1975	117,279
1949	22,453	1976	674,541
1950	62,859	1977	656,510
1951	106,504	1978	1,017,943
1952	93,637	1979	129,433
1953	87,510	1980	-6,852
1954	101,933	1981	-253,032
1955	124,052	1982	-675,092
1956	101,057		
1957	41,255		
1958	97,531		
1959	106,784		
1960	37,888		
1961	1,257		
1962	89,965		
1963	142,643		
1964	316,702		

* 1938-1968 Data compiled on 48 state basis
 1969-1982 Data compiled on 50 state basis

Source: CAB



been very successful at these attempts. Evidently, the industry was not prepared for the competitive marketplace. This generalization has not been true for the locals however. Deregulation has been very good for them. In Table 4.B.9, profits are broken down between majors and locals from 1970 through 1982. Although the locals suffered a loss in 1980, they did show profits in 1981 and 1982. The locals seemed to be much better prepared to respond to changes in the environment.

Summary

As Calculated and Preferred impacts, both Revenue Passenger Miles and Passenger Load Factors have increased in the deregulated environment. The Airlines have substantial control over their efficiency and profitability. They appear to have become more efficient as indicated by the ratio of Revenue Passenger Miles to Available Seat Miles, but they have not been able to achieve profitability under deregulation. This is the case particularly with the major airlines.

Some surprises which were Uncalculated, Preferred impacts include the outstanding performance by the local service airlines. There were greater increases in RPMs and PLFs than the major airlines had during the same period. These smaller airlines made profits even when the majors were incurring huge debts.

These large debts were Uncalculated, Nonpreferred results of the ADA. Since deregulation was to give airlines more decision making power over profitability, it was believed they would make rational decisions leading to profits. Instead, we see a situation where the majors felt pressured to meet the low prices offered by the new airlines, leading to price wars which in turn plunged the major airlines into ever deepening debt. Although RPMs rose, they did not rise as fast as they had in the

Table 4.8.9: Profit or Loss for Domestic Operations of Major and Local Airlines, 1970-1982

<u>Year</u>	<u>Majors</u>	<u>Locals</u>
1970	16,737	-8,798
1971	229,527	28,886
1972	434,059	52,641
1973	414,683	63,730
1974	680,004	100,373
1975	83,796	30,295
1976	470,974	90,470
1977	517,212	129,412
1978	835,931	144,976
1979	-65,086	130,436
1980	-241,214	-1,755
1981	-113,667	1,271
1982	-728,542	53,917

Source: Various issues, AIR CARRIER FINANCIAL STATISTICS

same time period under regulation. Rising fuel costs and economic recessions created less than optimal conditions for the airlines to respond to in the deregulated environment.

C: GROWTH AND RESPONSE TO DEREGULATION

The ADA was designed to generate growth within the airline industry. The CAB tightly controlled access to the industry, making it very difficult to gain entry. The CAB determined which carrier served each route. Route decisions were made by considering proposals submitted by the different airlines. The Board took the carriers' financial situations into consideration when making route decisions, attempting to strengthen the weaker airlines. The quality of past service was also taken into account. A new airline would not have any prior service to prove itself, so they were not considered. The ADA takes route decisions out of the hands of the CAB and places it in the hands of the airlines. New airlines do not have to receive approval from the CAB for specific routes. The new airlines must meet certain safety requirements and use sound business practices before being certificated. Table 4.C.1 shows the number of new certificates granted. Intrastate airlines are those airlines which operated only within certain states (California, Texas, Florida, Alaska and Hawaii), and as such were beyond CAB control. Part 298 airlines were commuters, whose service was limited to small aircraft (15-20 seats maximum until 1972, and 30 seats until deregulation when it was raised to 60 seats (Graham and Kaplan, December, 1982, p.43)). All-cargo airlines flew cargo rather than passengers (e.g., Flying Tigers and Emery) and supplemental airlines were those which flew charters (e.g., World Airways). Between 1978 and 1982, a total of eighty-nine airlines were certificated. This more than doubled the number of certificated route carriers in 1977. Although certificated, many of these airlines did not begin service or have already gone out of business (see Table 4.F.3).

Table 4.C.1: Newly Certificated Airlines, 1978-1982

<u>Year</u>	<u>New</u>	<u>Former Intrastate Airlines</u>	<u>Former Part 298</u>	<u>Former All-Cargo</u>	<u>Former Supplemental</u>
1978	4	1	7	0	1
1979	0	3	5	2	3
1980	5	0	8	0	0
1981	15	0	14	0	0
1982	10	0	10	1	0
Total- 89					

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.C.2: Stations Opened and Stations Closed, 1978-1982

<u>Years</u>	<u>Stations Opened</u>	<u>Stations Closed</u>
1978-1979	357	199
1979-1980	369	400
1980-1981	384	254
1981-1982	526	319
Totals	1,636	1,172

Source: CAB

Table 4.C.3: Number of Aircraft in Service, Number of Certificated Route Carriers, 1968-1982

<u>Year</u>	<u>Number of Aircraft in Service</u>	<u>Number of Certificated Route Carriers</u>	<u>Aircraft per Carrier</u>
1968	2,406	38	63.3
1969	2,610	39	66.9
1970	2,564	39	65.7
1971	2,534	37	68.5
1972	2,519	38	66.3
1973	2,492	35	71.2
1974	2,412	34	70.9
1975	2,434	35	69.5
1976	2,527	37	68.3
1977	2,441	37	66.0
1978	2,545	37	68.8
1979	3,609	47	76.8
1980	3,805	58	65.6
1981	3,974	86	46.2
1982	4,117	98	42.0

Source: CAB

Another indicator of growth is the number of new stations opened and existing stations closed by the airlines. The ADA not only allowed entry freedom, but also exit freedom. Airlines were given more freedom in abandoning routes they felt were unprofitable. If more stations have been opened than closed, the industry has grown. Table 4.C.2 shows that between 1978 and 1982, 1636 stations were opened while 1172 were closed. The industry has grown by opening 464 stations more than they closed. There may have been more openings and closings, but the Professional Air Traffic Controllers Organization's (PATCO) strike in 1981 caused the Department of Transportation (DOT) to limit the number of planes into twenty-two of the busiest airports. If a route was abandoned, the DOT gave the slot to another airlines. Many airlines held on to slots rather than lose them. This made it difficult for new airlines to gain access to the larger airports.

The airline industry has also increased the number of aircraft it has in service. The number of aircraft changed very little between 1968 and 1978. It was only after deregulation that the number increased from 2,545 to 4,117. Table 4.C.3 also shows the actual number of airlines in operation during the years shown. The number of planes per airline has decreased from a high of 71.2 in 1973 to 42.0 in 1982. This would indicate that the new entries are operating with fewer planes than was the case with airlines before deregulation.

Available Seat Miles (ASM), Revenue Passenger Miles (RPM), Revenue Passenger Enplanements (RPE), and Average Number of Seats per Plane (ANSP) should all increase with deregulation. Tables 4.C.4 and 4.C.5 examine each of these indicators down by airline for the period between 1976 and 1982, showing the percentage of growth for each. Once again,

Table 4.C.4: Percentage of Growth Based on Twelve Month Average Data for Major Airlines, 1976-1982

Majors	March '76-'78			Enplane- ments	March '78-'79			Enplane- ments
	ASMs	Seats	RPMs		ASMs	Seats	RPMs	
American	6.3	8.0	9.8	8.6	9.2	2.9	18.2	15.5
Braniff	19.3	3.1	19.3	15.8	19.9	2.8	26.2	19.7
Continental	12.3	3.1	15.3	16.7	11.0	1.5	16.9	11.9
Delta	14.8	4.5	15.6	15.5	11.3	3.5	20.6	19.0
Eastern	17.7	8.5	14.6	15.0	10.0	6.7	23.6	20.3
National	40.2	1.4	40.9	27.0	0.9	-5.1	14.0	5.4
Northwest	8.8	1.8	16.1	17.3		strike affected		
TWA	4.8	2.8	10.5	10.7	6.0	4.6	13.2	13.6
United	16.8	2.6	23.2	19.5	18.8	4.0	26.8	20.4
Western	26.0	7.3	20.5	18.1	6.9	5.2	20.1	17.0
Pan Am	4.4	5.1	3.1	13.0	-11.2	6.8	-2.8	30.2
	March '79-80			March '80-'81				
American	5.5	-1.5	8.1	3.7	-5.9	2.3	-13.9	-16.1
Braniff	13.6	1.1	19.9	14.9	-27.0	0.5	-26.1	-21.3
Continental	-2.0	-8.4	-1.4	-1.3	-18.1	0.2	-20.0	-17.9
Delta	8.0	3.3	7.1	7.4	5.0	1.6	-5.0	-8.1
Eastern	9.6	3.9	13.5	10.9	10.5	6.3	-2.9	-10.7
National	-26.1	-3.6	-24.9	-32.0		merger		
Northwest	62.6	-7.2	87.1	79.2	-4.5	-3.0	-7.5	3.8
TWA	11.5	6.1	11.7	10.6	-12.8	7.3	-16.7	-15.9
United	-12.4	-0.7	-14.0	-20.7	13.6	2.7	3.2	-8.5
Western	-11.9	0.3	-8.1	0.2	-8.7	5.9	-13.6	-17.8
Pan Am	32.6	-39.3	137.9	155.4	-6.7	0.5	-11.7	-9.5
	March '81-'82							
American	5.3	11.7	9.5	6.3				
Braniff	-5.8	8.0	-7.7	-6.3				
Continental	9.8	6.9	8.5	8.6				
Delta	2.9	2.7	-3.0	-7.1				
Eastern	3.9	7.7	1.3	-3.3				
Northwest	-2.5	0.7	-2.3	-6.6				
TWA	-10.3	6.0	-8.8	-9.1				
United	-9.4	8.7	-4.1	-3.4				
Western	-10.9	-0.8	-7.7	-5.2				
Pan Am	-17.2	3.1	-12.7	-18.6				

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.C.5: Percentage of Growth Based on Twelve-Month Average Data for Local Service Airlines, 1976-1982

Locals	March '76-'78				March '78-'79			
	ASMs	Seats	RPMs	Enplane-ments	ASMs	Seats	RPMs	Enplane-ments
Allegheny (USAir)	6.7	1.1	11.2	13.5	6.0	0.4	15.7	11.4
Frontier	23.8	5.5	30.9	26.8	22.3	5.1	27.8	19.1
Hughes	34.9	8.7	42.1	36.4	13.7	-0.8	18.2	14.4
North Central	24.3	14.3	24.7	20.1	27.1	7.9	44.3	26.9
Ozark	23.6	10.1	27.8	19.1	17.0	3.2	27.7	13.9
Piedmont	15.7	5.3	19.1	15.5	11.3	4.9	17.6	12.9
Southern	21.0	5.4	21.2	16.6	22.7	-1.3	29.7	19.4
Texas Inter-national	35.4	17.5	59.4	54.4	26.6	6.4	29.7	17.6
	March '79-'80				March '80-'81			
Allegheny (USAir)	19.3	8.1	24.6	9.1	9.4	5.9	2.2	-2.6
Frontier	25.3	10.3	20.7	12.9	1.7	4.0	-0.4	-8.1
Hughes	-2.7	2.8	2.7	-18.3		merger		
North Central	-6.7	7.1	-66.5	-69.4		merger		
Ozark	-2.5	3.4	-2.0	-14.6	6.0	4.7	-0.1	-5.2
Piedmont	37.4	12.8	35.4	16.4	25.7	8.1	23.8	7.3
Southern	-73.3	2.2	-71.7	-72.1		merger		
Texas Inter-national	40.5	8.8	39.1	12.4	-1.7	2.0	-2.5	-7.0
	March '81-'82							
Allegheny (USAir)	6.0	2.7	0.6	-4.3				
Frontier	11.8	4.8	15.2	3.2				
Ozark	18.3	7.2	19.8	7.2				
Piedmont	22.1	6.2	32.8	26.6				
Texas Inter-national	1.4	0.5	-4.0	-12.8				

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

we see the differences in performance between major and local airlines. In 1982, while all of the majors were flying less, all of the locals had growth in available seat miles. All but two locals had growth in enplanements, while only two majors showed growth in enplanements for the same period (e.g., American and Continental).

It would appear that although the majors have fewer RPMs, the RPMs are falling at a slower rate than enplanements. According to Meyer, if the RPMs rise faster than Revenue Passenger Enplanements (RPEs), passengers are flying longer distances. Table 4.C.6 shows that between 1978 and 1982, RPMs rose 13% while RPEs rose 7%. It would appear then that passengers are taking fewer but slightly longer trips.

