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HIGHLIGHTS

DURING 1995 ...

Growth in the world economy was sustained ...

The world's Gross Domestic Product (GDP) grew by an estimated 3.1 per cent in real terms. On a regional basis the change in GDP ranged from an estimated increase of nearly 5 per cent for Asia/Pacific to about 1 per cent for Latin America and the Caribbean (see Chapter 1).

... as was airline traffic growth ...

Over-all scheduled passenger/freight/mail tonne-kilometres performed were up by 7 per cent and international tonne-kilometres by 9 per cent. There were significant differences in the traffic growth between regions, ranging from increases in total traffic of about 4 per cent for carriers registered in North America to almost 13 per cent for those in the Middle East (Chapter 2).

Airline finances continued to improve ...

Preliminary estimates indicate that the world's scheduled airlines as a whole experienced an operating profit — 5.1 per cent of operating revenues — for the third year in succession (Chapter 2).

... and aircraft orders more than doubled ...

The number of turbo-jet aircraft ordered was 678 compared to 314 in 1994. The financial commitment for orders placed for these aircraft is estimated to be about U.S.$ 36 billion, more than double the U.S.$ 14 billion estimated for 1994 (Chapter 2).

The pace of liberalization received new impetus ...

The number of bilateral agreements and memoranda of understanding concluded between States was double the number for 1994. Among those negotiated were a number of so-called "open skies" bilateral agreements concluded between the United States with nine other States (Chapter 2).

Privatization of airlines continued ...

Privatization aims were achieved during the year for 7 carriers, while new privatization objectives were made known for 9 carriers in addition to 25 other government-owned carriers targeted for privatization in previous years (Chapter 2).

... as did foreign investment in airlines ...

Airlines continued to expand transnational alliances, including code-sharing, joint services, and joint participation in frequent-flyer programmes (Chapter 2).

... and autonomy given to infrastructure providers ...

The evolution of autonomous authorities to operate airports and air navigation facility services also continued (Chapter 3).

Airport construction continued ...

Two new international airports opened (Denver in the United States, and Macau), construction on a number of other new airports continued and major expansion projects were under way in all regions (Chapter 3).

Development and implementation of a satellite-based navigation system continued ...

Significant progress was made by a number of States and international organizations in the development and implementation of a global satellite-based Communications, Navigation and Surveillance/Air Traffic Management (CNS/ATM) system to replace existing line-of-sight systems (Chapter 3).

... meanwhile, existing air navigation facilities and services were enhanced ...

Air traffic control systems around the world were being updated as part of the evolution process to a global ATM system. Meteorological services were also enhanced through the use of automated weather stations and computer-generated weather forecasts (Chapter 3).

Safety remained a top priority ...

Preliminary information on aircraft accidents involving passenger fatalities in scheduled air services shows that there were 26 fatal aircraft accidents involving 710 passenger fatalities in 1995 compared to 28 fatal accidents and 941 passenger fatalities in 1994. The number of passenger fatalities per 100 million passenger-kilometres declined from 0.045 to 0.03. In October the ICAO Assembly endorsed all aspects of the safety oversight programme of the Organization (Chapter 4).

Security showed significant improvement ...

There was a significant decrease in the number of acts of unlawful interference; there were 14 such incidents compared with 37 in 1994 (Chapter 4).

ICAO promoted new technologies to speed up clearance procedures ...

The Eleventh Session of the ICAO Facilitation Division made a wide range of recommendations for faster and more efficient clearance procedures for passengers and cargo, including many promoting the use of automation (Chapter 4).

Environmental impact studies continued ...

ICAO continued to review the actions needed to further reduce aircraft noise, and is studying the adoption of more stringent standards for engine emissions (Chapter 4).

BETWEEN 1995 AND 1998 ...

Airline traffic is expected to continue to grow ...

Total scheduled passenger traffic (in terms of passenger-kilometres performed) is expected to grow at 6-7 per cent each year over the period 1996-1998 (Chapter 5).

Airline finances should continue to show gradual improvement ...

Scheduled airline revenues (including revenues from freight, mail and other sources as well as from passengers) are forecast to increase more than expenses over the next three years, leading to a continued improvement in airline finances (Chapter 5).

Regional differences in traffic growth will remain ...

The passenger traffic of airlines registered in Asia and the Pacific is expected to show the highest annual average growth, over 9 per cent, compared with an annual average growth rate of just under 7 per cent for the world. The passenger traffic of airlines in the Middle East, African and Latin America and the Caribbean regions is expected to grow at rate a little above the world average rate; European airline traffic is expected to grow at a slightly slower rate than the world average, while airlines in North America, the world's most mature aviation market, are expected to experience the lowest regional rates of traffic growth (Chapter 6).

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FOREWORD

Introduction

1. This circular, *The World of Civil Aviation — 1995-1998,* is the fourth in an annual series of publications covering recent and future developments in civil aviation; the developments for the previous period 1994-1997 were published in Circular 258. In the present circular, Part I reviews the main events in or affecting international civil aviation in 1995, Part II analyses trends in the world economy and the air transport industry and presents global forecasts of airline scheduled passenger traffic through to 1998, and Part III reviews, on a region-by-region basis, the year 1995 and gives prospects through to 1998.

2. More extensive aviation statistics for 1995 may be found in the ICAO statistical yearbook, *Civil Aviation Statistics of the World, 1995* (Doc 9180/21), a compendium of the key statistics published in the various ICAO Digests of Statistics. Other publications of the Organization which complement and supplement *The World of Civil Aviation* are the studies of *Regional Differences in International Airline Operating Economics* (annual, previously entitled *Regional Differences in Fares, Rates and Costs for International Air Transport*), and the *Surveys of International Air Transport Fares and Rates* (triennial). Finally, the medium-term forecasts in *The World of Civil Aviation* are complemented by longer-term and more extensive forecasts published biennially or triennially, the most recent publication being the *Outlook for Air Transport to the Year 2003* (Circular 252).

