

Table 1. Recent world air traffic forecasts (revenue passenger-kilometers).

<u>Forecast organization</u>	<u>Date of forecast</u>	<u>Average growth rate</u>	<u>Traffic index for 1993 (1982 = 100)</u>
General Electric	Feb 83	4.4 % (82-92)	160
Airbus	Mar 83	5.3 % (80-90)	176
Boeing	Mar 83	5.8 % (82-95)	186
McDonnell Douglas	Apr 83	5.9 % (83-93)	188
Pratt & Whitney	Apr 83	6.0 % (82-92)	190
Rolls Royce	Jan 83	6.0 % (82-92)	190
Lockheed	Mar 83	6.3 % (81-92)	196
ICAO	Jun 83	7.0 % (82-92)	210
Average for above 8 forecasts -----			187

INTERNATIONAL ENVIRONMENT

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This session was devoted mainly to discussion of issues and questions related to medium and long term air traffic forecasting for the world as a whole or for broad groupings of countries. The field of interest included all categories of air carrier traffic and not merely international services.

The group first undertook a general review and comparison of eight recent world air traffic forecasts. The authors of these forecasts and their main results are shown in Table 1.

In terms of average growth rates the eight forecasts range from a low of 4.4 percent per annum to a high of 7.0 percent per annum. The corresponding range in terms of total growth between 1982 and 1993 is from 60 percent to 110 percent. However, five of the eight organizations envisage average growth rates of close to 6 percent yearly for the coming decade.

During the discussion of the eight forecasts reference was made to the exchanges of views which take place among the forecasters and the tendency to apply the same or similar assumptions regarding economic development and other factors. It was recognized that this results in some echo-effect in the forecasts which are not, therefore, truly independent assessments of the future prospects.

A common feature of the global forecasts is that the expected growth rates for international traffic are at least one percentage point higher than those for domestic traffic, reflecting the fact that most of the domestic traffic is accounted for by the United States and a few other countries which also have highly developed domestic networks. To the extent that the forecasts include regional breakdowns the expected growth rates vary substantially among the major geographical regions. In the case of the International Civil Aviation Organization (ICAO) forecasts, the growth rates range from 5.5 percent annually for North American carriers and 6 percent annually for European carriers to 10 percent annually for carriers of the Asia/Pacific and the Middle East regions.

During the discussion of the main factors affecting future traffic growth there was consensus in the group that economic growth will be the most important factor during the next decade, overshadowing the likely effect of advances in technology and operating economics.

The group agreed that for forecasting at the global or regional level, the impact of external

economic factors could only be taken into account through very broad measures such as gross national product or gross domestic product. In air cargo forecasting the impact of external economic factors could be taken into account by relating the volume of air cargo to one of the available measures of international trade since some 80 percent of all air cargo traffic is international.

In drawing these conclusions concerning the impact of external economic factors the group recognized that for forecasting at the national level more sophisticated methods may be justified. In this regard the group noted some approaches where differences in propensity to travel by air among the various sectors of society were applied to projected future changes in the socio-economic structure.

In view of the importance of the general economic environment for air transport growth, the group discussed at length the prospective developments in the world economy. In its "World Economic Outlook", 1983 edition, the International Monetary Fund (IMF) provided assessments of the current world economic situation and prospects for 1983 and 1984, and in a similar publication, "World Development Report 1983", the World Bank recently published forecasts of global economic developments for the period up to 1995. The relevant parts of these reports were presented and amplified by participants from the two organizations.

As regards short term prospects, the IMF expected the aggregate gross domestic product of developed countries to grow by about 2 percent in 1983 and 3.75 percent in 1984. The developing world was expected to show little if any growth in 1983 but a faster growth than the developed world from 1984 onwards. International trade was expected to increase marginally in 1983 and by about 4.5 percent in 1984.

For the longer term the World Bank presented alternative world economic scenarios for the period 1985 to 1995. According to the "central" scenario the gross domestic product will increase at an average annual rate of 3.7 percent for industrial countries and 5.5 percent for developing countries. Export volumes were projected to increase at rates of 4.8 percent annually for industrial market economies, 6.8 percent for developing countries, and 5.1 percent annually for the world as a whole.

During a lengthy discussion of the IMF and World Bank studies and the inherent elements of uncertainty in economic forecasting, it was noted that the prospects as seen by the two organizations were more favorable than projections provided by certain commercial forecasting services which were used by several air traffic forecasters. In this connection

Figure 1. Estimated cost development (IATA - International), 1982-1990.

