

Some Probable Effects of Deregulation on Airline Industry Economics

JUAN C. O'CALLAHAN

ABSTRACT

The larger U.S. airlines will probably continue to face severe economic difficulties throughout this decade. The reason for this pessimistic projection is that the established carriers will face a prolonged erosion of their overall profits (in relation to their costs) from sustained low-fare competition by low-cost specialist carriers that entered the air transportation industry after deregulation. This erosion of profits could be exacerbated not only by the expansion of low-fare, new-entrant passenger carriers of various specialty categories, but also by the diversion of heretofore profitable belly cargo to the vertically integrated services of specialist freight, mail, and package-express companies. The conclusion drawn here is that the danger of deregulation in the longer term may be in producing the opposite of what it intended; for example, less competition, half a dozen mammoth air transportation companies, and few small- or medium-sized carriers above the regional carrier category.

The potential impact of the current challenges to the airline industry in the long term is the focus of the discussion in this paper.

The larger U.S. airline carriers will probably face further sustained erosion of profits during the 1980s from new competition targeting business traffic as well as discretionary travelers and new competition for large volume freight as well as packages, priority and express cargo, and mails.

The discussion in this paper focuses on

1. New-entrant passenger carriers,
2. Other low-fare and specialist passenger carriers,
3. Low-cost passenger carrier expansion,
4. New-entrant cargo carriers,
5. Other specialist cargo carriers, and
6. Potential U.S. mail contractors.

New-entrant passenger airlines are predominantly shorter-haul carriers for high-density markets, that provide high-frequency, low-fare, one-class service. These carriers are modeled after Pacific Southwest Airlines (PSA), the original short-haul carrier and Southwest, currently the largest supplier of short-haul service. The operating concepts of these carriers are well known, for example, modern, but often used, efficient equipment, high utilization, fast through and turn times, high employee productivity (through new reimbursement concepts and job descriptions), no-frill services, high-density seating, and simple fares coupled with low overhead. Southwest, in 1980, at an average stage length of less than 300

miles, achieved a total operating cost of \$6.80 per mile (excluding interest expense) with 737-200 aircraft and an operating profit margin of 23 percent.

The cost savings achieved by new-entrant carriers are partly effected by

- Aircraft productivity, for example, 11 1/4 hours versus; 7 1/2 hours utilization reduces insurance rates, depreciation, and interest expense (or lease cost) accounts by more than 30 percent on an hourly basis;
- Flight crew and cabin attendant productivity; for example, fewer personnel per flight, more flight hours per month, added job responsibilities, less crew expenses, and lower wage scales can save up to 60 percent on these accounts versus equivalent pre-1980 trunk carrier costs on similar route stage lengths; and
- Moderate but cumulatively significant savings on maintenance labor and burden, aircraft and passenger handling, other passenger services, ticketing and sales, and general and administrative cost accounts.

The resultant cost levels permit point-to-point rate structures that are usually about 40 percent below the 1981 economy fare levels in existence before the start-up airlines entered the market. The rate structures are somewhat higher for new-entrant carriers if older and less cost-effective aircraft are used.

These low-cost airlines (established carriers like Southwest, new entrants, and proposed start-ups) have covered the obvious markets in the United States, and where gaps exist, additional new carriers will likely enter the market. Recently, starting a new domestic airline has been a remarkably simple exercise. All that is needed is an Official Airline Guide (OAG), basic Civil Aeronautics Board (CAB) origin and destination data, and Economic Regulation (ER) 586 and other Form 41 data. With a few months' work, an individual could formulate a corporate plan, prepare a CAB service application, and develop a prospectus background presentation for underwriters, lawyers, and banks. Readily available funds, however, have recently been more difficult to obtain, and several proposed start-ups may be unable to secure adequate capitalization and financing.

Meanwhile a new challenge is developing. Lower-cost specialist and former local airlines are moving into longer-range and medium-density markets with efficient twin-jet aircraft and with somewhat lower-cost structures as previously discussed. Examples might include Air Florida and Republic Airlines, which are operating in numerous longer-range markets between various quadrants of the United States. The airlines that were formerly supplemental carriers also operate low-fare scheduled services in certain major long-haul markets, although a proportion of these services are concentrated between secondary airports. Perhaps of equal significance is a new service concept proposed by Texasamerican. This concept consists of a medium, long-haul network extending from the fast growing, previously underserved (before mid-1981) areas comprising the south

Texas and Oklahoma basins with a marked concentration on first-class and full-fare higher-yield services.