3. A *Catalogue of ICAO Publications and Audio Visual Training Aids* is available on request from:

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Sources

4. In addition to the Digests of Statistics and other ICAO publications referred to above, sources of information for *The World of Civil Aviation* include relevant and most recently available statistical publications of the United Nations; the United Nations Conference on Trade and Development (UNCTAD); the International Monetary Fund (IMF); the World Bank; the

World Tourism Organization (WTO); the Organisation for Economic Co-operation and Development (OECD); the European Civil Aviation Conference (ECAC); the United States Department of Transportation (DOT); the Airports Council International (ACI); the International Air Transport Association (IATA); the Association of European Airlines (AEA); Wharton Econometrics Forecasting Associates (WEFA); Airclaims Ltd.; and Avmark Inc.

5. Another source of information used for *The World of Civil Aviation* was the large and constantly updated collection of research material on hand at ICAO, including completed ICAO studies, periodical and occasional publications of national administrations and international organizations, studies prepared by research agencies and individuals, and the aviation press. Finally, an information collection exercise specifically for *The World of Civil Aviation* was carried out through the seven ICAO Regional Offices.

6. The statistical data for 1995 appearing in this circular are to be considered as preliminary: experience shows that the margin of error for world totals is probably less than 2 per cent, except in the case of profit margins where it may be considerably higher. *Unless otherwise noted*:

a) all statistical data are applicable to ICAO Contracting States (184 at the end of 1995);

b) regional breakdowns are by ICAO statistical region (see map preceding Chapter 6);

c) traffic statistics are for revenue scheduled services;

d) total airline financial statistics relate to non-scheduled as well as scheduled operations of scheduled airlines.

e) the expression "tonne-kilometre" means metric tonne-kilometre; and

f) the word "billion" means one thousand million.

Monetary Unit

7. Unless indicated otherwise, all references in this circular to "cents" mean "U.S. cents", and all references to "$" mean "U.S. dollars".

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PART I

THE WORLD IN 1995

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Chapter 1
Economic Influences

1.1 While growth in air traffic has historically been greater than growth in the economy, there is a strong correlation between the two and the demand for air transport is primarily determined by economic development. Developments in personal income affect the level of purchasing power and the propensity to undertake leisure travel in general and air travel in particular. Commercial activity and trade have a direct impact on the demand for business travel and for air freight.

1.2 Crude oil prices play a key role not only in the health of the world economy, but also in air carrier costs (fuel costs have ranged between 12 and 25 per cent of scheduled airline operating costs over the past decade). Inflation, interest rates and currency markets are among other important factors which affect the world economy in general and international aviation in particular.

1.3 As background to the analysis of the world of civil aviation in 1995, which follows in Chapters 2 to 4, this chapter reviews developments in 1995 in world economic output, trade and international tourism; in inflation, interest rates and currency markets; and in crude oil and jet fuel prices.

GROSS DOMESTIC PRODUCT

1.4 In 1995 the world's Gross Domestic Product (GDP), which is the broadest available measure of economic activity, grew by an estimated 3.1 per cent. This result masks a wide variation in the economic performance of different regions and States. Over all, the economic outcome was achieved in conditions of stable or improving inflation which bodes well for prospects in the medium term.

1.5 The North American economy slowed in 1995, partly in response to the pre-emptive tightening of monetary policy in 1994. The rate of capacity utilization in the United States economy remained high. In Western Europe, restrictive fiscal policies and relatively high real interest rates restrained aggregate demand and economic growth. After more than three years of very low growth, the Japanese economy began to pick up in the latter part of 1995, following reductions in interest rates and in the value of the yen and proposals to resolve problems in certain financial institutions.

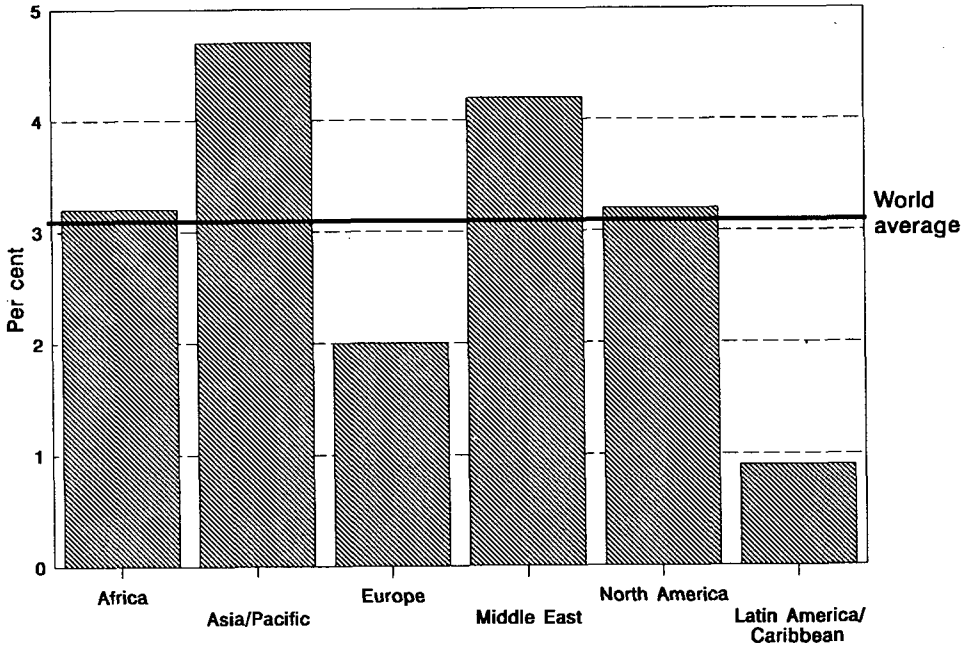
1.6 In the former centrally planned economies of eastern Europe and the Commonwealth of Independent States (CIS), the process of transition towards market-based economies

continued in 1995. Most countries had improved growth or smaller declines in output when compared with their experience in recent years.

1.7 Many developing countries in Asia, Africa and the Middle East experienced buoyant economic conditions in 1995. This was especially true of East and South East Asia, where growth of 9-10 per cent was achieved by a number of countries. While the 1995 growth in Asia generally followed good performance in previous years, that of States in Africa and the Middle East frequently represented a significant improvement. Performance in Latin America was adversely affected by the consequences of a financial crisis in Mexico at the end of 1994; output in both Mexico and Argentina declined abruptly in 1995.

1.8 Figure 1-1 illustrates the relative regional economic growth rates in 1995 for the ICAO statistical regions. It is important to appreciate that many assumptions (particularly concerning the weighting process) are embodied in both the global and regional estimates.