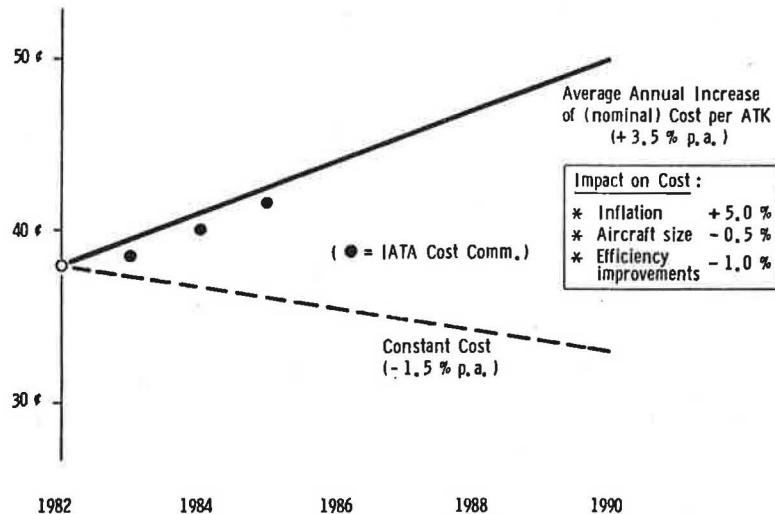


Table 2. International passenger services, 1980.

Geographical Area	% of world intern. traffic	Av. aircraft seats	Av. stage length km.	Total costs c/rpk	Air-craft costs c/rpk	Ground costs c/rpk	Commercial costs c/rpk
Traffic within TC 1 (The Americas)	16.7	176	1 384	7.5 (100%)	4.1 (55%)	1.2 (15%)	2.3 (30%)
Traffic within TC 2 (Europe, Mid East, Africa)	22.8	163	1 477	13.0 (100%)	6.4 (50%)	2.5 (20%)	4.1 (30%)
Traffic within TC 3 (Asia/Pacific)	7.1	225	1 440	8.2 (100%)	4.7 (55%)	1.2 (15%)	2.3 (30%)

it was pointed out that the IMF and the World Bank work in close cooperation with OECD and national governments, and that the research going into their international forecasts was far more extensive than the research on which commercial enterprises could base their global projections.

The group briefly discussed the impact which national restrictions on travel, trade and currency transfers could have on future developments in international air transport. It was recognized that such restrictions represent significant obstacles to the development of traffic in a number of developing countries. However, the effect of these obstacles could hardly be quantified.

Turning to prospective developments of airline operating economics the group examined some projections, costs would continue to decline at the rate of 1.5 percent annually, which is the rate experienced during the period 1968 to 1982. Contributors to this future decline in operating costs would be a general improvement in operating efficiency (-1 percent annually) and the use of more economical aircraft (-0.5 percent annually) (see Figure 1). Among the various airline cost items the most favorable development is anticipated for fuel costs which could go down from about 30 percent of total costs to about 23 percent by 1990 as a result of greatly improved fuel efficiency and stable fuel prices in real terms. On the other hand, aircraft depreciation may increase from about 6 percent to about 9 percent of total costs as a result of increasing prices for new aircraft.

In relation to these projections of global developments the group noted that the present cost levels and structures vary very much in different parts of the world. For that reason assumptions concerning improved operating efficiency which have been derived from a global analysis should not be applied in regional forecasting without taking into account the current cost situation in that region. This point was illustrated by some results of ICAO studies of the difference in costs for passenger operations on major international route groups (see Table 2).

Scheduled international passenger operations within the Americas (TC 1), within the Europe-Middle East/Africa area (TC 2) and within the Asia/Pacific area (TC 3), together account for close to 50 percent of all international traffic. The traffic patterns within these three areas are comparable in terms of average aircraft size and average stage length. Yet the total costs per revenue passenger-kilometer vary dramatically among the three areas, suggesting that competitive and organizational circumstances have a great influence on operating efficiency.

Further evidence that the regional differences in total costs are not merely due to differences in traffic patterns but also reflect what the differing competitive environments permit may be seen in the fact that the differences in overall costs are mirrored in all categories of costs, including costs of a commercial nature (passenger service, sales and promotion, commissions and general

administration). On the basis of the observations made it was concluded that the potential for future cost reductions is significantly greater in some areas of the world than in others.