The longer the trip, the less expensive become the per mile costs. The most expensive part of the trip are the take-offs and landings because of the fuel utilized. With the new freedom to enter and change routes, airlines may have responded by making their routes longer. This would utilize equipment more efficiently. Table 4.C.7 shows flight stage length percentage growth or how the length of trips has changed. All of the airlines, except Pan Am, have increased its flight stage lengths. Pan Am has been engaged in a major reconfiguring of its route system. The main focus remains on their international operations, but Pan Am is attempting to attract customers on their domestic routes which are scheduled to serve the airline's international flights. Even though their flight stage lengths have declined, Pan Am's are still the longest of all of the airlines (964.7 miles). Again, the locals have shown the greatest change. Before deregulation, the locals were forced to serve the smaller markets in specific geographical areas. Their Average Stage Lengths (Table 4.C.8) were quite short, sometimes six times shorter than

Table 4.C.6: Total Domestic Revenue Passenger Miles and Revenue Passenger Enplanements, 1970-1982

<u>Year</u>	<u>Revenue Passenger Miles (000)</u>	<u>Revenue Passenger Enplanements (000)</u>
1970	104,146,807	153,662
1971	106,438,408	156,195
1972	118,137,978	172,452
1973	126,317,334	183,272
1974	129,731,042	189,724
1975	131,728,389	188,746
1976	145,271,283	206,279
1977	156,609,249	222,283
1978	182,669,424	253,960
1979	208,890,884	292,700
1980	200,086,577	272,771
1981	196,714,755	265,304
1982	209,577,677	273,494

<u>Year</u>	<u>Percentage Change</u>	
	<u>RPMs</u>	<u>RPEs</u>
1978-1979	12%	13%
1979-1980	-4	-7
1980-1981	0	-3
1981-1982	5	3
1978-1982	13	7

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.C.7: Flight Stage Length Percentage Growth, 1976-1982

<u>Majors</u>	<u>March 76-78</u>	<u>March 78-79</u>	<u>March 79-80</u>	<u>March 80-81</u>	<u>March 81-82</u>	<u>Total</u>
American	0.2	5.2	11.7	3.4	-1.0	19.5
Braniff	7.6	4.3	7.6	-1.9	0.3	17.9
Continental	4.4	5.5	8.8	1.5	1.9	22.1
Delta	3.5	1.9	5.1	6.0	1.9	21.5
Eastern	0.4	-0.9	4.2	8.3	4.1	16.9
National	20.8	13.4	19.7	merger		53.9
Northwest	0.1	3.7	-0.6	-0.8	5.6	8.0
TWA	0.5	-0.9	4.0	-2.7	1.1	2.0
United	0.6	5.5	11.8	15.1	-1.4	31.6
Western	9.1	-0.6	0.0	5.5	-0.5	13.5
Pan Am	-18.6	-19.6	-13.2	3.0	9.6	-38.8
<u>Locals</u>						
Allegheny (USAir)	2.5	5.3	18.4	5.0	7.8	39.0
Frontier	11.8	8.8	11.0	11.0	14.9	58.0
Hughes	13.2	11.9	27.4	merger		52.5
North Central	7.3	10.8	14.3	merger		32.4
Ozark	13.7	9.9	21.0	10.4	16.1	71.1
Piedmont	6.2	9.0	22.6	14.9	9.0	61.7
Southern	6.8	14.8	7.0	merger		28.6
Texas Inter- national	21.8	17.3	25.6	-0.4	14.7	79.0

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.C.8: Average Domestic Stage Lengths in Miles for Major and Local Airlines, 1978-1982

<u>Majors</u>	<u>March 78-79</u>	<u>March 79-80</u>	<u>March 80-81</u>	<u>March 81-82</u>
American	778.7	880.0	909.6	900.9
Braniff	533.5	574.3	563.6	565.5
Continental	627.4	682.5	692.7	706.2
Delta	451.3	474.5	503.1	528.4
Eastern	487.7	508.0	550.1	572.7
National	662.1	792.7	merger	
Northwest	576.4	572.9	568.3	600.4
TWA	762.1	792.5	771.2	779.8
United	705.0	788.0	906.9	894.1
Western	620.6	620.7	655.1	652.1
Pan Am	1,137.1	986.7	880.5	964.7
<u>Locals</u>				
Allegheny (USAir)	248.5	294.3	309.1	333.1
Frontier	237.4	263.6	293.1	336.7
Hughes	302.0	381.5	merger	
North Central	157.0	179.5	merger	
Ozark	204.8	247.8	273.6	317.7
Piedmont	186.5	228.7	262.7	286.4
Southern	215.3	230.3	merger	
Texas Inter- national	317.0	398.3	396.8	452.7

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

those of the major airlines. Locals still lag behind the majors in their average flight stage lengths, but they are gaining.

Since the airlines are flying longer routes, their utilization of aircraft also should rise. The more aircraft are used, the more efficient the response to deregulation. The utilization of aircraft rose to 10.3 hours per day in 1979, but in 1981 fell to 9.2, which it was in 1973. The airlines are not using their equipment for longer periods per day (Table 4.C.9). The constraints of maintenance and safety may not allow for more utilization of aircraft.

Route Networks

As Graham and Kaplan point out, the airline's strategies for their networks has depended upon their status before deregulation. The established airlines have concentrated on creating hub-and-spoke feeder networks. The local service airlines have expanded into longer-haul markets and the new entrants have concentrated on point-to-point service in the major markets.

Almost all of the major trunks terminated service to small cities to reorganize their operations into hub and spoke networks. The regional airlines like USAir, Piedmont and Republic, are also following this trend. Piedmont is establishing its hubs at small to medium markets; Charlotte, North Carolina, Pittsburgh, Pennsylvania, and Baltimore, Maryland. It also is providing some point-to-point service.

The hub-and-spoke network has several advantages; the airlines feed through a central hub. The passenger usually remains on the same airline through to final destination. Airlines cannot offer point-to-point service to all cities with their limited numbers of airplanes. With hub-and-spoke, service can be provided to more points with fewer

Table 4.C.9: Domestic Aircraft Utilization and Average On-Flight Trip Length, 1971-1981

<u>Year</u>	<u>Aircraft Utilization Rates (Block per hours per day)</u>	<u>Average On-Flight Trip Length (miles)</u>
1971	8.6	786
1972	8.6	792
1973	9.2	797
1974	8.0	795
1975	8.7	810
1976	8.9	819
1977	9.5	820
1978	9.7	837
1979	10.3	854
1980	9.6	884
Year ending 6/30/81	9.2	899

Source: CAB

aircraft. The airline can then keep the passenger on line, rather than letting another airline take them to their destination, or more importantly, the airlines "feed" their own continuing flights. Another advantage of the hub-and-spoke system is that the airlines receives more immediate revenue than if another airline feeds passengers to them. (The airline that the passenger is ticketed on first receives the fare for the entire trip. At a later time the airline of the connecting flight receives payment from the originator airline. If a passenger flies USAir to Pittsburgh from Cincinnati then changes to Delta to New York, for example, then USAir receives the full fare and pays Delta later.)

The regionals have been very successful with their hub-and-spoke networks. These networks serve small and medium cities. (They are able to charge higher fares because there is usually little competition on these routes.) The larger airlines are beginning to reconsider their decision to pull out of small and medium cities and have re-entered some of these markets (United is re-entering the small hub of Manchester, New Hampshire and will provide service to Chicago.)

The structure of the industry has changed with the entry of new airlines as well as with the success of the local airlines. Domestic RPMs for the major airlines have fallen from 87% in 1978 to about 80% in 1981. Local airlines have raised their share in the market from 9% to 12% and new entrants now have a 7.7% share of the market (Graham and Kaplan, December, 1982, p.53).

Summary

Impacts relating to Growth and Response to deregulation have been positive. Those which were Calculated include more than tripling the

number of certificated airlines in the industry, increasing the number of new stations served, increasing the number of aircraft in service and in order to become more efficient, increasing the stage lengths flown. The airlines have begun to rationalize their route systems, most by using the hub-and-spoke method of organization. And this has resulted in more efficient use of aircraft and the ability of airlines to serve more markets than previously possible using a point-to-point route system.

Uncalculated, Preferred impacts again relate to the performance of local service airlines. These carriers have increased their ASMs, RPMs, RPEs, and ANSPs. The performance of these smaller airlines was uncalculated because it was feared that they would not be able to compete with the large airlines with their established resources. As it has turned out, it is the large airlines which have not responded well to the deregulated marketplace. In sum, the ADA thusfar has resulted in the complete reworking and reorganizing of the airlines route systems which serve the United States. Most airlines are adopting hub-and-spoke systems which allow them to serve more markets by feeding passengers into central hubs to make connecting flights, rather than the point-to-point route systems utilized under regulation.

D:SMALL COMMUNITY SERVICE

Routes serving small communities tend to be the least attractive to the major airlines. They are low density markets and therefore not very profitable to serve with large planes. Before deregulation, the CAB could force airlines to serve smaller communities, and the airlines were given subsidies for serving routes that lost money. Smaller communities were served by large (and sparsely filled) aircraft in many cases. After deregulation, the practice of using these larger aircraft by the major airlines became too inefficient and the major airlines abandoned those unprofitable routes. Proponents of deregulation felt that smaller airlines, flying smaller airplanes would pick up routes left empty by the larger airlines.

This section will investigate the impact of the ADA on smaller communities. Some communities are guaranteed air service through 1988 because they have been designated as "essential service" communities (see Appendix B for specific communities). The ADA changed the way in which subsidies for these essential routes are distributed to the airlines. The larger airlines were allowed to abandon these communities if a replacement was found. Another issue which is related to the above discussion is the acceptability of smaller airlines as replacements for the larger airlines. These smaller airlines may have filled the air transport service gap left by the larger airlines, however, the community may not find the smaller airplanes safe and acceptable.

Table 4.D.1 presents data relating to the number of departures and seats available per week by hub size. Large hubs have not substantially increased either departures or seats available. The percentage change

Table 4.D.1: Summary of Aircraft Departures and Available Seats by Hub Category, 1977-1982

	Large	Medium	Hub Size Small	Non	Total
Number of Communities					
1977-1980	24	36	71	528	659
1981	23	37	71	468	599
1982	23	37	65	457	582
Departures per week:					
Oct. 1, 1977	59,877	21,315	13,686	25,720	120,598
Oct. 1, 1978	65,760	20,147	15,354	27,332	128,593
Oct. 1, 1979	68,415	24,529	15,524	29,375	137,843
Oct. 1, 1980	64,613	22,363	14,403	25,951	127,330
Oct. 1, 1981	61,524	23,552	13,256	24,308	122,650
Oct. 1, 1982	65,806	27,620	14,342	26,066	133,834
Percentage Change:					
1977-1980	9.0%	22.8%	4.6%	1.3%	9.9%
1977-1978	8.9	17.8	10.9	5.9	6.2
1978-1982	0	27.0	-7.0	-0.5	3.9
Available Seats per Week:					
Oct. 1, 1977	6,760,367	2,120,114	1,157,428	940,433	10,978,342
Oct. 1, 1978	7,419,386	1,926,119	1,277,942	892,897	11,516,344
Oct. 1, 1979	7,716,650	2,265,432	1,215,709	938,955	12,136,746
Oct. 1, 1980	7,249,534	2,036,635	1,137,123	837,112	11,260,404
Oct. 1, 1981	NA	NA	NA	NA	NA
Oct. 1, 1982	7,812,346	2,465,008	1,143,262	866,289	12,286,905
Percentage Change:					
1977-1982	13.5%	14.0%	-1.2%	-8.5%	10.6%
1977-1978	6.1	-3.2	4.6	-0.2	5.0
1978-1982	5.0	21.8	-11.8	-3.1	6.3

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

in departures from 1978 to 1982 was 0% and the change in available seats per week for the same period was a mere 5%. Medium hubs have increased both seats and departures, departures rose 27% between 1978 and 1982, and seats rose 21.8% for the same period. Small and non-hubs have lost both seats and departures, -11.8% and -3.1% drop in seats, and -7% and -.5% drop in departures respectively. Medium hubs seem to be the "winners" since deregulation. The airlines have been improving services to these communities at the expense of the smaller communities. The airlines seemed to increase traffic to all communities in 1979, the first full year under deregulation. 1980 saw a drop in service to all hubs, due in all probability to the economic recession. 1982 shows improvement in seats and departures for all of the hubs, with small and non-hubs still below the level of seats and departures offered in 1977 and 1978.

About 70% of large hubs have increased both seats and departures since deregulation. Small hubs have not fared well, with a little more than a third increasing seats and departures and 42% losing both seats and departures (Table 4.D.2). These data reveal nothing about the quality of service. Those small communities losing trunk or local service may now be serviced by small commuter airlines. Not only have seats and departures decreased since deregulation, but the number of seats per departure has also decreased under deregulation (Table 4.D.3). This would indicate the use of smaller planes. As just about anyone who has flown these commuters can testify, they are not as convenient or comfortable as the larger planes. Safety records of commuter airlines, although improving, have not been as impressive as those of the major and local carriers. The data in table 4.D.4 reveal that both small and

Table 4.D.2: Distribution of Departure Changes by Hub Size, December 1982 vs. December 1978.