1.9 The diverse economic experience was a factor in wide variations in air carrier traffic development in 1995, illustrated particularly by the contrast between buoyant economic and traffic performance in much of the Asia/Pacific, Middle East and African regions and the declines in the CIS. While the relationship between economic growth and air traffic demand is



Source: ICAO estimates based on the Organisation for Economic Co-operation and Development (OECD), the International Monetary Fund (IMF), Wharton Econometrics Services and other economic sources.

Figure 1-1. Annual change in real GDP, 1995/1994

powerful, the link between economic growth in a region and the traffic of airlines registered in the region is becoming more complex as regulatory conditions, airline alliances and market shares change in an increasingly competitive environment. Chapters 5 and 6 discuss economic trends and their impact on traffic; the traffic forecasts presented there take into account the economic outlook for the next three years.

TRADE DEVELOPMENTS

1.10 As in 1994, world trade expanded at a much greater rate in 1995 (at about 8.7 per cent) than world GDP, reflecting the liberalization of international trading and financial relationships and the process of globalization. The exports of industrial countries (as a group), developing countries and countries in transition towards market-based economies all expanded vigorously, and there was also a rapid expansion of trade in services, notably in financial and communications services. These trends in international trade and current account transactions have generally had a positive impact on international air freight demand and business travel.

1.11 The progressive liberalization of trade at both the global and regional levels is serving to stimulate trade and economic growth and hence international traffic demand over the long term. New world trading arrangements agreed in 1994, encompassing trade in services for the first time, will foster further liberalization. Regulatory trends within the air transport industry itself, generally in the direction of greater liberalization as discussed in Chapter 2, could also have a direct positive effect on traffic demand in the long term.

TOURISM

1.12 The demand for international air travel is related in part to the demand for international tourism. Preliminary estimates of the World Tourism Organization (WTO) indicate that international tourist arrivals grew by 3.8 per cent and tourist receipts by 7.2 per cent in 1995. These global rates are affected by a relatively modest performance (i.e. below 5 per cent growth) in the large European and North American markets. The smaller markets of Asia and the Middle East experienced solid growth in 1995, arrivals having increased by more than 8 per cent in these regions.

1.13 There is a tendency for tourist travel to be growing particularly rapidly in long-haul markets, which is favourable for the air travel industry. Furthermore, the flexibility of air transport is facilitating the development of new tourist markets involving ever greater numbers of countries.

INFLATION, INTEREST RATES AND CURRENCY MARKETS

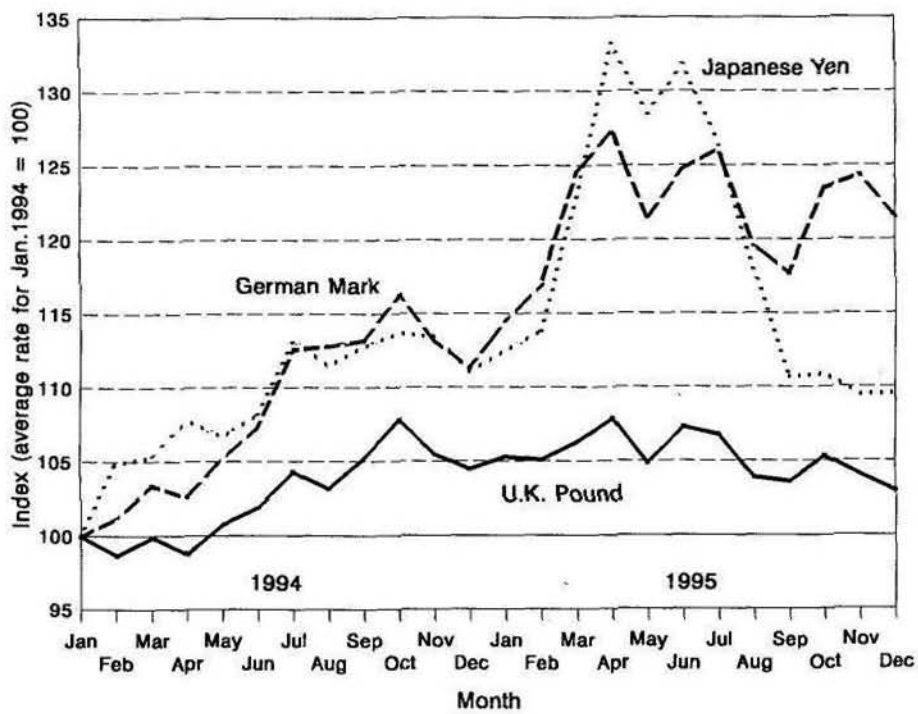
1.14 The average rate of inflation in industrial countries remained very low at about 2.5 per cent in 1995. In this environment, cost pressures on the airlines of the developed world were subdued. On the other hand, inflation was generally high in developing countries in 1995, with a weighted average of 38 per cent in Latin America, 26 per cent in Africa and 11 per cent in

Asia. Inflation was even higher in some of the countries in transition to market-based economies, although significant improvements have been achieved since 1994.

1.15 Short-term interest rates, which reflect the stance of monetary policy, generally declined during 1995 in industrialized countries, in response to a weakness in aggregate demand and economic activity. Long-term interest rates generally also fell during 1995, reversing the rises of the previous year. Interest rates are quite low by the standards of past years, which is a favourable factor for the cost of borrowing for civil aviation.