On the premise that the regulatory and competitive environment is the main vehicle for improved operating efficiency and lower transport costs, at least in those areas of the world where present cost levels are comparatively high, the group briefly discussed the current situation in this regard. It was generally felt that a continued trend towards more liberal regulation and greater competition could be expected in most parts of the world. While this trend would become much less pronounced in some areas where competition was already stiff, such as the North Atlantic, it could be expected to strengthen in other important areas.

The group finally looked into the role of fares in market development and the effectiveness of the present structure of promotional fares in generating traffic on an economical basis. The discussion of these matters was based on the results of extensive passenger surveys conducted by Boeing in the United States and Canada. One finding of these surveys was that where promotional fares were offered, the number of passengers diverted from paying the full fare to take advantage of a promotional fare was more than twice the number of passengers generated by the promotional fares. Furthermore, the diversion of full fare passengers would have been significantly greater if more seats had been available at the reduced fares. Another finding was that small fare reductions effectively generate additional traffic while larger reductions are comparatively less effective. Based on the survey results the conclusion had been drawn that the airlines are suffering from a proliferation of unsatisfactorily restrictive and unnecessarily generous discounts in many markets.

The deficiency of the present fare structure would have been even more striking had the scope of the surveys been extended beyond those who actually fly to cover also potential users of air transport. It was generally agreed that because of the excessive complexity of present day international fare structures, only a small fraction of potential air travellers may in fact be aware of the promotional fares available to them. In other words, airlines may in effect be offering their discount fares to a limited population and therefore have to apply greater discounts for a desired market response than would be necessary if the available fares were less confusing and could be advertised more effectively. The group suggested that this is a significant issue in relation to the continued development of airline travel and warrants additional research by airlines individually and collectively.

STRATEGIC EXTERNAL FORCES
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The session was attended by individuals with a variety of industry perspectives - airlines, manufacturers, the petroleum industry, government, academia, and aviation consulting. There was also a variety of geographic perspectives - from the United States, Canada and Europe.

The subjects covered in this session were

- a) The impact of changing external forces on fleet planning,
- b) Fuel prices,
- c) New market opportunities and societal forces,

- d) Limits to growth,
- e) Aviation technology,
- f) The impact of economic/business cycles,
- g) The "cost/yield/demand/profit dilemma".

Quite naturally, some of the topics covered overlapped with those of other sessions (e.g., Airline Passenger Forecasts and International Environment). Readers are encouraged to refer to the reports of the other sessions for comparative purposes.

The Impact of Changing External Forces on Fleet Planning

The group agreed that, with deregulation and the network type of route pattern such as exists in the United States, there is an inevitable tendency towards a decreasing average aircraft size. The increased competition under deregulation logically leads to increased frequency and that, in a limited growth environment, logically leads to smaller aircraft as carriers strive to achieve a break-even load factor. With a reduction in average aircraft size, unit costs are higher on a seat-mile basis, but lower on an aircraft-mile basis. The latter has increased in importance under U.S. deregulation as service frequency is a key factor in market presence. Possibly as a by-product of this deregulation induced trend, the aviation industry has started to question the long-held view that "bigger is better".

A computer simulation of a large airline system, using the total Canadian domestic market and assuming the airlines have comparable cost structures and are operating in a deregulated environment, showed the financial advantage of streamlining the network system through the use of smaller aircraft.

On international routes and in markets outside North America, there is a continued place for wide-bodied aircraft. With a limited number of gateways and limited frequency competition, the seat-mile cost advantage of a large aircraft favors its use - as long as market demand is sufficiently large.

A statistical comparison which dealt mainly with the trunk carriers, but also included some data on new entrants such as People Express, showed new carriers can operate with very low fares. There are long-run forces which will tend to narrow the cost structure gap between the older carriers and the new entrants. The question is how long it will take these forces to come into play.

As long as there are carriers going bankrupt, there will be aircraft available, for sale or lease, at distressed prices. As long as there are pilots, flight attendants, aircraft maintenance engineers, etc. being laid off, there will be people available who can be hired at low cost. But, as new aircraft have to be acquired and as employees gain seniority, there will be upward pressures on the costs of the new carriers. Looking at the other side of the present cost gap, there is great pressure now on the older carriers to reduce costs, and that is not only because of deregulation, but also because of the current economic environment. Labor costs are an obvious target. The employees' unions are, quite naturally, trying to resist these forces. However, if the choice really boils down to salary restraint or no job at all, the result is not difficult to predict. Thus, the session participants agreed that, over the long term, environmental forces will gradually narrow the cost structure gap.

Research Topics

Potential research topics which were identified in the discussion of this portion of the session are as follows: