

(GNP); international operations will do even better but protectionism could constrain this growth. The overnight express market will have double-digit growth for at least the next five years but this market will show signs of maturing by 1990. However, inadequacies in the cargo data base and in the use of revenue ton-miles as a measure of growth raise questions concerning the measurement of actual growth of the air cargo industry. Both commodity size and weight and packaging weights are declining sharply. Noise is a particularly important issue in air cargo because of the use of older, noisy equipment and the late hours of departure and arrival. Potential revenues from air cargo are likely to become significant enough to justify some enhancements to passenger aircraft design to better accommodate air cargo, but no dedicated freighters are anticipated. Combination carriers are beginning to show renewed interest in cargo.

The regional airlines can expect continuing strong passenger growth of approximately 8 percent per year through 1995 which will raise volume to about 55 million passengers or 11 percent of the United States total. This growth will be accompanied by an evolution toward fewer, larger, better managed airlines. Some autonomy will likely be lost as pressures intensify to affiliate with larger carriers. Fleet mix and aircraft sizes will change and more fuel efficient aircraft will come into service. By 1995 the fleet will grow to about 2,200 and 2,800 aircraft and aircraft seat sizes will increase substantially. Financial problems will continue to trouble both the regional airlines and their key suppliers, the aircraft manufacturers.

With the demand for new commercial aircraft expected to approximate 4,000 during the 1986-1995 period, the outlook for the aircraft manufacturing industry appears relatively optimistic. However, intense competition among the manufacturers coupled with growing pressure from the airlines to limit capital-related costs and increasing development costs, which produce diminishing technological returns, will necessitate major efforts to reduce manufacturing costs throughout the industry and extremely critical examinations of proposed developments on a total cost-benefit basis.

The helicopter industry faces a slowdown in its major market, offshore oil, because of the decline in oil exploration and development activity. Growth will remain strong in business applications, such as intercity commuter operations and emergency medical services, as helicopter sophistication and reliability improve. Surface congestion provides the basis for potential use of the helicopter over the longer term in intercity commuter service, but such service would require public subsidy. Technology development will concentrate on improvements in the conventional helicopter and no all-new helicopter types are expected to be in commercial service in the next decade. The most serious constraints to long range growth are the general lack of off-airport heliports and the fact that helicopters are compelled to operate in a fixed-wing airspace system.

Business aviation activity has shown recent signs of recovery but new aircraft production remains low. Flying activity will increase 2 to 3 percent annually over the next decade. There will continue to be an oversupply of good, used aircraft until about 1990. Further drastic changes in the business aircraft manufacturing industry can be expected and will bring continuing consolidation of airframe manufacturers, suppliers, and overhaul and maintenance centers. Product lines and lists of optional equipment will shrink. Technology advances will be evolutionary rather than revolutionary. Several areas of business aviation require further research.

SUMMARY OF SEMINAR SESSIONS

CHANGING STRUCTURE OF THE AIRLINE INDUSTRY

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The session was attended by individuals with a variety of industry perspectives: airframe manufacturers, government, academia, airports, airlines, suppliers, aviation consultants, and the travel industry. The subjects of discussion were

- o aviation safety,
- o deregulation,
- o industry concentration,
- o industry capacity/growth, and
- o industry environment.

Aviation Safety

Because it was the concern of many of the traveling public during the accident-plagued year of 1985, the first area of discussion concentrated on aviation safety. The basic consensus was that the actual safety of the industry was not so much in question, but that public perception of the airline safety issue was. Public concerns about safety may have resulted in slightly decreased traffic growth during the third quarter of 1985. It is not yet possible to verify this observation statistically. As a result, the maintenance of safety becomes crucial to all the predictions about growth of the industry.

The session did not view the Federal Aviation Administration (FAA) or the current organization of the safety community as a particular problem and, as many pointed out, there was no evidence that safety overall had declined. The fact that many airlines are spending less on maintenance is not in itself proof of declining safety. It is likely that the airlines are spending their funds more efficiently, with a greater percentage going for essential operational maintenance and less on cosmetic (cabin comfort) maintenance.

There was general agreement that safety would be the one issue that could bring about renewed federal government regulation. The danger here is that it could be a knee-jerk reaction. This could eventually return the industry to policies and guarantees that would not be beneficial to it.

With regard to safety regulation, there was a consensus that the de facto regulator might become the insurance industry. The major problem with this possibility is that predictive safety data are not readily available and the insurance community tends to make decisions on the basis of historical data--accidents or court actions and liability damages.