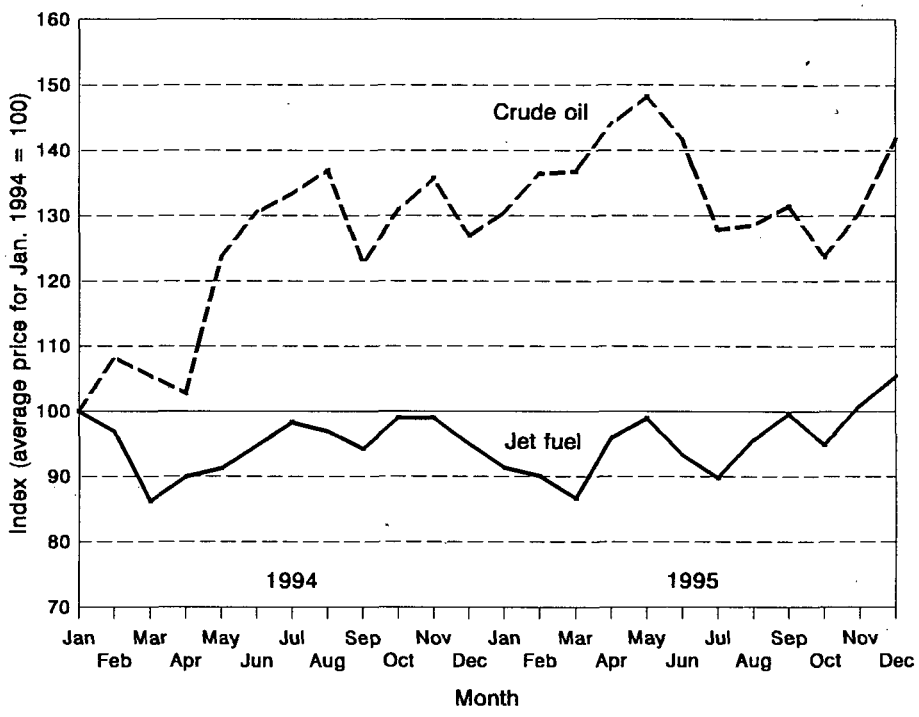
1.16 Currency exchange rates during the year responded to international differences in interest rates and inflation rates, and to trade balances and various speculative pressures in individual countries. Among the major currencies, the German mark rose further against the U.S. dollar in 1995, although its rise was less than in 1994 (Figure 1-2). Early in 1995, the Japanese yen rose in value dramatically, reaching a peak against the U.S. dollar in April and presenting a threat to prospects for recovery in the Japanese economy. However, the yen subsequently depreciated to a level more consistent with economic fundamentals.

1.17 Movements in exchange rates affect relative prices of international travel markets and hence the distribution of traffic flows. For example, the appreciation of the mark against the United States dollar tends to reduce prices of air tickets and accommodation for German



Source: IATA five-day rates.

Figure 1-2. Currency variations with respect to the U.S. dollar
(January 1994 to December 1995)



Source: Petroleum Economist and the Journal of Commerce.

Figure 1-3. Trends in crude oil and jet fuel prices
(January 1994 to December 1995)

residents travelling to the United States and, therefore, to encourage demand in this market, and to have the reverse effect on travel to Germany by residents of the United States.

1.18 Movements in exchange rates can also affect the profitability and balance sheet of airlines. If the proportion of an airline's expenses incurred in the local currency exceeds the proportion of its local currency revenues, then appreciation of the local currency would tend to reduce the airline's operating profit. On the other hand, there could be a profit associated with that part of the airline's debt denominated in a depreciated foreign currency.

CRUDE OIL AND JET FUEL

1.19 In 1995, fuel markets experienced short-term volatility as in the previous years. When viewed in the context of price developments over the long term, crude oil and jet fuel prices have been quite moderate for some years (Figure 1-3). In terms of yearly averages, crude oil prices were higher in 1995 compared with 1994; jet fuel prices in 1995 and 1994 were comparable. The relatively low jet fuel prices helped to contain airline costs in 1995.

Chapter 2
Air Carriers and their Fleets

2.1 This chapter reviews developments in 1995 regarding the economic regulation of air carriers; market entry and exit by air carriers; air carrier ownership, alliances and co-operative ventures; the service levels and the fares and rates they offer; the distribution of their products; their traffic, their fleets and their finances. Some information on developments in general aviation activities in 1995 is also included.

ECONOMIC REGULATION

Air transport agreements

2.2 Improved economic conditions and better financial results in the air transport industry stimulated an expansion of international air transport services, leading States to conclude more than twice the number of bilateral air service agreements and memoranda of understanding (MOUs) in 1995 than in 1994. Of the 90 such agreements reported, about three quarters were new, first-time agreements and one quarter replaced existing agreements. In addition, a reported 15 amendments to existing agreements dealt with such matters as increased capacity and additional traffic points.

2.3 Of the total of 105 agreements and amendments, 64 were between States from different ICAO regions and 41 between States from the same ICAO region. Approximately one third of the agreements and amendments between States from different regions involved a State from the Asia/Pacific region while just over one quarter involved States from the Europe and North Atlantic region. Of the 41 agreements and amendments involving States from the same ICAO region, more than half were between States in the Asia/Pacific region, and about one third were for States in the Europe and North Atlantic region.

2.4 Information on designation provisions which specify how many air carriers may operate the agreed services was available for 52 of the reported agreements; 20 limited designations to one air carrier per party, 9 specified a number of designations in excess of one, and 23 provided for multiple designation. The information available on methods of determining the capacity to be offered indicated that 14 agreements left this decision to individual airlines, 14 required schedule approval by both aeronautical authorities with agreement between the airlines concerned involved in half of the 14, 16 agreements contained either a specified level of capacity or a maximum amount, and 8 agreements had multi-year arrangements with specific increases allowed in each year.

2.5 Of the known tariff provisions, 14 relied on airline or multilateral tariff co-ordination and required both parties to approve proposed tariffs (double approval regime), while 9 allowed tariffs to go into effect unless both parties disapprove (dual disapproval regime). Reflecting recent developments in the industry, about 15 per cent of all agreements concluded in 1995 contained provisions concerning code-sharing, computer reservation systems, and allowing airlines to perform their own ground-handling services.

2.6 The liberalization process was given impetus during the year by the negotiation of a series of so-called "open skies" bilateral agreements by the United States. Early in the year, Canada and the United States completed the details of a framework agreement which provided full market access for the air carriers of both nations for transborder services, with such access phased in at three major Canadian cities over three years. In the course of the year, the United States also signed open market agreements with nine European countries: Austria, Belgium, Denmark, Finland, Iceland, Luxembourg, Norway, Sweden, Switzerland as well as an agreement with the Czech Republic and the Philippines phasing in full market access by 1999 and 2003 respectively. The fact that six of these bilateral agreements are with members of the European Union (EU) gave added urgency to the ongoing efforts of the European Commission to secure authority from the EU's Council of Ministers to conduct external air services negotiations with the United States on behalf of the Union's members. By mid-year the Commission had approved a draft mandate to negotiate a liberal air accord with the United States. In December the EU's Council of Transport Ministers held its first debate on the draft mandate to determine whether it would prove more beneficial for Member States of the Union for the Commission to negotiate for them as a single entity rather than rely on individual bilateral agreements.