Half a dozen carriers equivalent to Texasamerican--not necessarily all new entrants (Southwest, Federal Express, Air Florida, and several other carriers)--would readily employ the same concept on a larger scale. If, economically, these carriers were as efficient as Southwest in this different service-tier structure, they could force the larger airlines to compete with below-cost fares over a sizable portion of their medium-range systems. Besides capturing significantly higher yield traffic, a medium, long-haul low-fare (low economy fare and also low first-class fare) specialist industry comprising, for example, 100 aircraft by the mid-1980s, would exert even greater pressure on the larger airlines to reduce overall yields to generally unprofitable levels.

The U.S. air cargo industry, generally, has not witnessed dramatic change in terms of growth, new service concepts, or marketing techniques (with certain specific exceptions). During the decade of 1971-1981, cargo ton-mile growth by the former trunk carriers and the all-cargo carriers was only 4 percent per annum--higher, of course, in belly cargo than in freighter aircraft. Since the deregulation of cargo in late 1977, average annual cargo ton-mile growth to 1980 has been even lower, whereas cargo yields have increased at almost the same level as passenger yields.

In short the potential impact of cargo deregulation has yet to demonstrate any significant breakthrough. Some adverse economic effects, however, may appear earlier than expected. What of the future? The large forwarders are acquiring or beginning to contract for their own aircraft fleets. Vertically integrated, surface-air transport is a frequently heard new buzzword. Yet the complexity of U.S. air cargo is little understood and virtually not studied in depth except by those in the freight forwarder field and a few cargo-oriented airlines, such as Flying Tigers and Northwest. Cargo appears to be the step-child of the air transport industry.

In Europe Cargolux expanded its business based on an effective surface transfer fleet (contracted in part) in addition to a low-cost, quasi-charter planeload schedule structure. In consortium with certain major foreign forwarders and CCAs, it captured a freight market that had nothing to do with its own national country of origin or destination. Its traffic was and still is German, British, Dutch, French, Middle East, Far East, West African, United States, and Central and South American. It operates 747 freighters on its main routes at the lowest available ton-mile costs. Luxembourg is essentially a transfer hub the equivalent of Memphis for Federal Express, but for large volume freight instead of small express-service packages. Cargolux may have to struggle economically, particularly in the short term, but it is not difficult to perceive the losses its freight competitors will have to sustain in order to crush Cargolux.

What would be the impact on the larger U.S. carriers if a carrier similar to Cargolux emerged in the United States, or, taken a step further, a carrier that was corporately integrated with the major freight controlling forwarders? The probable answer is that the response (in the mid to late 1980s) of some of the more aggressive larger airlines would be to integrate vertically, acquire and operate many more freighter aircraft units, or incur further losses. This in turn could tend to reduce combination aircraft belly loads and lower the vital property yields on these aircraft that now make the difference between profit and loss.

The potential erosion of combination aircraft yields through diversion of freight will put new pressure on the larger airlines to increase passenger fares. At the same time, these airlines, as discussed previously, may be facing the challenge of widespread pressure from smaller, low-cost carriers.

In a specialist cargo category, Federal Express demonstrated a new concept which, in its field, was far more dramatic than Southwest's example in the passenger category. In 1981 Federal Express achieved an operating profit of more than \$100 million despite its use of a large number of small, relatively high-cost aircraft. The current Federal Express economic cost structure, as a percent of gross, can be reasonably estimated as follows:

Cost Structure	Percent Gross
Flying operations	30
Field services and hub and spoke handling	35
Selling and marketing	5
Administrative and other	12
Operating profit	18

Federal Express, until now, has had little need to be concerned with lowest ton-mile cost aircraft: its parameters were lowest-per-mile costs because its break-even load factors (and probably its on board load factors) were remarkably low. Thus it had the advantage of being able to acquire used, former-generation, low-depreciation, and low interest-expense burdened aircraft. Recent departures from this principle include its acquisition of new 727-200 aircraft, instead of used DC8-60 series types, and relatively expensive DC-10-30s. However, even with the more expensive 110,000-lb payload DC-10-30 aircraft--as loads become significantly greater and average density decreases--Federal Express's remarkable profit-making capability can be illustrated by observing that its break-even load factor on this aircraft is probably less than 10 percent. A theoretical example (based on 1981 conditions) is as follows:

- DC10 coast-to-coast via Memphis operating cost: \$55,000
- Flying operations and hub handling cost offset per piece (at 50 percent of average piece charge): \$10
- Break-even number of pieces on board: 5,500
- Average DC10 on board break-even load tons (at 1.5 lb/piece): 4.13
- Average DC10 break-even load factor: 7.5 percent