Deregulation

On the whole deregulation has been a success, but within that context there have, of course, been losers and winners. Obviously people in some of the more rural locations have not fared so well. Not even the regional airline industry serves all points that used to have B-737 service. However, the immediate trend is toward reinstatement of service to those communities that were abandoned in the early years of deregulation. As time passes, this problem may balance out and correct itself. It was believed that the essential air service program will continue as is -- not for economic reasons, but for

political reasons -- and that there probably will not be a rush to service remote communities. The discussion on deregulation was held to a minimum because of the general feeling that deregulation had already been discussed in depth.

Industry Concentration

The major observation of the session was that there will be a continuing movement in the industry toward concentration in the next few years. It was a general consensus that the industry is, in fact, moving toward a loose oligopoly, with a small number of very powerful carriers. The estimates as to the number vary from two airlines to six airlines. No attempt was made to associate particular names with the survivors; however, diverse speculation was voiced by all. It was perceived that there would be a few significantly sized airlines with a national airlines classification directly under the major group. These national airlines would operate on a regional basis, as Southwest Airlines, PSA, and USAir operate now. Operating below the national carriers would be the commuter/regional carriers. They would operate in specific niches and their number could potentially be quite large.

One of the outcomes of oligopoly concentration within the industry might be a trend for the commuter and regional carriers to become franchise operations of the major carriers. There are specific markets that require a tie-in to such a degree that it would be very difficult for a commuter and regional carrier to operate without one. With this in mind, the major carrier could, and probably will, dictate routes, schedules, and so forth to the commuter and regional carriers.

In addition, it was anticipated that oligopoly would probably lead to a certain amount of vertical integration within the industry. This concept has already appeared with United Air Lines purchasing a car rental company this past summer. There are indications that this trend will continue within the industry. This business trend could be advantageous to the airlines, particularly in terms of weathering the downturns in the economic cycle. Vertical integration will have certain benefits in terms of point-to-point travel. The concept of flying, driving, and lodging with one company could be profitable for the airlines and convenient for the traveling public.

It was thought that oligopoly will not necessarily lead to higher fares or less growth within the industry because of the belief that the number of competitors in the market is not the driving force in competition. The driving force is, instead, related to how companies compete. Two or three competitors can be just as competitive as can five or six. Competition will vary tremendously by the market and the circumstances.

Industry Capacity and Growth

Industry capacity problems lie not in the air but on the ground. Many of the capacity problems that currently exist within the system could be alleviated to some degree with changes in pricing within the air traffic access system. Leadership for dealing with price changes will not come at the federal level. Instead, any leadership in this area will probably come from the local level. The specific leader at this time seems to be the Port Authority of New York and New Jersey, which is currently studying the possibility of radically different pricing mechanisms for their airports.

These could have some serious consequences for the industry; they could, for example, cause significant changes in travel patterns. The major barrier to changes in the pricing of the air traffic access system, however, is the general aviation industry. Obviously, the general aviation industry is concerned with its access to airports and some very real questions about fairness have to be addressed in any realignment of pricing. However, the consensus was that the air traffic access system will change in the sense that new pricing mechanisms need to and will be adopted.

With respect to the National Airspace System Plan (NASP), the view was that perhaps what FAA has proposed is not the best possible adaptation from a technological standpoint. There may, indeed, be better technologies available that could make the system more efficient. However, from a practical political standpoint, the NASP may be the only solution that can be implemented. In that context, it is still better than what is in existence at present.

With a few possible exceptions no new airport construction was foreseen for commercial aviation. This is not necessarily an impediment to the future growth of the industry because it relates to the peak-pricing scenario. It was felt that the existing airport system has a great deal of unused capacity and also has a great deal of potential for expansion construction at existing airports.

In regard to growth in the industry, the session was of the mind that the FAA forecast to the year 2000 was not unrealistic. The FAA has forecast about 5 percent annual growth. This growth will be driven by an increase in real income. Business travel, it was determined, is in itself inelastic and should continue ad infinitum. However, the airline industry will have to compete with other diversions for discretionary travelers' money (new cars, houses, entertainment, etc.).

The incentive for travel will remain strong at a competitive price and a high percentage of discretionary travel will be accomplished by air transport.

Industry Environment

Aircraft size will be driven by the market. The current trend, in terms of new aircraft acquisitions, toward narrow bodies will continue until such time as the air traffic control system collapses from all the aluminum overhead. The marketing strategy of the industry (i.e., frequency) dictates the narrow-body aircraft. There will have to be some significant changes before the airlines move away from their involvement with narrow bodies. However, the relative size measured in available seat-miles is increasing because the current-technology narrow-body aircraft contain more seats than the equipment of past years. Aircraft types that already exist in the fleet will not leave the fleet any time soon. These aircraft will remain flying as long as it is economically feasible to do so. Certain airlines are spending significant sums upgrading the structural components of their aircraft. It was reported that the aircraft themselves, if properly maintained and properly reskinned, will be around until such time as the economics of the whole industry change. One of the factors that could cause this change to occur rapidly would be a gigantic increase in fuel cost. However, the forecast is for the cost of aviation fuel to remain stable for years to come.

There will probably be a few small niches in which large aircraft of the 600- to 1,000-seat

variety could be operated. Whether there would be a large demand for this type of aircraft, however, is questionable. In certain individual instances they would probably be the most economical type of aircraft to operate, but these types of situations are limited and their number probably will not grow dramatically. The supersonic transports and the hypertechnology-type aircraft will not become part of the industry until such time as the unit costs of those aircraft can be decreased so they may become economic. Cost precludes these technologies from commercial service at this time.

Competition from telecommunications will not be a major factor in the short term. It could, however, be a limiting factor to growth five or ten years hence. This does not mean that the airlines can expect to lose their business travel market. The consensus was that the airlines potentially stand to lose a portion of the traffic they might be expected to gain in the future. This will be a normal development because the telecommunications industry itself is embryonic and we have hardly even seen some of the potential capability it possesses.

In summary, the safety issue will be the only basis for reregulation. Economic deregulation has met its objective and is working well. The airline industry in the future will be composed of a loose oligopoly. Capacity restraints in the industry can basically be attributed to ground rather than air-borne congestion. Traffic growth will continue at a 5 percent annual rate with the aircraft forecast still centering upon narrow-body aircraft because of market dictation.

Minority View

One panel member's view of the industry's future differed significantly from that of the majority. This individual believed that free entry into the market will prevent a tight oligopoly from developing. Further, he was of the opinion that the structure and practices of Southwest Airlines and People Express Airlines will be the model for airlines in the future. If this trend translates into lower overall industry operating costs resulting in lower fares for the general public, the 5 percent annual forecast growth for the industry could be seriously understated. This growth will have significant implications for airframe manufacturers, airports, and the air traffic control system.

AIR CARGO INDUSTRY

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The United States air cargo industry has changed significantly since the deregulation of the airline and trucking industries. Many combination carriers have sold their freighters, all-cargo airlines have entered the forwarding business, air freight forwarders have entered the airline business, the overnight express business has blossomed, and many air cargo operators now use trucks to haul cargo at air rates when and where applicable.

Industry Trends

Air cargo has become a true service industry promising fast, safe, reliable point-to-point shipment of freight, traditional mail, documents, and express

products. This service has traditionally been sold on the basis of elapsed time to delivery, but the advantages of air cargo are now more widely viewed as a lower total cost of distribution, with the costs including loss or damage, interest expense, other warehousing expenses, economic or physical perishability, and the cost savings associated with the shipment of emergency goods. Just-in-time inventory is becoming more widely used in business, and air cargo is well equipped to support this practice. The developments during the last eight years in the overnight express business have created a new product for business in general to which many businesses are just beginning to adapt.

The growth of the overnight express market, in the near term, seems to be limited only by the availability of new products to be offered by the carriers and the imagination of consumers' management in taking advantage of those products. Double-digit growth is expected in overnight express for at least the next five years, but the market should begin to show some signs of maturing by 1990.

The traditional air cargo market should outperform the growth in real GNP for domestic United States operations, and international operations should do even better. Any new trade restrictions would most likely have a significant negative impact on air cargo given that the most trade-sensitive industries are generally those that are high technology, high value. The products of these industries are also those that are most often shipped by air. The current discussions on limiting trade may not result in new trade laws, but this currently represents a threat to international air cargo growth.

It should be noted that the group was not sure that a reliable measure of air cargo growth is available. The traditional measure has been revenue ton-miles (RTMs), but there are some reasons that this measure is not as effective as it has been in the past. Concern regarding the measurement of air cargo activity came from two distinct sources.

The first source of uncertainty regarding the "growth" of air cargo as measured by RTMs results from technological developments in the industries that have been traditional air cargo customers. Improvements in technology have made possible smaller, lighter, and more durable products including office machinery, statistical machines, auto and aircraft parts, and consumer electronics that can be shipped by air. Packaging for shipment has also become lighter and more compact. These developments would clearly have a negative impact on the number of RTMs performed, assuming that the same "quantity" of goods was shipped. It is conceivable that the air cargo industry has seen a significant increase in real dollar value of shipments while the level of RTMs may have declined. In other words, the air cargo industry may be significantly more "important" to the economy in general although it may look as if it is less important.

The second issue has to do with the availability of data used to measure air cargo activity. The current data bases for United States operators are less than comprehensive with some carriers not reporting their data. Some efforts are under way to provide an industry data base, but not all operators are participating. It is in the best interests of the air cargo industry to have a comprehensive data base available for planning purposes. The significant investment required for aircraft, ground equipment, and sorting facilities