<u>Changes Departures</u>	<u>Seats</u>	<u>Number of Hubs</u>		
		<u>Large</u>	<u>Medium</u>	<u>Small</u>
Increase	Increase	16	17	21
Increase	Decrease	1	6	10
Decrease	Increase	4	2	5
Decrease	Decrease	<u>2</u>	<u>1</u>	<u>26</u>
Total		23	35	62

Percentage Changes in Distribution of Departure Changes by Hub Size, 1978-1982

<u>Changes Departures</u>	<u>Seats</u>	<u>Percentages of Hubs</u>		
		<u>Large</u>	<u>Medium</u>	<u>Small</u>
Increase	Increase	69.6%	48.6%	33.9%
Increase	Decrease	4.3	17.1	16.1
Decrease	Increase	17.4	5.7	8.1
Decrease	Decrease	<u>8.7</u>	<u>28.6</u>	<u>41.9</u>
Total		100.0	100.0	100.0

Source: CAB

Table 4.D.3: Seats Per Departure, December, 1978 vs. December, 1982

<u>Hub Class</u>	<u>Dec.1978</u>	<u>Dec.1982</u>	<u>% change</u>
Large	111.3	117.0	5.1%
Medium	95.9	93.5	-2.5
Small	84.6	77.8	-8.0
Non-hub	37.6	32.8	-12.8
Total	88.8	91.5	3.0

Source: CAB

Table 4.D.4: Distribution of Departure Changes for Small and Non-hubs,
1979-1981

<u>Change</u>	<u>Small</u>	<u>Number of Hubs</u>	
		<u>Non-hub</u>	<u>Total</u>
1979			
Increase	30	174	204
No Change	1	65	66
Decrease	40	241	281
<u>Passenger Enplanements:</u> <u>(millions)</u>	26.9	6.2	33.1
1980			
Increase	31	189	220
No Change	1	46	47
Decrease	40	237	277
<u>Passenger Enplanements:</u> <u>(millions)</u>	23.4	6.2	29.6
1981			
Increase	35	146	181
No Change	0	36	36
Decrease	30	275	305
<u>Passenger Enplanements:</u> <u>(millions)</u>	20.9	5.7	26.6

Source: CAB

non-hubs have had fewer enplanements since 1978. Some of the decreases in enplanements can be explained by the general downturn in the industry, but enplanements at large hubs decreased 13% from 1978 to 1981 while medium hubs increased enplanements by 2%. The small and non-hubs both had decreases in enplanements, 22% and 8% respectively. The decrease in enplanements, especially for small hubs seems to reflect more than the downturn due to the recession. The small hubs were the most likely to have lost service by the majors. Non-hubs were probably serviced by commuters before deregulation, and passengers have not been as affected by deregulation as those at small hubs.

Not only are departures and seats declining, but many communities are losing service completely. Table 4.D.5 indicates that 2,371 markets have lost single plane service between 1978 and 1982, while 1,818 markets have gained new single-plane service, 553 more communities losing service than gaining it. The number of competitive markets has shown a net increase. Deregulation has encouraged more competition in some of the smaller communities previously served by only one airline.

The impacts of the ADA on service to small communities have been mixed and depend upon which experts one reads. Gary Dorman reports that deregulation has improved the quality of air service to small communities. He found that travel times have decreased by about an hour for passengers using the small and non-hubs. He credits this to the increased number of flights now offered by airlines flying smaller aircraft. According to the data presented in Tables 4.D.1, 4.D.2 and 4.D.4, these increases in the number of departures have not occurred in most of the small and non-hubs. Most studies have found that there has been a net reduction in the quality and quantity of air service to most

Table 4.0.5: Changes in Markets Receiving Single-Plane Service and Competitive Service, August, 1982 vs. August, 1978

	<u>Number of Markets</u>
New Single-plane Service 1/	1,818
Deletion of single-plane service 2/	2,371
Net Change in Single-plane markets	-553
New Competitive Service 3/	540
Deletion of Competitive Service 4/	293
Net Change in Competitive Markets	+247

1/ Markets with no single-plane service shown in August 1, 1978 Official Airline Guide (OAG) but with one or more carriers shown in August 1, 1982 OAG.

2/ Markets with one or more carriers shown as providing single-plane service in the August 1, 1978 OAG but with no carriers shown in the August 1, 1982 OAG.

3/ Markets with one carrier shown as providing single-plane service in the August 1, 1978 OAG and two or more carriers shown in the August 1, 1982 OAG.

4/ Markets with two or more carriers shown as providing single-plane service in the August 1, 1978 OAG and only one carrier shown in the August 1, 1982 OAG.

Source: CAB AIR CARRIER FINANCIAL STATISTICS

small and medium sized communities (Simat, Hellison and Eichner, January, 1982, p.1 and GAO, 1983).

Airline service is very important to small communities, as pointed out previously in the discussion of Fares. Business firms look for airline service as a prerequisite before locating new facilities. Small communities are at a disadvantage if they have lost service.

"Chattanooga for example, lost several large industrial relocations when a number of industries which were ready to move to the Chattanooga area indicated that, because of the declining airline service offered, they had decided not to locate in the area" (n/e/r/a topics, January, 1982).

Some communities have been guaranteed service through 1988. Service is guaranteed through subsidies to the airlines serving these communities. Subsidies have a long history with the aviation industry. At first airlines were subsidized for carrying mail. From 1961 through 1977, airlines were on a class-rate system. Subsidies were paid based on a formula derived from the industry average performance. Carriers were supposed to be rewarded for better than average performance. The CAB adjusted the system over the years and some of these incentives had been blunted.

The ADA amended Section 406 of the Federal Aviation Act of 1958 which provided subsidies to airlines serving small communities. Subsidies are now based on the needs of the community, rather than on the total system needs of the carrier. The Act also stated that "any point which was receiving or authorized to receive service by certificated carrier when the Act became law (Oct. 24,1978) will receive an 'essential' level of service for the next ten years," (CAB, AIR CARRIER TRANSPORTATION STATISTICS, 1978). (Communities losing service

completely were not served by certificated carriers, commuters are not certificated.) Levels of subsidies paid under Section 406 and the new Section 419 are outlined in Table 4.D.6. Subsidies declined markedly in 1982.

Table 4.D.7 lists the airlines receiving subsidies. By 1982, the airlines receiving subsidies are predominantly the newer airlines with smaller airplanes. These airlines have taken up the smaller routes.

There are 319 communities covered by the Essential Air Service (EAS). Each of these communities is served by only one carrier (see Appendix A for a list of essential service communities). The guidelines set by the EAS for these communities provide for sufficient available seats at a 50% load factor to accommodate the historic level of passenger enplanements, up to a maximum of eighty seats daily in each direction, direct service to one or more hub airports and a minimum of two well-timed flights daily. If a carrier desires to terminate service to one of these communities, they must file a termination notice. A replacement must be found before the carrier can exit from the community. If a replacement cannot be found, the carrier becomes eligible to be compensated for any losses incurred while keeping service at the levels required by the CAB. Carriers filing termination notices are listed in Table 4.D.8.

A recent GAO report has concluded that "the number of passengers using air service at subsidized essential air service communities decreased 50% since deregulation became effective in 1978, and unless circumstances change, carriers are likely to drop or substantially reduce service to the subsidized communities when the program ends in 1988," (AVIATION WEEK AND SPACE TECHNOLOGY, 13 June 1983, p.41). The

Table 4.D.6: Subsidy Outlays for Service to Essential Service Communities,
by Section (in thousands of dollars), 1970-1982

<u>Fiscal Year</u>	<u>Section 406 Subsidy</u>	<u>Section 419 Subsidy</u>	<u>Total</u>
1970	36,546		36,546
1971	55,152		55,152
1972	62,977		62,977
1973	72,223		72,223
1974	73,362		73,362
1975	63,581		63,581
1976	71,343		71,343
1977 */	79,787		79,787
1978	73,999		73,999
1979	72,665	380	73,045
1980	80,867	9,438	90,305
1981	94,433	13,837	108,270
1982	45,582	18,667	64,249

*/ Fiscal Year change from twelve months ending June 30 to twelve months ending September 30, 1976, not included.

Source: CAB Budget Estimates, Salaries and Expense Payments to Air Carriers,
Fiscal Years 1972-1982

Table 4.0.7: Airlines Receiving Subsidies for Serving Essential Service Communities, 1967-1982

<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>
Air West	Air West	Air West	Air West	Allegheny
Allegheny	Allegheny	Allegheny	Allegheny	Frontier
Bonanza	Bonanza	Frontier	Frontier	Hughes
Central	Frontier	Mohawk	Hughes	Mohawk
Frontier	Lake Central	North Central	Mohawk	North Central
Lake Central	Mohawk	Ozark	North Central	Ozark
Mohawk	North Central	Piedmont	Ozark	Piedmont
North Central	Ozark	Southern	Piedmont	Southern
Ozark	Piedmont	Texas Int.	Southern	Texas Int.
Piedmont	Southern	Kodiak	Texas Int.	Kodiak
Southern	Texas Int.	Western Alaska	Kodiak	Western Alaska
Texas Int.	West Coast	Wien Consolid.	Western Alaska	Wien Consolid.
West Coast	Alaska Coastal	Alaska	Wien Consolid.	Alaska
Alaska Coastal	Cordova		Alaska	
Cordova	Kodiak			
Kodiak	Western Alaska			
Western Alaska	Wien Alaska			
Wien Alaska	Wien Consolid.			
Wien Consolid.	Alaska Int. + Terr.			
Alaska Int. + Terr.				
<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Allegheny	Allegheny	Allegheny	Allegheny	Allegheny
Frontier	Frontier	Frontier	Frontier	Frontier
Hughes	Hughes	Hughes	Hughes	Hughes
Mohawk	North Central	North Central	North Central	North Central
North Central	Ozark	Ozark	Ozark	Ozark
Ozark	Piedmont	Piedmont	Piedmont	Piedmont
Piedmont	Southern	Southern	Southern	Southern
Southern	Texas Int.	Texas Int.	Texas Int.	Texas Int.
Texas Int.	Kodiak	Kodiak	Kodiak	Kodiak
Kodiak	Western Alaska	Wien Consolid.	Wien Consolid.	Wien Consolid.
Western Alaska	Wien Consolid.	Alaska	Alaska	Alaska
Wien Consolid.	Alaska		New England Air	New England Air
Alaska				

(continued on next page)

Table 4.D.7 cont.

<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Air Midwest	Air Midwest	Air Midwest	Air Midwest	Air Midwest
Air New England	Air New England	Air New England	Air New England	Air New England
Frontier	Frontier	Frontier	Frontier	Frontier
Hughes Airwest	Hughes Airwest	Hughes Airwest	Hughes Airwest	Hughes Airwest
North Central	North Central	North Central	North Central	North Central
Ozark	Ozark	Ozark	Ozark	Ozark
Piedmont	Piedmont	Piedmont	Piedmont	Piedmont
Texas Int.	Southern	Southern	Southern	Southern
Alaska	Texas Int.	Alaska	Alaska	Alaska
Kodiak-Western	Alaska	Kodiak-Western	Kodiak-Western	Kodiak-Western
Southern	Kodiak-Western	Wien Air Alaska	Wien Air Alaska	Wien Air Alaska
Wien Air Alaska	Wien Air Alaska	Republic	Aspen	Republic
			Cascade	Aspen
			Mississippi Val	Cascade
			Aeromech	Mississippi Val
			Air North	Aeromech
			Big Sky	Air North
			Cochise	Big Sky
			Mid South	Cochise
				Mid South
				New Air
				Sky West
				United
				Western
<u>1982</u>				
Air Midwest	Mississippi Valley			
Air New England	Aeromech			
Frontier	Air North			
Ozark	Big Sky			
Piedmont	Cochise			
Alaska	Mid South			
Kodiak	New Air			
Wien Air Alaska	Sky West			
Republic	United			
Aspen	Western			
Cascade	Golden West			

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.D.B: Points for which a Carrier Filed a 401(j) or 419 Termination Notice to Receive Subsidy Support to Continue its Service

<u>Point</u>	<u>Carrier</u>	<u>Date Filed</u>
1. Alpena, MI	Simmons	9/30/81
2. Athens, GA	Atlantic Southeast	9/1/81
3. Bakersfield, CA	Golden Gate	9/9/81
4. Beckley, WV	Aeromech	9/1/81
5. Bluefield, WV	Aeromech	9/1/81
6. Clarksburg, WV	Aeromech	9/1/81
7. Clovis, NM	Air Midwest	8/18/81
8. Columbia, MO	Air Midwest	8/18/81
9. Elkins, WV	Aeromech	3/17/80
10. Elko, NV	Golden Gate	9/9/81
11. Ely, NV	Golden Gate	9/9/81
12. Gadsden, AL	Southeast Commuter	8/24/81
13. Hagerstown, MD	Henson	9/8/81
14. Hazelton, PA	Air Pennsylvania	5/17/80
15. Hot Springs, AR	Rio	8/14/81
16. Lewiston, MI	Cascade	9/15/81
17. Liberal, KS	Air Midwest	8/18/81
18. Manitowoc, MI	Simmons	9/30/81
19. Menominee, MI	Simmons	9/30/81
20. Merced, CA	Golden Gate	7/16/81
21. Morgantown, WV	Aeromech	9/1/81
22. Moses Lake, WA	Cascade	4/2/80
23. New Bern, NC	Mid-South	8/17/81
24. Newport News, VA	Henson	9/18/81
25. North Bend, OR	Air Oregon	9/9/81
26. Pendleton, OR	Air Oregon	9/9/81
27. Pullman, WA	Cascade	9/15/81
28. Roswell, NM	Air Midwest	8/18/81
29. Salem, OR	Air Oregon	9/9/81
30. Salisbury, MD	Henson	9/8/81
31. San Luis Obispo, CA	Swift Aire	9/9/81
32. Santa Rosa, CA	Westair	7/22/80
33. Sheridan, WY	Air US	9/11/81
34. Staunton, VA	Henson	9/8/81
35. Stockton, CA	Golden Gate	9/4/81
36. Walla Walla, WA	Cascade	9/15/81
37. Wenatchee, WA	Cascade	9/12/80
38. Worcester, MA	Bar Harbor	9/8/81
39. Lake Charles, LA	Texas International	12/4/81

Source: CAB AIR CARRIER FINANCIAL STATISTICS

report also observed that many of the communities requiring service could neither support service without subsidies nor actually require that service. Other communities needed service and could support service, but had none.

Passenger enplanements in subsidized communities have fallen so drastically because of the slow economy, and as the report points out, "passengers were faced with higher fares, smaller aircraft, inconvenient scheduling, unreliable service and frequent changes of carriers." They found that instead of using the commuters, passengers were driving to nearby larger airports.

The GAO study concluded that the subsidy program should be more flexible, and responsive to the needs of the communities. They also recommended that many communities that are unlikely to support air service after 1988 have subsidies discontinued.

Summary

Although some small communities have benefited from deregulation, most have been hurt by the higher fares, inconvenient scheduling, unreliable service and frequent changes in carriers. Enplanements, departures and seats have all decreased in small and non-hubs since 1978. These impacts were Calculated, Nonpreferred. The law makers attempted to deal with this situation through the creation of the Essential Service Community structure, guaranteeing service to certain communities through 1988. Unfortunately, this solution has been a failure and may be considered to be an Uncalculated, Nonpreferred impact of the ADA.

As the GAO report indicated, the CAB might well reevaluate the present system of subsidies for airlines serving small communities.

Rather than encouraging good service, as intended by the ADA, the opposite seems to have occurred.

E:FUEL CONSUMPTION

Opponents of the ADA felt that with increased competition there would be wasteful fuel consumption. There might be several planes flying when only one was necessary. In Table 4.E.1, we can see that fuel consumption has increased since deregulation, from 8 billion gallons in 1977 to 10 billion gallons in 1982, an increase of 20%. Enplanements also increased during this period, but was this rise in fuel consumption justified? Table 4.E.2 reveals that fuel consumption per enplanement dropped after 1977, but began to rise to 36.56 gallons per enplanement in 1982. It would appear then that there has been some wasteful consumption of fuel, especially taking into account the technological improvements in equipment since the 1970's.

The most efficient aircraft type depends upon the stage-length it is used to serve. The larger aircraft are too large for short-haul markets yet are the most economical on longer trips. Table 3.E.3 shows the operating costs for the most commonly used aircraft. The B-747 is the most economical airplane to fly at 3.7 cents per RPM, but one must fly over 2500 miles. The older DC-9-30 is more expensive to fly than the newer, larger DC-10-10 and B-747.

The more successful airlines are replacing their older, less efficient planes with newer ones. USAir, for instance, has purchased fifteen B-737-200's to replace eleven of its older 727-100's. The newer planes cost 30% less to operate (Schiffres, p.63). Other advances in fuel saving technologies include Sperry's new performance management computer systems, which decrease fuel consumption by at least 3% in older B-737's and B-727's. When used in the newer B-767's and B-757's, it enables the pilot to use the most efficient pattern on take-off,

Table 4.E.1: Total Gallons of Fuel Used by Domestic Trunks and Local Service Airlines, 1976-1982

<u>Year</u>	<u>Gallons of Fuel Consumed</u>	
	<u>Trunks</u>	<u>Local Service</u>
1976	7,043,139,120	766,018,906
1977	7,373,905,335	828,195,264
1978	NA	NA
1979	7,848,767,441	1,017,117,993
1980	7,424,555,200	1,094,677,924
1981	7,263,414,996	1,286,248,278
1982	10,000,000,000	

Source: CAB FUEL PRICES AND CONSUMPTION

Table 4.E.2: Total Fuel Consumed and Revenue Passenger Enplanements for Domestic Certificated Airlines, 1970-1982

<u>Year</u>	<u>Fuel Consumed (000)</u>	<u>Enplanements (000)</u>	<u>FC/E</u>
1970	7,736,157	153,662	50.34
1971	7,681,822	156,195	49.18
1972	7,830,557	172,452	45.41
1973	8,354,000	183,272	45.58
1974	7,509,000	189,724	39.58
1975	NA	188,746	-
1976	7,043,139	206,279	37.86
1977	8,202,100	222,283	36.90
1978	NA	253,960	-
1979	8,865,885	292,537	30.31
1980	8,519,233	272,771	31.23
1981	8,549,663	265,107	32.25
1982	10,000,000	273,494	36.56

Source: CAB

Table 4.E.3: Comparison of Direct Aircraft Operating Costs for Domestic Trunks, 12 Months ending June 30, 1981, at 60% Load Factor

Aircraft Type	Cost Per RPM in Cents					
	DC-9-30	DC-737-200	B-727-100	B-727-200	DC-10-10	B-747
Seats	115	121	125	164	371	500
<u>Mileage</u>						
200	12.0	11.7	14.0	12.1	12.5	15.4
400	8.3	8.1	9.5	8.1	7.8	9.0
600	7.1	6.9	8.0	6.8	6.2	6.9
800	6.5	6.3	7.2	6.2	5.5	5.9
1000	6.1	6.0	6.8	5.8	5.0	5.2
1250	-	-	6.4	5.5	4.6	4.7
1500	-	-	6.2	5.2	4.4	4.4
1750	-	-	-	-	4.2	4.1
2000	-	-	-	-	4.0	4.0
2250	-	-	-	-	3.9	3.8
2500	-	-	-	-	3.9	3.7

The cost comparisons are based on the DPFI Costing Methodology Version Six, developed by the Financial and Cost Division of the CAB's Office of Economic Analysis. The comparisons are based on trunk costs for the year ending June 30, 1981. Aircraft capital costs are based on used aircraft prices for aircraft at the midpoint of a sixteen year life. The used aircraft prices are DC-9-30= \$5.1 million; B-737-200= \$6.3 million; B-727-100= \$2.5 million; B-727-200= \$6.5 million; DC-10-10= \$20.0 million; and B-747= \$24.5 million. Airlines return on equity was assumed to be the average of all manufacturing.

Seating densities were assumed equal to the greatest number of seats on an aircraft currently in operation.

Source: Graham and Kaplan December, 1982, p.80.

cruising and landing, and only requires a two-person crew. There is also a high-bypass engine which permits fuel consumption to be reduced by 25% or more and finally, the use of light weight composite materials which are stronger than aluminum but reduce the weight of the plane by 25% and thus saving fuel (Rukeyser, 28 February, 1983).

Summary

Although some wastefulness has occurred since deregulation, improvements in technologies will allow the airlines to operate more efficiently, if they have the capital to purchase new equipment or to update present equipment. These improvements in technology are Calculated and Preferred impacts.

The amount of fuel consumed per enplanement has slowly risen since 1977. This wasteful use of fuel had been Calculated but Nonpreferred. It would seem then that competition has brought about a situation where there are too many seats for the demand, making it wasteful to fly as many planes as have been flown recently. Future efficiency depends upon replacing older equipment with newer, more fuel efficient aircraft and by the industry better reflecting market demands for service.

F: MERGERS, AIRLINES IN TROUBLE AND NEW ENTRIES

The number of certificated route air carriers has more than tripled from thirty in 1978 to ninety-eight in 1982. The ADA has made entry into the airline industry much easier. The CAB had protected the airline industry from competition within the industry and from new entries. The CAB froze the industry, allowing no new majors since 1935 and only one or two local airlines since 1949 (Table 4.F.1).

The newly certificated carriers were made up of new entrants, those who were not involved in the industry, Part 298 carriers, all-cargo and supplemental carriers, for a total of eighty-nine new entries into the industry. Of this number, twenty-nine had yet to begin service, five went out of business and there were ten pending applications in 1982 (Table 4.F.2). The ADA had definitely generated many new entrants into the airline industry.

Between 1975 and 1978, there were only three new airlines certificated. Table 4.F.3 lists the newly certificated airlines from 1975 through 1982 (excluding former intrastate carriers). It would seem then that the industry has been stimulated by deregulation.

Many opponents to the ADA feared that although there would be an increase in the number of airlines at first, the larger, stronger airlines would begin to take over the smaller airlines, ultimately creating monopoly situations. There have been seven mergers since 1979 (Table 4.F.4). There had not been any mergers between 1973 and 1979. It would seem that the seven mergers since deregulation were significant, however, when one reviews the history of mergers since 1941, the seven mergers do not seem excessive, they in fact are negligible with respect to past patterns of mergers within the industry.

Table 4.F.1: Number of Certificated Route Air Carriers in Operation,
1926-1982

<u>Year</u>	<u>Majors</u>	<u>Locals</u>	<u>Other</u>	<u>Alaska</u>	<u>Hawaii</u>	<u>Total</u>
1926	13					13
1927	16					16
1928	31					31
1929	34					34
1930	38					38
1931	35					35
1932	29					29
1933	24					24
1934	22					22
1935	23					23
1936	21					21
1937	17					17
1938	16				1	17
1939	16				1	17
1940	16				1	17
1941	16				1	17
1942	16				1	17
1943	16			NA	1	17
1944	16			NA	1	17
1945	16	1		NA	1	18
1946	16	5		NA	1	22
1947	16	8	1	NA	1	26
1948	16	12	1	8	1	38
1949	16	19	2	8	2	47
1950	16	19	2	9	2	48
1951	16	17	2	9	2	46
1952	16	16	3	7	2	44
1953	14	15	3	7	2	41
1954	13	14	3	7	2	39
1955	13	14	3	7	2	39
1956	13	13	3	7	2	38
1957	12	13	3	6	2	36
1958	12	13	3	6	2	36
1959	12	13	3	6	2	36
1960	12	13	3	8	2	38
1961	12	13	3	8	2	38
1962	11	13	3	9	2	38

(continued on next page)

Table 4.F.1 continued

<u>Year</u>	<u>Majors</u>	<u>Locals</u>	<u>Other</u>	<u>Alaska</u>	<u>Hawaii</u>	<u>Total</u>
1963	11	13	4	7	2	37
1964	11	13	4	7	2	37
1965	11	13	4	7	2	37
1966	11	13	4	7	2	37
1967	11	13	5	7	2	38
1968	11	12	5	7	2	37
1969	11	9	6	4	2	32
1970	11	9	7	4	2	33
1971	11	9	7	4	2	33
1972	11	9	7	4	2	33
1973	11	8	2	5	2	28
1974	11	8	2	5	2	28
1975	11	9	2	5	2	29
1976	11	8	4	5	2	30
1977	11	9	4	5	2	31
1978	11	8	4	5	2	30
1979	11	9	20	5	2	47
1980	11	9	31	5	2	58
	<u>Majors</u>	<u>Nationals</u>	<u>Large Regionals</u>	<u>Medium Regionals</u>	<u>Total</u>	1/
1981	12	17	22	35	86	
1982	12	17	18	51	98	

1/ The CAB changed the way in which it categorized carriers beginning in 1981.

Source: CAB

Table 4.F.2: New Entries into the Domestic Airline Industry, January 1, 1978- August 31, 1982

		a/	b/
New Entrant	34	22	1
Former Intrastate Carrier	4	-	-
Former Part 298 Carrier	44	5	3
Former All-Cargo	3	2	-
Former Supplemental	<u>4</u>	<u>-</u>	<u>1</u>
Total	89	29	5

a/ 29 had not commenced operations by August 31, 1982

b/ 5 ceased service before August 31, 1982

10 applications were pending

(9 of these had been processed in 1982)

Source: CAB

Table 4.F.3: Newly Certificated Airlines, 1975-1982

<u>Year</u>		<u>Year</u>	
1975	Air New England 1/	1979	Colgan
1976	Munz Northern		Midstate
	Air Midwest		Muse
1978	Air Wisconsin		PEOPLExpress
1979	Air California		Rocky Mountain
	Air Florida		Sea Airmotive
	Altair		T-Bird/ San Diego
	Apollo 1/		Western Yukon
	Big Sky		Sun Land 1/
	Cochise		Air North/Nenana
	Coleman 1/		Best
	Golden West		Emerald
	Mackey 1/		Hawaii Express
	Mississippi Valley		Jet America
	New Haven		L.A.B.
	Pacific Southwest		Northeastern
	Sky West		Pacific East
	Southeast		Pacific Express
	Southwest		Peninsula
	Swift Aire		
	Transamerica		
	Alaska International		
	Aeromech		
	Capital		
	Cascade		
	Empire		
	Golden Gate 1/		
	New York Air		
	World		
	Great American 1/		
	Imperial		
	Mid-South		
	Midway		
	Air Nevada		
	American Eagle		
	American Trans Air		
	Britt		

1/ Ceased operations

Source: CAB

The large airlines are not "gobbling-up" the smaller airlines.

As we have seen in past sections, the larger airlines are not overpowering the smaller ones. Indeed, it is the smaller airlines that are doing better than the larger airlines. Two major airlines, Braniff and Continental, filed for reorganization under Chapter 11 of the Federal Bankruptcy Act in May of 1982 and September of 1983 respectively. Other large airlines, TWA, Pan Am, Eastern and United are all in deep financial debt. Was deregulation responsible for their problems? Certainly, the recessions in 1980 and 1981 contributed to the losses suffered by the airlines. An inspection of the financial statements of four airlines, TWA, Pan Am, Braniff and United, reveals that both TWA and Pan Am suffered losses almost continuously from 1975 for TWA and from 1971 for Pan Am. Both Braniff and United were in financially healthy shape in the years preceding 1978. Braniff had not suffered any losses in the period between 1964 and 1978 (Table 4.F.5).

Braniff reacted to the deregulated environment as proponents of the ADA envisioned the airlines should react. As one industry insider put it, Braniff was "like a child in a candy store." New aircraft were purchased and Braniff aggressively entered new markets. But the expansion occurred too quickly; the weakening economy and the increased competition could not support Braniff's rapid expansion and along with other airlines, Braniff was hit with rapidly rising fuel prices.

United, although more conservative than Braniff, suffered from the economy, competition and fuel prices as well. The larger airlines could not meet the low prices of the newer airlines and make profits. The majors had higher overhead, larger airplanes and had higher paid employees. In order to stay in business, many of the

Table 4.F.4: Mergers and Acquisitions, Certificated Air Carriers, 1941-1982

<u>Year</u>	<u>Date</u>	<u>Surviving Airlines</u>	<u>Absorbed Airlines</u>
1941	4/30	Pan Am	Panama Airways
	5/5	Pan Am	Pacific Alaska
	8/8	Pan Am	Pan Am (Nevada)
	12/5	Transcontinental and Western	Marquette Airlines
1942	1/14	Pan Am	Pan Am (Delaware)
	3/2	Alaska Coastal	Alaska Air Transport and Marine
1943	11/10	Alaska Airlines	Lavery Airways and Pollock Flying Service
1945	1/5	Northeast	Mayflower
	6/1	American	American Export Airlines
1947	12/1	Northern Airways	Gillam Air Lines
	12/1	Ray Petersen Flying Service	Bristol Bay Air Service and Jim Podson Air Service
	12/1	Northern Consolidated	Ray Petersen, Northern, Walatka Air and Northern Air
1948	1/21	Alaska Island Airways	Petersburg Air
1949	6/25	Wien Alaska	Ferguson Airway
1950	6/1	Monarch	Arizona, Challenger
	6/1	Frontier	Monarch
	8/23	Bristol Bay Airlines	Dillingham Air Services
	9/9	Pan Am	American Overseas Airlines
1951	1/12	Byers Airways	Lon Brennan
1952	4/10	Western	Island Air Lines
	8/4	West Coast	Empire
	8/16	Braniff	Mid-Continent
1953	5/1	Delta	Chicago and Southern
1955	1/21	Howard J. Mays	Munz Airways
	4/1	Continental	Pioneer Air Lines
1956	3/3	Cordova	Christensen Air Service
	6/1	Eastern	Colonial Airlines
	7/9	Wien Alaska	Byers
	12/3	Mackey	Midet Aviation
1961	6/1	United	Capital
1962	4/1	Alaska-Coastal-Ellis	Alaska Coastal and Ellis
1967	1/8	Eastern	Mackey
	2/1	Braniff	Pan Am-Grace Airways
	7/1	Western	Pacific Northern
	10/1	Frontier	Central

(Continued on next page)

Table 4.F.4 continued

<u>Year</u>	<u>Date</u>	<u>Surviving Airlines</u>	<u>Absorbed Airlines</u>
1968	2/1	Alaska	Alaska Coastal
	4/1	Northern Consolidated	Wien Alaska
	4/17	Pacific Airlines	Bonanza, West Coast
	7/1	Allegheny	Lake Central
1970	4/3	Hughes Air Corp. d/b/a Air West	Air West
1971	3/2	American	Trans-Caribbean Airways
1972	4/12	Allegheny	Mohawk
	8/1	Delta	Northeast
1973	4/1	Kodiak-Western Alaska	Western Alaska
	5/15	Eastern	Caribbean-Atlantic
1979	7/1	Republic	North Central and Southern
	12/1	Pan Am	National
1980	10/1	Alaska International	Great Northern
	10/1	Flying Tiger	Seaboard
	10/1	Republic	Hughes
1961	9/1	T-Bird	San Diego
1982	7/1	Continental	Texas Air/Continental-- Identities remain

Source: CAB AIR CARRIER TRANSPORTATION STATISTICS

Table 4.F.5: Airlines in Trouble, Profit or Loss of Selected Airlines, 1964-1982

<u>Year</u>	<u>TWA</u>	<u>Braniff</u> (\$000)	<u>Pan Am</u>	<u>United</u>
1964	50,892	11,226	NA	45,037
1965	49,781	13,262	NA	72,305
1966	35,850	21,569	NA	53,604
1967	16,222	3,433	NA	82,319
1968	-6,740	11,672	NA	68,154
1969	-20,235	12,601	20,204	119,314
1970	-91,783	1,522	1,136	-20,989
1971	-3,254	14,049	-5,501	34,713
1972	57,647	14,831	-4,738	75,940
1973	NA	NA	NA	NA
1974	21,117	39,630	-28,482	179,506
1975	-72,479	39,465	-12,535	-5,380
1976	-7,744	42,964	3,811	33,991
1977	-27,153	54,821	-14,589	79,991
1978	2,441	44,379	-26,526	289,447
1979	-48,496	-23,169	-39,960	-236,543
1980	-41,126	-57,167	-84,973	-67,929
1981	-54,925	-80,155	-229,360	-147,729
1982	-155,013	-115,976	-246,276	-123,656

Source: CAB AIR CARRIER FINANCIAL STATISTICS

airlines are requesting employees to take pay cuts.

Continental Airlines filed for reorganization on September 24, 1983, suspending all domestic flights for a few days and then resumed service to only twenty-five of its seventy-eight previous destinations. Eastern Airlines was near bankruptcy when its president, Frank Borman, asked employees to take 20% salary cuts and lose one quarter of their vacation time. Borman is only receiving a salary of \$1. a month.

A brighter spot for the airline industry was the re-entry of Braniff into the market in 1984. It has become a much smaller, leaner operation since filing for reorganization.

Summary

The number of airlines in the market has increased over three times since deregulation. This increase was Calculated, Preferred. But the question of whether the air transportation market can support all of these new airlines remains open. Although opponents of deregulation feared these new airlines would be overwhelmed by the larger ones, the opposite seems to be occurring. The major airlines have not adapted well to the deregulated environment. Some have made some disastrous decisions, as was the case with Braniff. The major airlines have faced problems resulting from their higher overhead and higher labor costs, and they have not been able to match the low fares of the new airlines and remain profitable. These results are Uncalculated, Nonpreferred impacts.

It seems likely that several more major airlines will reorganize to cope with financial difficulties. The upturn in the economy in 1983 and 1984 has helped most of the airlines, but it seems that a few of them

are too deeply in debt to reverse their fortunes.

The future will probably see the reorganization of at least several more of the major airlines. The upturn in the economy in 1983 and 1984 has helped most of the airlines, but it seems that a few of them are too deep in debt to reverse their fortunes.

G: AIRPORTS

Airports have had to adapt to the deregulated environment. In the past, airports could plan to serve a very stable industry. They had forty-year leases with airlines. In the deregulated environment, this predictability has evaporated. Airlines are free to enter and exit routes at will, making long term leases impractical. Some airports, especially in the sunbelt were unprepared for the increase in the volume of traffic created by the new freedom. In the past, they could determine what demand would be and prepare for it: deregulation has made this impossible to anticipate.

The number of airports has risen since 1978 by about 4%. The number of "stolports" (for short take-off and landing aircraft) will probably continue to increase in the future. With the congestion in and around major metropolitan areas, these types of aircraft will become more and more practical (Table 4.G.1).

Many airports feared deregulation would make financing of expansion and modernization more difficult because of the uncertain environment. The government has continued to fund airport development and in 1981 it provided almost \$4 billion to fund 4,388 projects in 712 airports (Table 4.G.2). Private funding has been more expensive for the airports. The City of Atlanta, for example, sold \$85.4 million worth of bonds to finance a fourth runway at Hartsfield International Airport. Moody's Investors Service downgraded the airport's credit rating from A to Baa 1, because of the problems of Eastern Airlines, a major user of the airport. Eastern flights account for 40% of Hartsfield's traffic. The downgrading meant that the net interest on these bonds was 9.293%, rather than the anticipated 9.26% (AVIATION AND SPACE TECHNOLOGY, 13

Table 4.G.1: U.S. Civil Joint-Use Airports, Stolports and Reported Abandonments on Record, 1972-1981

<u>Year</u>	<u>Total Aircraft Facilities</u>	<u>Airports</u>	<u>Stolports</u>	<u>Reported Abandonments</u>
1972	12,362	10,816	-	435
1973	12,656	10,930	-	352
1974	13,019	11,129	-	353
1975	13,207	11,192	35	245
1976	13,728	11,524	41	294
1977	14,069	11,679	41	293
1978	14,525	11,972	46	237
1979	14,693	12,030	50	456
1980	15,107	12,207	58	328
1981	15,422	12,393	57	376

Source: Federal Aviation Administration

Table 4.G.2: Airport Development Aid Program Status, December 31, 1972-
December 31, 1981

<u>Year</u>	<u>Total Federal Funds \$</u>	<u>Total Airports</u>	<u>Total Projects</u>
1972	537,112,000	400	659
1973	80,692,378,000	444	515
1974	1,064,164,148	578	1,571
1975	1,132,903,866	588	1,651
1976	1,516,143,078	613	2,026
1977	2,056,932,790	643	2,580
1978	2,586,706,000	669	3,112
1979	2,960,546,000	691	3,529
1980	3,326,570,000	701	3,966
1981	3,741,161,000	712	4,388

Source: Federal Aviation Administration

June 1983, p.33).

The new hub-and-spoke networks have also caused airports some problems. With a hub-and-spoke system, several flights are brought into a central location within a short time of one another, allow passengers to disembark and board common connecting flights which depart as quickly as possible. This creates several peak periods during the day with lulls in-between. At the Memphis International Airport, for instance, the peaks begin around 8:40 am, and end around 10 am with 38 arrivals and 24 departures, and in the afternoon around 1:30 to 4, when 39 flights arrive and 43 depart. The final peak occurs between 7 and 9 pm. The airport must staff itself to handle these peaks. Everything must run smoothly during the peaks or chaos results. Peaks create problems air traffic control problems, such as the scheduling of runways (AVIATION WEEK AND SPACE TECHNOLOGY, 4 April 1983, p.32).

Airlines which were in existence before deregulation tend to lease their own gates and build their own lounges at airports, and to have their own maintenance crews, baggage handlers, etc.. This creates very high overhead cost for them. The new entrants have made more flexible arrangements with other airlines. They tend to lease maintenance services from the established airlines, rather than providing their own. They share gates with other airlines and do not provide luxurious waiting rooms for passengers. All of this helps to keep their overhead low.

Most airports serving medium sized cities have increased the numbers of passengers they serve. This would support the earlier findings that service has increased to medium hubs and decreased at large hubs. Salt Lake City, despite problems discussed previously, had

increased the number of passengers it served in 1982 41% over 1981. Another "winner" is Charlotte, North Carolina, with an increase of 44.4% (Table 4.G.3). Charlotte is one of Piedmont's hubs.

Summary

Deregulation has proved to be a "mixed bag" for the airports. Some have done well, others have lost airlines and passengers. The airports serving medium sized cities seemed to have profited most from deregulation.

The government has continued to fund airport construction and improvements. A Calculated, Nonpreferred impact may be that borrowing money from the private sector may prove to be more expensive because of the uncertainty of the deregulated environment. Moody's Investors Service has downgraded the credit ratings of some airports, making interest payments higher because it was feared airports might be unable to pay off their loans if major airlines suddenly withdrew service.

Finally, the Uncalculated, Nonpreferred impacts include the new route systems which have forced the airports to adapt as well. The new hub and spoke systems create peaks and lulls of activities. Airports have had to staff for the peaks and then find ways to keep the employees busy during the lulls. This type of system does not spread flights out evenly throughout the day, and has caused delays as well as some safety concerns.

The ease of entrance and exit has also made it more difficult for airports to plan for demands. The uncertain environment has made the airport executive's task more difficult.

Table 4.G.3: Passenger Traffic at the Ten Busiest Airports in the U.S. and Eleven Other Selected Airports, 1982

<u>Airport</u>	<u>Passenger Total (Millions)</u>	<u>Change From 1981</u>
Chicago (O'Hare)	37.7	-0.7%
Atlanta	34.7	-7.6
Los Angeles	32.3	-1.0
New York (JFK)	26.4	2.5
Dallas- Fort Worth	24.7	5.1
Denver	24.5	6.6
San Francisco	22.3	6.7
Miami	19.3	-2.3
New York (La Guardia)	18.5	2.0
Honolulu	16.4	7.3
<u>Other Selected Airports</u>		
Boston	15.6	7.0
Washington (National)	13.3	-6.0
Pittsburgh	9.9	-1.5
Orlando	6.9	14.0
Salt Lake City	5.6	41.0
Baltimore	4.6	20.2
Cincinnati	3.3	19.3
Indianapolis	2.8	-1.7
Washington (Dulles)	2.6	12.3
Charlotte	2.0	44.4
Dayton	1.6	6.0

Source: Airport Operators Council International in the Wall Street Journal

H: CONSUMERS AND SAFETY

"The CAB has estimated that since deregulation the American traveling public has saved \$3.5 billion on fares," (Pillsbury, BOSTON GLOBE, 9 October 1983). These savings have been the result of fare wars in recent years. As the economy recovers however, there will be fewer fare wars. Finding the lowest fare can often be difficult and confusing for the consumer. According to Daniel F. May, President and Chief Executive Officer of Republic Airlines, Inc., "there may be as many as 15,000 changes in domestic air fares every day and that while many Americans are paying more than it costs for their air transportation, many others are paying considerably less," ("DOT's View of Airline Deregulation, TRANSPORTATION WORLD, 20 June 1983). Consumers traveling on the highest density routes are the ones who saved the most. Lower density routes did not experience fare wars because of the lack of competition on those routes.

In order to help them find the best price for travel, many more people are relying on travel agents instead of calling the airlines directly. The agents themselves are having problems keeping up with the 15,000 daily changes.

Consumer complaints filed with the CAB have decreased dramatically since 1978. Consumers became more aware of the consumer activities of the CAB around 1976. The number of complaints would be expected to rise because of this awareness. Since 1978, the increased competition should result in better service. According to the CAB, airlines have been handling and settling more of the complaints themselves, leading to the dramatic drop in consumers reporting to the CAB (Table 4.H.1).

A major concern of those opposed to deregulation is how it will

Table 4.H.1: Consumer Complaints Filed with the Civil Aeronautics Board, by Type, 1974-1982

Type	Year								
	1974	1975	1976	1977	1978	1979	1980	1981	1982
Flight-									
Cancellation	890	516	577	636	1350	2889			
Delay	1550	880	1228	1748	2183	2945	4169	2644	2010
Irregularity	496	348	385	446	624	837			
Reservations-									
Over-sale	1181	794	1192	1047	1323	2718	1947	1296	1296
Problem	1296	917	1122	1222	2170	3218	1113	597	459
Ticketing	227	167	190	210	307	508			
Fares, Refund	1876	1585	2394	2172	3376	5620	3106	1499	1409
Baggage-									
Loss	1100	667	906	1041	1416	3316			
Damage	479	349	415	498	587	897			
Delay	470	294	441	502	839	1315	3423	2376	1525
Rates	75	94	118	200	121	123			
Other	337	224	133	127	149	206			
Cust. treat.	886	859	1054	1198	1621	4099			
Discrimination-									
Racial	9	9	8	6	18	13			
Passenger	42	56	58	75	86	100			
Handicapped	-	-	28	-	-	-	206	123	113
in-flight serv.	349	316	384	523	647	700			
Serv.-general	102	82	61	121	170	205			
Flight Info.	673	677	583	668	1010	1514			
Other	2751	2314	4133	4288	4098	6992			
Cargo	920	768	711	707	783	1121	1585	606	452
Smoking	-	-	-	516	731	1310	587	313	256
Foreign	1461	1502	1965	2125	2642	3353	2852	1653	1052
Total	15,719	11,916	16,121	17,951	23,609	40,646	22,988	13,278	10,151

1/ heightened public awareness of the existence and functions of its consumer activities

2/ domestic traffic rose 7.81 in 1979, includes telephoned and written complaints received at its six field offices

3/ more competition should mean better service, more complaints settled by the airlines themselves

4/ reclassified by the CAB in 1980

Source: CAB NEWS, 1974-1982

affect safety. The aviation industry has had an excellent safety record. It is safer to fly than drive. The accident and fatality rates have not been adversely affected through 1981 (Table 4.H.2). Commuter airlines cut their accident and fatality rates by about 50% in 1982. The two major crashes in 1982, with 231 fatalities will impact negatively on the safety record of the certificated airlines (Air Florida in January and Pan Am in July).

Many experts and industry insiders fear that the increased economic pressures on the airlines may potentially result in more accidents. Linda A. Puchala, President of the Association of Flight Attendants, feels that deregulation has been a "disaster." She feels that it has led to reductions in safety. These reductions include:

1. reduced number of hours of first-aid training for flight attendants, most CPR training has ceased;
2. more inexperienced and first time air passengers are unfamiliar with carry-on baggage rules and baggage monitoring at the gates has decreased, resulting in storage problems in the cabin as baggage racks and closet storage areas must accomodate more weight than they were safely designed to hold;
3. operating in flight with less than full air pacs to save fuel consumption. Passengers are subjected to greater contaminants in the air;
4. more passenger assaults on cabin crew members- because of crowding, and less sophisticated passengers;
5. under increased pressure for on-time departures, aircraft are taking off frequently before completing a check of all safety equipment;
6. flight attendants are required to fly more over-night flights and longer duty periods. Flight attendants and pilot crew are fatigued, less alert and less able to react in emergencies;
7. aircraft flying over water are liberally granted exemptions which waive the requirement to carry life rafts (added weight);
8. new airlines have less experienced crews (Congressional Hearing).

John Galipault, head of the Aviation Safety Institute, has voiced similar concerns. Galipault has, since 1973, received 46,000 aviation hazard reports, usually in the form of anonymous tips from pilots.

Table 4.H.2: Aircraft Accidents, Fatalities and Accident Rates, U.S. Certificated Route Carriers, 1949-1982

Year	# of Accidents		# of Fatalities Total	Accident Rate Per million miles flown	
	Total	Fatal		Total	Fatal
1949	73	10	123	0.151	0.021
1950	72	8	173	0.143	0.016
1951	83	18	233	0.149	0.032
1952	94	11	215	0.152	0.018
1953	70	11	143	0.102	0.016
1954	80	7	31	0.111	0.010
1955	80	14	238	0.096	0.015
1956	94	9	174	0.099	0.009
1957	104	12	96	0.097	0.010
1958	85	13	158	0.083	0.012
1959	93	17	337	0.083	0.015
1960	82	13	393	0.075	0.009
1961	78	8	149	0.073	0.007
1962	63	9	327	0.055	0.007
1963	65	10	259	0.056	0.008
1964	70	12	234	0.054	0.009
1965	73	8	256	0.050	0.005
1966	69	6	186	0.041	0.004
1967	66	11	283	0.032	0.005
1968	62	14	348	0.025	0.005
1969	61	10	158	0.023	0.003
1970	49	5	85	0.019	0.002
1971	47	8	203	0.018	0.002
1972	48	8	190	0.019	0.003
1973	40	8	221	0.016	0.003
1974	45	8	463	0.019	0.003
1975	36	2	122	0.015	0.001
1976	25	3	42	0.010	0.001
1977	21	4	653	0.008	0.010
1978	22	5	160	0.008	0.002
1979	29	5	154	0.010	0.002
1980	19	1	1	0.006	0.000
1981	24	4	4	0.010	0.000

Source: Federal Aviation Administration

mechanics, controllers and other flight personnel (Grogan, PEOPLE, 28 January 1984, p.73).

Galipault charges the industry with inadequate maintenance of aircraft. An Eastern Airlines jet with the oil seals left off its oil plugs was almost "ditched" by the pilot in the Atlantic. The oil plugs had been replaced at night by mechanics using flashlights and the lights of a pick-up truck. This was the fourth incident of missing oil seals at Eastern (Grogan, p.74). Airlines are "cutting corners" to remain in business. They are also putting greater pressure on their crews to fly, no matter what the conditions. Two accidents occurred in 1982 because of adverse weather conditions. The Air Florida craft which crashed in Washington, D.C., was flown by inexperienced pilots, neither of whom seemed willing to take the responsibility to delay or cancel the flight. The plane took off in an ice-storm. The de-icing process had not been executed correctly on the wings. The Pan Am flight took off in a thunderstorm. Unstable air caused them to crash. Some airlines even recap their tires. Fifty people were killed on a Spanish airliner when a tire blew on take-off.

Some airlines, however, are acting responsively. United will no longer fly its 747's on overwater routes because the inflatable slides and rafts will not hold air long enough to pass certification requirements (Grogan, p.76). United is doing this voluntarily.

Summary

The Calculated, Preferred impact related to consumer concerns is that consumers flying on routes in the high density routes have benefited greatly from deregulation. Passengers on low-density routes have not been lucky enough to benefit from the fare wars. In fact, they may be

subsidizing many of those unrealistically low fares. This is an Uncalculated, Nonpreferred result of the ADA.

Other Uncalculated, Nonpreferred impacts include; although the safety record of the airline industry remains excellent, with the increased competition and huge losses suffered by some of the airlines, safety has been lowered as a priority. Many of the newer airlines are flying with inexperienced crews, crews fly longer hours, passengers are less sophisticated and unaware of aircraft procedures and maintenance has been inadequate in some situations. Airlines have been "playing the odds." So far, they have beat them. They may be setting themselves and the consumer up for a potentially disastrous situation. The hub and spoke system has created delays and potential safety problems with many flights attempting to land and take-off within short periods of time. Finally, consumers have been having trouble keeping up with the thousands of changes in schedules and fares which occur each day. Many are paying higher fares than necessary because of this confusion.

The issue of the safety of the airlines has been complicated by the 1981 air traffic controllers strike which resulted in the firing of thousands of traffic controllers. These controllers were replaced with less experienced controllers from smaller airports and training programs were accelerated to replace the fired controllers. The number of near accidents has increased since the strike. This will have an effect on the fatality and accident rates. So far though, controller error has not been cited as contributing to any of the recent major airplane crashes.

I: FOREIGN AIRLINES

The ADA has not only affected the domestic aviation industry, it has also had repercussions on the international aviation industry. Members of the International Air Transport Association (IATA) face two billion dollar losses through 1982 (FORBES, 30 August 1982, p.120).

Airlines serving the transatlantic lost more than \$650. million in 1981 (FORBES, p.120). IATA members attempted to raise fares by 2-7%, however, that agreement is non-binding. Airlines are still free to undercut the competition. A 7% raise in fares would mean that the carriers on the Atlantic route would break even. An 11% raise would be needed for them to show a profit. However, as Max Cole of Singapore Airlines, a non-IATA member, bluntly pointed out, "I believe IATA will not succeed for the reason that the level of dishonesty in international aviation is high. You can't trust an airline even if it says it will keep prices high," (FORBES, p. 120). It is unlikely then that these raises will remain for long.

Japan Airlines Company (JAL) has been an outspoken opponent of airline deregulation. JAL, the third largest international carrier, lost \$80 million in 1982, and opposes any efforts at deregulating the international industry through influence in the Pacific Carriers Compliance Committee (PCCC), an industry group. Northwest and Pan Am are also members of the PCCC. JAL's efforts so far have led Japan Civil Aviation Bureau (JCAB) to demand that the PCCC keep closer watch over and discontinue price cutting on Pacific routes. JAL itself has been forced to cut its fares below JCAB tariff levels to defend itself against the recession in 1981 and the low fares charged by the Americans and third country airlines flying U.S.-Japan routes (BUSINESS WEEK, 16

August 1982, p.36). These third country lines, such as Singapore Airlines, Ltd., and Thai Airways International, Ltd., are not bound by the tariff price levels which are supposed to bind the airlines that belong to the countries being served. When JAL cut its fares, Northwest also reduced fares. This caused JAL to accuse its U.S. competitors with fare "dumping" (BUSINESS WEEK, p.36).

British Airways has been able to reverse its 1982 loss of \$922 million, (the largest single year loss ever recorded by an airline), to a \$111.6 million profit in 1983 (AVIATION AND SPACE TECHNOLOGY, 25 October 1983 p.34). They were able to accomplish this feat by increasing the number of passengers traveling full fare and by reducing their work force. If British Airways was able to adapt to the deregulated atmosphere and turn the largest loss in aviation history into a profit the following year, there is hope for the rest of the international aviation industry's survival.

Summary

The international aviation industry, along with the American air carriers, has suffered large financial losses since deregulation. The world-wide recession in 1981, the increase in fuel prices and the increased competition have wrought havoc within the entire aviation industry. These losses were not foreseen by decision makers nor were they desired, they are Uncalculated, Nonpreferred impacts. Without the added competition and resulting fare wars, the industry might have been better able to cope with the recession and fuel price increases. The lessening of the recession and efforts at improving efficiency may save the industry.

CHAPTER FIVE: SUMMARY AND CONCLUSIONS

In order to draw conclusions from the analysis presented, it is necessary first to summarize the findings within the framework of the model of analysis presented in the first chapter, and then to offer some general conclusions.

Summary of The Evaluation of The Airline Deregulation Act of 1978

The findings of the study of the Airline Deregulation Act are summarized below within the our model of analysis.

Program objectives. The Airline Deregulation Act (ADA) was to provide for a safe, economic, efficient and low-priced air transportation system. It was to encourage a sound airline industry by prohibiting unfair or anti-competitive practices and monopolies, maintaining service to small communities, encouraging new entries, expanding existing airlines, and by creating secondary or satellite airports.

Program environment. The ADA was enacted in an environment of mixed support. Consumers and consumer groups supported the deregulation of the airline industry. The industry was hostile to the idea of deregulation at first, but later United Airlines and World Airlines changed their positions to support the Act. Since the Act has been in effect, the industry as a whole has become supportive of its aims.

Program activity. The Civil Aeronautics Board (CAB) quickly ended its rate authority and later its route authority. The CAB did not prevent predatory pricing. It had the authority to sanction airlines whose fares fell more than 50% below the Standard Industry Fare Level (SIFL) through December of 1979. Some of the problems of airlines adapting to the ADA may be ascribed to the CAB for ending its fare and other

regulatory authority too quickly.

The CAB ceased operations on January 1, 1985, remaining federal authority was be transferred to the Department of Transportation, the Department of Justice, the Department of State, the Post Office, and the Department of Labor. The Department of Transportation (DOT) now determines mail carriage compensation and small community service subsidies, and it shares authority over foreign air transportation with the Department of State. The Department of Justice supervises mergers and interlocking relationships. The Post Office determines rates for mail carriage. Finally, The Department of Labor determines if employees affected by deregulation qualify for subsidies.

All of these departments already have many responsibilities. In all likelihood, the former CAB responsibilities will be given low priorities by these departments. The new responsibilities may not easily fit into the routines established by these departments. New directives tend to get lost in the bureaucratic shuffle.

Program events. Variables which intervened between program activities and impacts, perhaps changing those impacts, were the rising fuel prices of the late 70's and early 1980's, the recessions in 1980 and 1981, and the Professional Air Traffic Controllers (PATCO) Strike in 1981.

The rising fuel prices made it impossible for airlines to lower fares as much as predicted. The recessions discouraged the growth of revenue passenger miles and load factors. People could not afford to fly. Finally, the PATCO strike forced the restriction of flights into and out of the 22 busiest airports in the United States. Airlines were assigned "slots" which would be taken away if not used. Rather than give up slots, many airlines continued to fly unprofitable routes.

Airlines were discouraged from rationalizing their routes because they were denied free entry and exit from these airports.

Impacts. Impacts are summarized in Figure 5.1. Calculated preferred impacts are the positive impacts which were expected by policy-makers. The airlines have been able to lower fares below projected regulated fare levels. Airlines had fare wars on the most heavily traveled routes to encourage more travel. Load factors and revenue passenger miles have risen in the deregulated environment. The rising fuel prices of the late 1970's did not allow airlines to lower fares as much as predicted, but they were lower than they would have been under regulation. The recessions of 1980 and 1981 interfered with the predicted increase in passengers. The airlines began fare wars to encourage travel. Since these recessions eased, more people are traveling, usually without the predatory prices charged during the recessions.

Airlines have been able to begin rationalizing their routes to provide for more efficient use of aircraft. In the regulated environment, airlines flew point-to-point relying on the CAB to award routes. Airlines are now able to decide which routes they wish to serve. The rationalization of routes was disturbed by the PATCO strike. The FAA limited the number of flights into and out of 23 of the largest airports. Airlines could not enter and exit from these markets at will. Airlines were also forced to maintain service to 319 essential service communities until replacements could be found.

The ADA has stimulated the entry of new airlines into the industry. The number of airlines has tripled since 1978. The number of stations served has increased, as has the number of aircraft in service. Airlines have attempted to increase their efficiency by increasing the

Figure A.1: Program Impacts*

	Preferred	Nonpreferred
Calculated	Fares lower than under regulation LFs and RPMs rose Rationalized route systems Number of airlines tripled Increased stage lengths	Loss of service to small communities Wasteful use of fuel Difficulties in financing airport expansion
Uncalculated	Outstanding performance of new and smaller airlines Fewer customer complaints- airlines taking care of own complaints	Cutthroat competition Predatory pricing Losses in domestic and international systems Customer confusion Safety concerns

* Adapted from Cook and Scoll, pp.326-329.

stage lengths flown. The longer the flight, the more efficient the use of aircraft.

Impacts which were positive but unanticipated, uncalculated preferred impacts, include the outstanding performance by the new, smaller airlines and by the local service airlines like USAir, which has become large enough to be considered a major trunk line. These airlines have made profits even when the rest of the industry was incurring huge debts. They had greater increases in load factors and revenue passenger miles than the major airlines. It was feared that these smaller airlines might be overwhelmed by the larger airlines, but this has not been the case. Moreover, there have been fewer customer complaints to the CAB since 1978. The airlines, due to increased competition have been handling more customer complaints on their own.

On the negative side, impacts which were calculated, nonpreferred were first, the loss of service to small communities. Small communities, for the most part, have lost service. Load factors and revenue passenger miles have decreased. The ADA attempted to deal with this predicted impact through the Essential Service Communities provision. 319 communities have been guaranteed a minimum amount of service through 1988. Recent General Accounting Office (GAO) reports have suggested that the CAB change the Essential Service Community structure since it hasn't guaranteed quality service to these and other communities.

Secondly, because of the increased competition, there has been wasteful use of fuel. Instead of flying one full airplane, there might be three planes each flying one third full serving certain markets. The amount of fuel used per passenger mile has risen since deregulation

dispite more fuel efficient aircraft and other fuel-saving technologies. Lastly, airports have had some difficulties in financing expansion because of the uncertainty of the market. The government, though, has continued to fund airport projects.

Finally, the nonpreferred, uncalculated impacts of deregulation are negative impacts which were not expected by policy makers. Policy makers did not expect the cutthroat competition and predatory price wars which have occurred on the most heavily traveled routes. These fare wars have caused airlines to charge higher fares on less dense routes to subsidize the unprofitably low fares on the larger routes. These fare wars have caused huge losses in the industry, particularly for the largest airlines. These losses certainly were not expected. The situation was aggravated by the recessions of 1980 and 1981. The bankruptcy actions of established major airlines, like Braniff Airlines and Continental Airlines, were unexpected. Originally, it was feared that the new airlines would not be able to compete with the large airlines. However, the large airlines did not adapt well to the deregulated environment, while the new airlines were organized to deal with the new environment. They tend to have lower overhead and are able to make profits even when charging low fares. The large airlines have not been able to adapt quickly since they are saddled with higher overhead, such as union contracts negotiated in the regulated environment. They are now seeking altered contracts which cut employee wages and benefits. In some cases, union contracts have been negated by the filing of bankruptcy by the airlines.

There have also been huge losses in the international air transport industry. The recessions affected the international industry

as well as the domestic industry. Companies flying international routes began undercutting each others prices to generate business. Instead of creating more business, the results were large losses.

The cutthroat competition and freedom of exit and entry have caused much confusion for the customer. Many consumers are paying more than they have to for air travel because of all of the changes in prices and schedules which occur without warning. Even travel agents have had problems keeping up with the up to 15,000 changes which occur each day in fares and schedules.

The rationalizing of route networks, although more efficient for the industry, has caused some safety problems as well as delays. The most popular way of rationalizing route systems has been to establish hub-and-spoke systems. The airlines fly most flights into and out of one or two central hubs. The airlines are able to serve more markets with this system than with point-to-point service. The hub and spoke scheme causes problems with scheduling flights into airports. Many flights arrive within a short amount of time. These flights deplane passengers who then make connecting flights and then the planes leave as quickly as possible. Many planes leave at about the same time causing long queues of airplanes waiting for clearance to use runways. Problems are compounded if any flights are late arriving or if there is inclement weather. Delays of up to three hours are not uncommon in some of the larger airports. The FAA has ruled that airlines must stagger their scheduled arrivals and departures more to avoid these problems.

Finally, there have been problems with safety within the industry. The cutthroat competition has caused safety to become a secondary concern. Pilots are urged to fly under uncertain weather conditions and

before safety checks are completed in order to stay on schedule. New airlines have hired less experienced pilots to be captains. Cabin crews are flying longer hours. The less sophisticated nature of passengers has caused problems. People who have never flown before bring more hand luggage on board than is safe and are not familiar with flight safety procedures.

General Conclusions

Has the Airline Deregulation Act of 1978 met its goals? The results so far are mixed at best. Since deregulation, the airline industry has become more efficient and it has become more economical for passengers flying on the densest routes. Prices on less dense routes have remained high. There have been some unfair practices, specifically, predatory pricing. There have been few problems with monopoly situations since so many new airlines have entered the market. Airlines in the position of being the sole airline to service many small communities may, however, set fares at any level they wish.

Service to small communities has been maintained to 319 communities through the Essential Service Communities program. Other small communities have completely lost service. Service quality has declined to most small communities. Fares are high and service has been inconsistent.

New entries have been encouraged by the ADA. The number of airlines has tripled since 1978. Existing airlines have had mixed success. The local service airlines have expanded and grown. The major airlines have not done as well. The majors have lost a great deal of money and some have filed for bankruptcy. Others have consolidated their operations.

Airports have been aided through federal funds to undertake expansion. It has been more difficult for them to borrow private funds because of the uncertainty of the deregulated marketplace. Secondary airports have grown the most since 1978. They have had large gains in the numbers of passengers served. Many of the new airlines have used secondary airports like Pittsburgh and Newark as hubs for their operations.

It is questionable if the stated primary goal of the ADA, safety, has received the highest priority by the industry. Professionals within the industry have voiced their concern over the frequency of safety violations under the increased pressure of competition.

Many of the ADA's negative impacts should decrease or disappear over time. Improvements in the economy have meant improvements for some of the airlines in trouble and much of the predatory pricing has disappeared. There are still airlines declaring bankruptcy, new carriers as well as those which existed before 1978.

Only three of the ADA's goals have been met fully while two more have been met partially. The Act has allowed for many inequities for customers flying on less dense routes and for those in small communities. Customers have found the deregulated environment to be *confusing and changable*.

Concern continues about the safety record of the industry. The increased competition has seemingly caused safety to be given a lower priority. The increased traffic brings increased risks of accidents as the skies become more crowded. The PATCO strike further complicates the situation. There are now fewer controllers working longer hours than before the strike. There are also more planes flying which must be

handled by these controllers. Commercial air travel has been one of the safest modes of transportation, but it must remain so. When an accident does occur, it usually involves the loss of hundreds of lives. Safety clearly must be the primary objective of the industry.

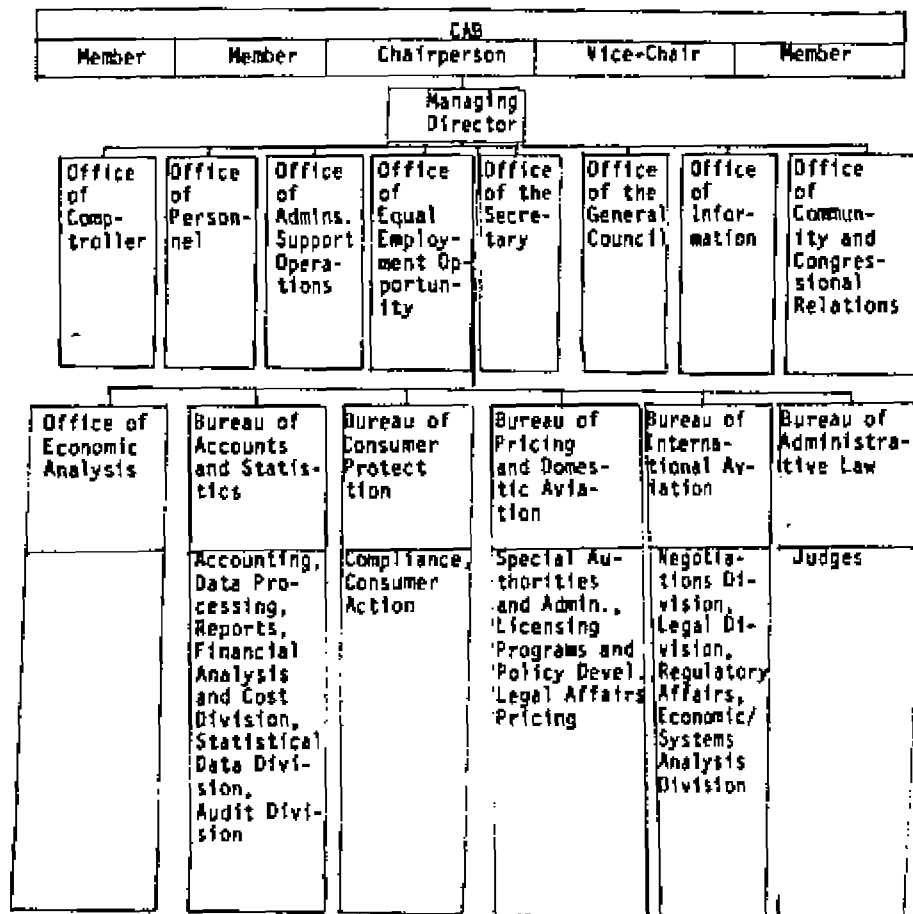
It would be unrealistic to advocate a return to a closely regulated air transportation system. It is, however, time to begin to "fine tune" the ADA. The CAB should not have ceased operations in 1985, instead, it should have been retained with those responsibilities which were to be transferred to other departments. The CAB should have also been given responsibility for monitoring safety which now rests with the Federal Aviation Administration (FAA). The FAA has not had the resources to adequately monitor safety problems with the increase of airlines and aircraft. The ADA did not provide for any expansion of the FAA. The CAB should have also been allowed to sanction airlines engaging in predatory pricing. Predatory pricing is harmful to the industry as a whole and creates inequities in the fares paid by passengers. The airlines are forced to charge more on some routes to make up for losses incurred on the routes with predatory pricing. Airlines should be encouraged to base fares on mileage and the Essential Service Communities program should be reorganized to provide high quality, timely service to small communities. The ADA should achieve more of its goals if these recommendations are followed.

The Airline Deregulation Act of 1978 has totally restructured the commercial aviation system in the United States, and it also has had a major impact on the international commercial aviation. The Act has not been as successful as it appeared to be at first, and it may not be the "model" of successful deregulation for those who want to get rid of

"unnecessary" governmental regulation in other sectors of the economy. Deregulation of the airline industry might have better occurred in small steps which would not have been as debilitating to the industry.

APPENDICES

APPENDIX A: STRUCTURE OF THE CIVIL AERONAUTICS BOARD



APPENDIX B: COMMUNITIES DESIGNATED AS "ESSENTIAL SERVICE" COMMUNITIES

<u>State</u>	<u>City</u>	<u>State</u>	<u>City</u>		
Alabama	Anniston	Colorado	Alamosa		
	Dothan		Aspen		
	Gadsten		Cortez		
	Muscle Shoals/ Florence/ Shiffield/		Durango		
	Tusculumbia		Gunnison		
	Tuscaloosa		Lamar		
	Flagstaff		Montrose/Delta		
	Grand Canyon		Pueblo		
	Kingman		Steamboat Springs/ Hayden/Craig		
	Page		Bridgeport		
Arizona	Prescott	Connecticut	New Haven		
	Winslow		New London/Groton		
	Yuma		Stanford		
	Arkansas		El Dorado/ Camden	Florida	Eglin A.F.B.
			Fayetteville		Gainesville
Fort Smith		Key West			
Harrison		Lakeland			
Hot Springs		Panama City			
Jonesboro		Melbourne			
Texarkana		Albany			
California	Blythe	Georgia	Athens		
	Chico		Augusta		
	Crescent City		Brunswick		
	El Centro		Columbus		
	Eureka/ Arcata		Macon		
	Merced		Moultrie/ Thomasville		
	Modesto		Yaldosta		
	Orange County/ Santa Ana/ Anaheim		Hawaii	Hana	
	Oxnard/ Ventura		Kamuela		
	Palmdale/ Lancaster		Lanai		
	Red Bluff/ Redding	Idaho	Lewiston		
	Santa Barbara	Sun Valley/ Hailey/Ketchum			
	Santa Maria	Twin Falls			
	Santa Rosa	Illinois	Bloomington		
	Stockton		Champaign/ Urbana		
	Visalia		Danville		
	Monterey/ Salinas		Decatur		
			Galesburg		
			Marion/Herrin		
			Mattoon/ Charleston		
	Mount Vernon				
	Quincy				

<u>State</u>	<u>City</u>	<u>State</u>	<u>City</u>	
Illinois	Rockford	Maine	Lewiston/Auburn	
	Springfield		Presque Isle/	
	Sterling/ Rock Falls		Houlton	
Indiana	Bloomington	Maryland	Rockland	
	Elkhart		Hagerstown	
	Kokomo/	Massachusetts	Salisbury	
	Logansport/ Peru		Hyannis	
	Lafayette		Martha's Vineyard	
Iowa	Muncie/Anderson/ New Castle	Michigan	Nantucket	
	Terre Haute		New Bedford	
	Burlington		Worcester	
	Clinton		Alpena	
	Dubuque		Battle Creek	
	Fort Dodge		Benton Harbor/ St. Joseph	
	Mason City		Escanaba	
	Ottumwa		Moughton	
	Waterloo		Iron Mountain/ Kingsford	
	Kansas		Dodge City	Minnesota
Garden City		Jackson		
Goodland		Kalamazoo		
Great Bend		Manistee/ Menominee		
Hays		Marquette		
Hutchinson		Pellston		
Independence/ Coffeyville/ Parsons		Saulte St. Marie		
Liberal/Guymon		Traverse City		
Manhattan/ Junction City/ Fort Riley		Bemidji		
Salina		Brainerd		
Topeka		Chisholm/Hibbing		
Kentucky		London/Corbin	Duluth/Superior	
		Owensboro	Fairmont	
		Paducah	International Falls	
Louisiana		Alexandria	Mankato	
	Lafayette	Thief River Falls		
	Lake Charles	Winona		
Maine	Shreveport	Mississippi	Worthington	
	Augusta/ Waterville		Columbus	
	Bangor		Greenville	
	Bar Harbor		Greenwood	
			Gulfport/Biloxi	
		Laurel/ Hattiesburg		
		Meridian		

<u>State</u>	<u>City</u>	<u>State</u>	<u>City</u>
Mississippi	Natchez Tupelo University/ Oxford	New Mexico	Farmington Gallup Hobbs Roswell
Missouri	Cape Girardeau/ Sikeston Columbia/ Jefferson City Kirksville Springfield	New York	Sante Fe Silver City/Hurley/ Deming Binghamton/ Endicott/ Johnson City Elmira/Corning Glen Falls Ithaca/Cortland Jamestown Catskill/ Sullivan Co. Massena Ogdensburg Plattsburgh Rockville Center Saranac Lake/ Lake Placid Utica/Rome Watertown White Plains
Eastern Montana and Western North Dakota	Glasgow Glendive Havre Lewiston Miles City Sidney Williston, ND Wolf Point West Yellowstone	North Carolina	Asheville Fayetteville Hickory Jacksonville/ Camp Le Jeune Kinston/Goldsboro/ Greenville New Bern/ Morehead City/ Beauford Rocky Mount/Wilson Wilmington Winston-Salem
Montana Nebraska	Alliance Chadron Columbus Grand Island Hastings Kearney McCook Norfolk North Platte Scottsbluff Sydney	North Dakota	Devils Lake Jamestown
Nevada	Elko Ely	Ohio	Mansfield Zanesville/ Cambridge Youngstown
New Hampshire	Keene Lebanon/ White River Jct. Manchester/ Concord	Oklahoma	Enid Lawton/Fort Sill
New Jersey	Atlantic City Cape May Trenton		
New Mexico	Alamogordo/ Holloman A.F.B. Carlsbad Clovis		

<u>State</u>	<u>City</u>	<u>State</u>	<u>City</u>
Oklahoma	McAlester Ponca City Stillwater	Texas	Harlingen/ San Benito Laredo
Oregon	Albany/Corvallis Astoria/Seaside Bend/Redmond Klamath Falls North Bend/ Coos Bay Pendleton Salem Medford		Longview/ Kilgore/ Gladewater Mission/McAllen/ Edinburg Paris San Angelo Temple Tyler Victoria Waco Wichita Falls Cedar City Vernal
Pennsylvania	Altoona Bellefonte/ State College Bradford Clearfield/ Phillipsburg DuBois Erie Hazleton Johnstown Lancaster Oil City/ Franklin Reading Williamsport	Utah	Montepellier/Barre Rutland Roanoke Charlottesville Danville Hot Springs Lynchburg Staunton Newport News/Hampton/ Williamsburg/ Yorktown
Puerto Rico	Aguadilla Mayaguez Ponce	Vermont	
South Carolina	Florence Myrtle Beach	Virginia	
South Dakota	Aberdeen Brookings Huron Mitchell Watertown Yankton	Washington	Ephrata/Moses Lake Pasco/Kenwick/ Richland Pullman/Moscow Walla Walla Wenatchee Yakima
Tennessee	Clarksville Jackson	West Virginia	Beckley Clarksburg Elkins Lewisburg Morgantown Bluefield Parkersburg
Texas	Abilene Beaumont/ Point Arthur Brownsville Brownwood	Wisconsin	Appleton Beloit/Janesville Eau Claire Green Bay/Clintonville

<u>State</u>	<u>City</u>
Wisconsin	La Crosse
	Manitowoc
	Oshkosh
	Rhineland/Land O' Lakes
	Wausau/Stevens Point
Wyoming	Jackson
	Laramie
	Lovell/Powell/Cody
	Riverton/Lander
	Rock Springs
	Sheridan
Worland	

APPENDIX C: CLASSIFICATIONS OF CERTIFICATED AIRLINES, 1982

Majors, Revenues of
\$1,000,000,000+

1. American
2. Braniff*
3. Continental*
4. Delta
5. Eastern
6. Northwest
7. Pan American
8. Republic
9. Trans World
10. United
11. USAir
12. Western

Nationals, Revenues of
\$75,000,000-1,000,000,000

13. Air California
14. Air Florida*
15. Airlift
16. Alaska
17. Aloha
18. Capitol
19. Flying Tiger/Metro International
20. Frontier
21. Hawaiian
22. Ozark
23. Pacific Southwest
24. Piedmont
25. Southwest
26. Texas International
27. Transamerica
28. Wien
29. World

Large Regionals, Revenues of
\$10,000,000-74,999,999

30. Air Midwest
31. Air New England*
32. Air Wisconsin
33. Alaska International
34. Altair
35. Aspen
36. Best
37. Britt
38. Cascade
39. Empire
40. Evergreen
41. Golden Gate
42. Golden West
43. Jet American
44. Midway
45. Mississippi Valley
46. Muse
47. New York Air
48. Northeastern
49. Overseas
50. Pacific Express
51. PEOPLExpress
52. Reeve
53. Rocky Mountain
54. Rosenbalm
55. Southern Air
56. Swift Aire*
57. Zantop

* Out of business

Medium Regionals, Revenues of
\$0-9,999,999

58. Aero Mech
59. Aerostar
60. Air Nevada
61. Air North
62. Air North/Wenana
63. American Eagle
64. American International
65. American Trans Air
66. Apollo
67. Arista
68. Arrow
69. Big Sky
70. Challenge
71. Cochise*
72. Colgan
73. Elan
74. Global
75. Great American
76. Gulf
77. Guy-American
78. Imperial
79. Intercontinental
80. Kodial
81. L.A.B.
82. Mackey*
83. Mid-South
84. Mid State
85. Munz
86. New Air
87. Peninsula
88. Rich
89. Sea Air motive
90. Sky West
91. Sun Land
92. T-Bird
93. Western Yukon
94. Wright

* Out of business

APPENDIX D: CLASSIFICATIONS OF CERTIFICATED AIRLINES, BEFORE 1981

Trunks

American
 Braniff
 Continental
 Delta
 Eastern
 National
 Northwest
 Pan Am
 Trans World
 United
 Western

Regionals

Air Midwest
 Air New England

Other

Wright
 Southwest
 Pacific Southwest
 New Haven
 Aspen
 Altair
 Air Wisconsin
 Air California

Local Service

Allegheny (now USAir)
 Frontier
 Hughes
 North Central
 Ozark
 Piedmont
 Southern
 Texas International

Alaska

Wien Air Alaska
 Reeve
 Munz Northern
 Kodiak-Western Alaska
 Alaska

Hawaiian

Hawaiian
 Aloha

APPENDIX E: DEFINITIONS OF HUB CLASSIFICATIONS

<u>Hub Classification</u>	<u>% of Total Enplanements</u>
Large	1.00 or more
Medium	0.25 to 0.99
Small	0.05 to 0.24
Non-hub	less than 0.05

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