What do all these factors have to do with current challenges to the airline industry? First, in retrospect, Federal Express's innovation is a concept that any major airline could have originated. However, new forms of cargo-related studies were not then being undertaken, and high-investment cargo concepts were anathema to major airline managements. Second, the CAB Sunset Act could encourage U.S. Postal Service contracting which--coupled with the example set by Federal Express--might lead the postal giant to develop a similar concept. Third, several relatively new participants in the express package field could develop central sorting hub structures thereby siphoning from the major airlines not only priority pieces but other categories of freight traffic as well.

U.S. Postal Service contracting authority could be a catalyst for extensive, full-planeload mail conveyance contracting similar to the military Log-air and Quicktrans contracts. If planeload rates are attractive (preliminary indications are that

they could be some 25 to 30 percent below equivalent 1981 CAB mail rates), the U.S. Postal Service could justify airlifting certain categories of surface-rated mails. This could mean more domestic mail being transported by air, but less being transported in scheduled service belly compartments. Once again, this could mean a further erosion of combination aircraft yields. The major carriers will undoubtedly bid for U.S. Postal Service contracts, which probably total more than \$400 million annually, but not all carriers will necessarily get them, whereas all carriers will face continued and increased pressure on the profitability of their passenger operations.

If these challenges are real, the larger airlines will react in a number of ways to counter low-fare, short-haul specialists, medium long-haul low-cost specialists, express-package specialists, forwarder-cargo airline specialists, and other new-entrant carrier specialists. It could take a decade to wage a counter-strategy, and during those years the larger airlines could experience large and continued losses. (This conflict might well be similar to the decades-long battle of the large international scheduled airlines versus the charter carriers on the North Atlantic, where everyone lost.)

Domestically, some of the stronger major airlines, such as United, American, Delta, and Northwest, could eventually win this conflict and force a number of new entrants out of business. To do so, however, will require a sustained erosion of their potential profit base. Furthermore, some of the weaker major airlines will be caught in the middle and may not survive.

As part of the counter-strategy, some of the larger carriers will probably get far larger. They may effect further mergers, integrate with freight

and other specialist concerns, possibly create specialist carriers of their own, and become giants if they can.

The so-called nationals, in order to be viable in the longer term, may also have to form liaisons, mergers, or acquisitions and formulate a difficult strategy of rapid growth without incurring large losses. Long-haul national carriers could merge with medium- and short-haul feeder carriers, for example, or vice versa, and become effective full-service airlines (e.g., Transamerica with Republic, World with Frontier). They also may have to integrate with freight specialists, if possible. There will be a number of failures, and these will not all be new entrants or smaller airlines.

The danger of deregulation in the long term is that it may produce, in the United States, the opposite of what was intended--for example, less competition, half a dozen mammoth air transportation companies, and very few small- or medium-sized carriers (above the regional category).

In the interim, the economic outlook for the larger established airlines during this decade is generally bleak except for a year or two of fair profits--but certainly nowhere near the sustained 15 percent return on investment the industry needs to reequip periodically and to provide effective growth and service. For some carriers the challenge to remain viable will be difficult. Long-range strategic planning and development of innovative concepts have never been more important.

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Discount Fare Market Research, 1981-1983

DONALD J. BENNETT

ABSTRACT

In 1981 and again in 1982-1983 Boeing sponsored surveys of passengers flying on U.S. and Canadian airlines to determine their responses to various proposed discount fare plans. From analysis of these surveys, it is apparent that (a) passengers will use reduced fares, even for small savings, whenever it is convenient for them to do so; (b) passengers who did not use a discount fare listed fare restrictions more often than any other reason; and (c) the ability of passengers to meet restrictions varies greatly depending on the characteristics of the market being considered. Incorporation of these findings into the design of discount fare plans is critical for an airline with an objective of maintaining or increasing

profit levels. Proposed discount fare plans must be carefully evaluated. Market research is necessary to determine discount levels that will stimulate additional travel without undermining profitability. Characteristics of travel in the targeted markets must be determined in order to design restrictions that effectively control the tendency of potential full-fare passengers to divert to discount fares.

Discount fares can have a significant effect on the profitability of an airline. To understand this effect, it is necessary to evaluate the response of the marketplace to a proposed fare--from the point of view of both the traveling public and an airline's competitors. Boeing continues to sponsor