Regional regulatory developments

2.7 In actions designed to increase efficiency and enhance fair competition in the single European air services market, the EU's Council of Ministers approved a gradual phasing in over four years of arrangements for airlines themselves to perform airport terminal and certain ground handling activities. The new rules would initially apply to airports with at least 1 million passengers annually and subsequently apply to airports with larger annual passenger flows. In the area of State aids, the Commission's approval of financial assistance to several Community air carriers required compliance with conditions such as successful completion of a restructuring plan, not using the funds to acquire other Community air carriers, and enactment by the State concerned of non-discriminatory airport access rules. Similarly the Commission's approval of several mergers, acquisitions and joint ventures required conditions such as transferring designated airport landing and departure times ("slots") to new entrants at certain airports, allowing new entrants to participate in frequent flyer programmes and interlining, and in one case limiting the capacity to be offered by the carriers involved.

2.8 In the Caribbean area, a summit meeting Association of Caribbean States in August 1995 added impetus to the idea of a regional international air transport agreement to be negotiated under the auspices of the Caribbean Community and Common Market (CARICOM). In the Africa area, the Southern African Transport and Communications Commission formulated plans for a sub-regional air transport authority which would be responsible for

developing and co-ordinating air transport policies within this sub-region. In the Asia/Pacific area, the Asia Pacific Economic Cooperation Council (APEC) established small working groups to consider such topics as improving regional air safety, harmonizing regulation and increasing competition in regional air services.

State aid to air carriers

2.9 During 1995 the European Commission approved financial assistance to several European carriers, such as Aer Lingus (Ireland), Air France, Iberia (Spain), Olympic Airways (Greece) and TAP Air Portugal. In some cases these payments represented an instalment of rescue packages which the Commission had approved during the previous year. Elsewhere in the world, financial aid was reported to have been provided by governments to Air Afrique, Air India, Balkan Bulgarian Airlines, Cayman Airways, CSA Czech Airlines, Estonian Air, Kenya Airways and Middle East Airways. In the United States the Government continued to cut subsidies to the Essential Air Service programme, which ensures air links with remote and rural areas, from $33 million in 1995 to $23 million in the following financial year.

Follow-up to ICAO World-wide Air Transport Conference

2.10 In follow up actions to the World-wide Air Transport Conference (Montreal, 1994) ICAO Member States were requested to give due consideration in their economic regulatory responsibilities and international air transport relationships to specific regulatory arrangements on air carrier ownership and control, State aids/subsidies, competition laws, environmental protection, taxation, ground handling, currency conversion and remittance of earnings, employment of non-national personnel, sale and marketing of air service products and computer reservation systems.

2.11 The ICAO Council reactivated the Air Transport Regulation Panel to develop and refine the safeguard mechanism and "safety net" arrangement discussed by the Conference, to develop recommendations for broadening of the traditional air carrier ownership and control criteria, to develop some regulatory arrangements for "doing business" into more formalized structures, and to consider the possible development of a more formal structure with respect to traffic ("hard") rights.

2.12 The Council assigned responsibility to the ICAO Secretariat for developmental work on the implications of code sharing for international air transport, review of the ICAO Code of Conduct for the Regulation and Operation of Computer Reservation Systems, an analytical model for determining net national benefits of international air transport, and preferential measures for developing countries.

MARKET ENTRY AND EXIT

New and discontinued carriers

2.13 At the end of 1995, the number of airlines in the world in operation with at least one aircraft with a maximum take-off mass of not less than 9 tonnes (20 000 lbs) was estimated at

around 1500. This represents a net increase of approximately 100 carriers over 1994, similar to the net change experienced in each of the two previous years. During the year nearly 200 air carriers were reported to have started operations and a further 120 to have been constituted but, by the end of the year, to have yet to commence operations. Some 100 air carriers went out of business including at least two dozen which had never started operations.

2.14 During 1995, the majority of the new entrants were either small regional air carriers or domestic operators. In many cases this was fostered by changes in the regulatory environment and/or reduced start-up costs. Nearly half of the new entrants which started operations in 1995 were from Europe (the United Kingdom, Spain and Turkey topping the list) and over 40 per cent were in almost equal parts from Asia/Pacific, Latin America/Caribbean, and North America, the balance being made-up by air carriers in other regions.

2.15 Among the new air carriers which were reported as becoming operational during 1995, some 26 per cent commenced international scheduled passenger services, about 29 per cent started international non-scheduled and some 27 per cent started domestic passenger services, the remainder being accounted for by all-freight operations. Among the newly-formed airlines which were slated to begin operations after 1995 over 80 per cent intended to commence passenger services.

2.16 Among the airlines which ceased operations in 1995 were many with just a few years or even months of operations, such as Avia Airlines of South Africa which had started in 1995, and some long-established names such as the national airline of Zaire, established in 1961 as Air Congo and later known as Air Zaire. About half of the airlines which ceased to operate were based in about equal numbers in North America (predominantly in the United States) and in Europe.

2.17 On the basis of schedules published in multilateral airline schedule guides it is estimated that at the end of 1995 there were some 740 air carriers world-wide providing scheduled passenger services (international and/or domestic) and about 80 operating scheduled all-freight services. About 75 per cent of all air carriers operating scheduled air services were accounted for in three regions: North America, Europe and Asia/Pacific. International scheduled passenger services were provided by some 410 carriers, and about 60 carriers provided international scheduled all-freight services. Over 50 per cent of air carriers providing international scheduled services were accounted for in two regions: Europe and Latin America/Caribbean.

OWNERSHIP, ALLIANCES AND CO-OPERATION

Privatization

2.18 During 1995 the process of partial or full privatization of government-owned airlines continued. Privatization objectives were made known for another nine airlines (see Table 2-1). Significant progress was reported for the Latin America and the Caribbean region, where privatization aims were achieved for five airlines. The Government of Uruguay sold a 51 per

Table 2-1. Partial or full privatization of government-owned airlines

Targeted during 1995	Targeted prior to 1995 and still under preparation	Aim achieved during 1995
Air Comoros	Aeroflot (Russian Federation)	BWIA (Trinidad and
Air Tanzania	Air France	Tobago)
Egyptair	Air India	Ecuatoriana
Estonian Air	Airlanka	LAB (Bolivia)
Latvio (Latvia)	Alitalia	LIAT (owned by 11
Qatar Airways	Balkan Bulgarian Airlines	Caribbean States)
Royal Air Maroc	Cyprus Airlines	PLUNA (Uruguay)
Saudia	Dominicana de Aviación	Qantas (Australia)
South African Airways	El Al (Israel)	Vnukovo (Russian
	Finnair	Federation)
	Garuda Indonesia	
	Ghana Airways	
	Gulf Air	
	Iberia	
	Kenya Airways	
	Kuwait Airways	
	LOT-Polish Airlines	
	Nigeria Airways	
	Royal Jordanian Airlines	
	Sudan Airways	
	Thai International	
	THY Turkish Airlines	
	Tunis Air	
	Vietnam Airlines	
	Uganda Airlines	

cent shareholding in PLUNA to a group of local investors and 8 per cent to employees of the airline. The Government of Ecuador completed the privatization of Ecuatoriana by selling 75.1 per cent of the airline to local and foreign investors (50.1 per cent to a consortium led by the Brazilian carrier VASP and 25 per cent to other local interests). LAB of Bolivia was also privatized when the Bolivian Government sold half of its shareholding to VASP. The national carrier of Trinidad and Tobago, BWIA, after nearly ten years of preparation, finally achieved its privatization aim during the year when the Government sold 51 per cent of its stake to private interests and 15.5 per cent to the airline's employees. Another carrier in the region, LIAT, owned by 11 Eastern Caribbean States, was privatized with 10 per cent of its shareholding retained by the Antiguan Government, 10 per cent by its employees and the rest sold to private investors, including a 29 per cent stake to BWIA. In other regions, Qantas Airways became a fully privatized airline when the Australian Government sold off its remaining 75 per cent stake (the other 25 per cent was acquired in 1994 by British Airways)

in the local stock market. In the Russian Federation, the privatization plan for Vnukovo Airlines, the second largest carrier in the Federation, was completed with the sale of 41.4 per cent of its shareholding to private investors.

2.19 Preparations for privatization continued during the year for some 25 government-owned carriers which had been targeted during previous years (see Table 2-1). Among reported developments, two Chinese carriers, China Eastern Airlines and China Southern Airlines, continued preparations for listing their shares in foreign stock exchange markets. The Government of Sri Lanka planned to sell a 40 per cent stake in its national carrier Airlanka to a foreign partner and 9 per cent to the airline's employees. Garuda Indonesia intended to go public in 1997 as part of its restructuring effort. Royal Air Maroc, scheduled to be privatized in 1996, entered into discussion with a number of international carriers, tour operators and financial institutions for possible sale of its shares. In Africa, Ghana Airways was converted from a statutory corporation into a public limited liability company as a step in the privatization process. Kenya Airways moved another step towards privatization when an agreement was reached with KLM to purchase 26 per cent of the shares. In Europe, the Estonian Government invited bids from interested investors for the intended sale of 66 per cent of its flag carrier Estonian Air. The Polish Government appointed a special team to prepare and implement the final stages of privatization of its national carrier LOT-Polish Airlines which was targeted in 1991 and scheduled for completion in 1996. The German Government planned to sell most of its remaining 36 per cent stake in Lufthansa in 1996. As in 1994, the privatization of several carriers (e.g. Bulkan-Bulgarian Airlines, El Al of Israel and Nigeria Airways) had to be deferred or postponed because of economic conditions or the financial state of the airlines concerned.

2.20 In addition to airlines for which privatization information was available, listed in Table 2-1, some other airlines (including some listed in previous years) may also be at different stages of preparation for privatization.

National consolidation

2.21 The year saw one major airline consolidation at the national level. Lan Chile, after a few unsuccessful attempts, finally won conditional approval from the Chilean competition authorities to merge with another major Chilean carrier, Ladeco. Most other mergers and take-overs which took place during the year involved either a relatively small or a regional air carrier, or both.

2.22 In Brazil, Varig acquired 80 per cent of the Argentinean regional carrier, TAN Airlines, and Rio-Sul (majority-owned by Varig) purchased another Brazilian regional carrier, Nordeste Linhas Aereas. In the Caribbean, Air Jamaica took over Trans Jamaican Airlines, a local commuter carrier.

2.23 In the Asia/Pacific region, Air New Zealand acquired full control of regional scheduled carrier, Air Nelson. In India, Madras-based NEPC Group became the largest privately owned carrier after acquiring two regional carriers, Damania Airways and UP Air. In Taiwan province of China EVA Airways purchased a 20 per cent stake in Great China Airlines and, separately,

32 per cent of Makung Airlines. In Malaysia, three small East Malaysian domestic airlines, Hornbill Skyways, Ekran Air Services and Sabah Air, agreed to merge to form a new carrier, Seaga Air, to operate cross-border flights linking the two Eastern Malaysian states of Sarawak and Sabah with Brunei, Indonesia's Kalimantan Province and the island of Mindanao in the southern Philippines.

2.24 In Europe, Alitalia completed full acquisition of Avianova, French carrier Air Liberté took over Euroalair, Swedish regional airline Skyways purchased Homstrom Air, and Swissair absorbed charter operator Balair. In the United Kingdom, All Leisure Airways merged with Translift Airways and Newcastle Aviation combined its operations with Pel-Air.

2.25 In the United States, despite some merger discussions at the level of major carriers the only mergers that took place were among commuter carriers. Los Angeles-based Air LA completed its acquisition of St. Paul-based Capitol Airlines in February and in August bought a second regional carrier, Conquest Airlines based in Texas; Arizona Airways was sold to Great Lakes Aviation to form Arizona Airways Express. Elsewhere, South African airline Phoenix Airways was taken over by Cape Town-based charter operator Atlantic Air.

Transnational ownership

2.26 The trend towards partial foreign ownership of airlines continued during 1995. While several States amended policies or rules to relax restrictions on foreign investment in national carriers, many airlines made equity investment in foreign carriers, often as part of the strategy to forge or strengthen alliances and expand market access.

2.27 During the year Australia passed legislation to increase the permitted foreign ownership in its national carrier from 35 to 49 per cent. Legislation was proposed in the United States Congress to allow increased foreign ownership with voting rights in U.S. airlines from the present 25 per cent. Following the announcement in 1994 of a new policy to allow foreign investment in its airlines and aviation infrastructure, the Chinese Government granted approval of a 25 per cent share sale in Hainan Airlines to an American investor. The government of Laos approved the sale of a 60 per cent stake in its carrier Lao Aviation to the Chinese carrier Yunnan Airlines.

2.28 In Asia/Pacific, Air New Zealand reached an agreement with TNT (Australia), subject to approval from the respective competition authorities of the two countries concerned, to acquire a 25 per cent stake of Ansett Australia Airlines, with an option to purchase a further 25 per cent of the latter before February 15, 1998. Qantas increased its stake in Air Pacific (Fiji) from 10 to 17.5 per cent. A U.S. investment and finance group and a consortium of local companies took a 56.1 per cent stake of Far East Air Transport Corp., a carrier of Taiwan province of China. Lufthansa Cargo AG and Indian-owned Hinduja Group agreed to set up a joint venture cargo airline based in India with 60 per cent owned by the Hinduja Group and 40 per cent by Lufthansa Cargo. In India, however, the start-up of the proposed joint venture airline between Tata Industries (60 per cent) and Singapore Airlines (40 per cent) was stalled because of concerns over the possible impact of foreign participation in the domestic airline industry.

2.29 In Latin America and the Caribbean, BWIA (Trinidad and Tobago) bought a 29 per cent stake in the Caribbean regional airline LIAT. VASP took a 50.1 per cent stake in Ecuatoriana and separately bought a 49 per cent stake in LAB (Bolivia), while another Brazilian carrier, Varig, purchased a 12.75 per cent share of PLUNA (Uruguay).

2.30 During 1995 Swissair took a 49.5 per cent stake in the Belgian national carrier Sabena while Air France sold its 25 per cent share in Sabena back to the Belgian Government. Swissair also increased its stake in Austrian Airlines from 10 to 25 per cent. KLM (Netherlands) acquired a 26 per cent share in Kenya Airways and separately purchased a 49 per cent stake in Jet Airways (United Kingdom); it also increased its shareholding in Air UK from 14.9 to 45 per cent. Spanish carrier Andalusair acquired Europe Aero Service, a bankrupt French carrier. Uzbekistan Airways bought a 45 per cent stake in the United Kingdom domestic carrier European Airways, and the Albanian national carrier was sold to the Kuwaiti MA Kharafi Group.

2.31 In Africa, a private Saudi firm, Al-Redwan Holding Co., formed a joint venture with Uganda Airlines to operate passenger and cargo services from Uganda to Saudi Arabia, the United Arab Emirates, Pakistan and destinations in Europe. A new Zambian carrier, Zamex, launched its service in April as a joint venture between South African domestic carrier South African Express (with a 41 per cent shareholding) and a Zambian interest. Malawi's national carrier, Air Malawi, also entered into a joint venture agreement with Malaysia Airlines which would supply Boeing aircraft to help expand Air Malawi's fleet.

2.32 Finally, in North America, the U.S. shareholders of Northwest Airlines adopted measures to cap any single foreign shareholding to no more than 19 per cent of its stock (the present level of investment in Northwest by KLM).

Transnational alliances

2.33 Throughout 1995 airlines continued to forge alliances through various forms of co-operative arrangements. Code sharing and its associated forms of blocked space and joint services were explicitly mentioned in about 75 per cent of the agreements signed; other elements of collaborative ventures included marketing and frequent flyer programmes, co-ordination of schedules, interlining, sharing of airport terminals, joint leasing of aircraft, and/or joint maintenance. Of the 109 co-operative agreements, involving 86 different airlines, signed during 1995, 45 per cent were on an intra-regional basis and 55 per cent were inter-regional. Europe, the Americas and Asia/Pacific were the most active areas for intra-regional agreements.

2.34 Important new wide-ranging alliances or significant changes included one between Lufthansa and SAS, which prompted separate linkages by other carriers (SAS/Thai, SAS/United, Thai/United, Lufthansa/Thai), while Lufthansa continued expanding its global reach by concluding agreements with Adria Airways (Slovenia), LOT (Poland) and Business Air (United Kingdom) in Europe, Modiluft in India and South African Airways in Africa. A similar strategy was followed by KLM in concluding agreements with Air Aruba and Carib Express in the Caribbean, Eurowings (Germany) in Europe, Jet Airways (India) and Garuda (Indonesia) in Asia, Kenya Airways in Africa and Transbrazil in Latin America, while KLM partner Northwest was securing ties with Air New Zealand and Pacific Island Aviation (Northern

Marianas) in the Pacific and with Eurowings and Transbrazil as well. Delta Air Lines (United States), which already had an extensive range of code-share alliances, continued its strategy of reaching specific accords with various airlines: Aeromexico in North America, Air Portugal and Finnair in Europe, and Korean Airlines and All Nippon Airways (Japan) in Asia. One of Delta's partners, Virgin Atlantic, established ties with Malaysia Airlines and British Midland Airways (United Kingdom). Air Canada signed significant agreements with U.S. airline Continental, in addition to its partnership with United, thus taking advantage of the new "open skies" agreement between Canada and the United States to expand considerably its market access in the United States; Air Canada also signed agreements with Swissair and Cathay Pacific. Japan Airlines signed agreements with Air France and American Airlines.

2.35 Some existing alliances were further expanded or renewed, notably Air Canada/United, Alitalia/Continental, American/British Midland, Ansett Australia/Malaysia, Austrian/Delta, British Airways/USAir, Canadian/Lufthansa, Delta/Swissair, Japan Airlines/Thai International, KLM/Northwest and Lufthansa/United.

2.36 During the year, the termination of some agreements was announced. Notable among them were the Air Canada/Air France agreement, and a number of agreements involving the Scandinavian carrier SAS, which modified its strategy to align with its new alliance partner, Lufthansa.

2.37 In the Caribbean sub-region, many agreements involved BWIA, Carib Express and Air Martinique. Carriers of Australia/New-Zealand were also active in securing ties with Asian partners: Ansett Australia, further to its association with Air New Zealand, established ties with EVA Airways (Taiwan province of China), Malaysia Airlines and Thai International, while its partner Air New Zealand also signed with Thai International and with the Pacific carrier Polynesian Airlines. A new carrier, Kiwi Air (New Zealand), concluded an agreement with Vietnam Airlines.

2.38 The regulatory implications of carrier alliances continued to attract much attention from regulatory authorities and some studies on code sharing in particular were published or commissioned. A task force was established within the European Civil Aviation Conference to look into consumer information and protection issues of code sharing; studies on code sharing were initiated by the European Commission and Germany; and in the United States a rule-making procedure was under way aimed at better protection of consumers, while more detailed information was requested from airlines so as to better assess the economic effects of code sharing on airlines and passengers alike. ICAO initiated a study on the general implications of code sharing in its different aspects, due to be completed early in 1996.

2.39 The European Commission approved two new major alliances, between SAS and Lufthansa, and between Swissair and Sabena, on the condition that routes linking home countries of the carriers involved should be opened to greater competition. In the United States the Department of Transportation approved some new alliances or renewed authority for existing agreements. Two major alliances (United/Lufthansa, and the "Atlantic Airlines" grouping made up of Delta/Sabena/Swissair/Austrian) sought anti-trust immunity from U.S. regulatory authorities, with a view to receiving similar treatment to that already granted to KLM and Northwest.

SERVICE LEVELS

2.40 During 1995, recovery on the premium travel market continued and some airlines revamped their first-class services with the introduction of the personalized cabin area concept. In some cases (such as for Air France, Ansett Australia, British Airways, and TWA) this represented installing fully-horizontal sleeper seats. In support of these developments Airbus Industrie started to offer an optional lower deck sleeping compartment on its ultra-long range A340-8000.

2.41 Some major airlines continued to make adjustments to the level of cabin services offered by eliminating first class and creating an enhanced business class, though in some cases this was limited to selected routes or aircraft types. Carriers which took this approach in 1995 included Aerolineas Argentinas, Air Canada, Alitalia, Canadian Airlines International, Pakistan International Airlines, and United Airlines. Introduction of convertible seats to respond better to the fluctuations between demand for business and economy travel continued to spread, mostly among major European airlines for which new seat models, more comfortable and more operationally efficient, were developed and tested. In the United States domestic market, some airlines reinstated first-class services (Continental Airlines) or expanded them to include their whole route network (America West).

2.42 Airlines' attempts to add new amenities, with particular emphasis on business class, were much the same as during the previous year. Improvements included wider seats with greater leg room; better lounge facilities at airports; introduction of faster check-in procedures, including new check-in facilities at train stations and hotels and check-in by phone for passengers with hand luggage only; and self-service boarding machines. In 1995 some airlines also aimed at improving services for economy-class passengers by providing new amenities such as personal entertainment systems and a more flexible and varied food service, conveniences which until recently had belonged exclusively to the premium class cabins.

2.43 The initial experience of airlines with the first generation of interactive in-flight entertainment (IFE) systems indicated low reliability and complex trouble-shooting. As a result, many air carriers which had introduced these systems were forced to switch them off while others have decided to delay their introduction until their reliability becomes more acceptable. Because of this, airlines' expectations of revenue from the interactive features of the IFE (video on demand, games, gambling, etc.), widely estimated at about $1 million per aircraft per year (compared with investment needs of $2 to $3.5 million per aircraft), proved to be unfulfilled. Nevertheless, the prospects of interactive IFE were considered bright. In 1995 some major international carriers started to test a second generation of IFE but by the year end no airline had officially added interactivity to its entertainment options. Also in 1995 the world's three largest airframe manufacturers joined together to propose the standardization of IFE equipment from its makers to prevent its adverse impact on the over-all aircraft reliability.

2.44 In-flight gambling, a potential new source of airlines' revenue, did not attain the status of general legal acceptance in 1995. Although some European States prohibit in-flight gambling, 18 European States and the European Union, as well as numerous air carriers and video game software vendors, objected to the United States Government's ban on gambling on all flights to or from airports in that country, mainly on the grounds of extra-territoriality. On

the other hand, the Association of Flight Attendants (United States) expressed opposition to in-flight gambling on the grounds that the systems have the potential to divert crew members from their safety duties.

2.45 In 1995 terrestrial in-flight telephone services were introduced in Europe by British Airways while Swissair became the first airline to offer a satellite telephone system on European routes. In the United States, where over 3 500 aircraft have been equipped with terrestrial in-flight telephones since their introduction a decade ago, more airlines added ground-to-air calling and faxing facilities.

2.46 During 1995 a number of new Frequent Flyer Programmes (FFP) were launched, including those by BWIA of Trinidad and Tobago (in addition to its participation in Latinpass and the Continental Airlines programme), East West Airlines of India, El Al of Israel, Gulf Air (the first FFP by a Middle East carrier), Transaero Airlines of Russia (the first FFP by a carrier from the CIS), and Tunis Air. Latinpass, an FFP established in 1994 by 12 Latin American carriers with USAir as their partner in the United States, increased its membership to 16 airlines (including USAir). In an effort to increase the attractiveness of FFPs, more airlines linked their individual programmes with those of other carriers, in many cases as a part of a broader business or marketing alliance. For example, Delta Air Lines, one of the most active airlines in this field in 1995, started co-operating in FFPs with Air New Zealand, All Nippon Airways, Cathay Pacific, Finnair, Virgin Atlantic, and the joint FFP of the Asian carriers, Passages, of which All Nippon Airways became the first Japanese partner.

2.47 By the end of 1995, FFPs world-wide are reported to have accounted for an estimated 37 million members, including 32 million in the United States alone. In the United States, major air carriers trying to recoup frequent flyer miles started auctioning such prizes as "dream" vacations or promotional spots on the sides of their aircraft for the names of the highest bidders paying with FFP miles. In both the United States and Europe, controversy continued on whether frequent flyer benefits accrued by employees on business travel should be credited to their firms or on a personal basis to the passengers concerned. In 1995 some major United States airlines began to sell frequent traveller miles directly to corporations as a separate product. The Internal Revenue Service of that country reiterated the position it had held since 1985, that FFP benefits are taxable (either at company or individual employee level) although there was no precedent on how to implement this policy nor procedures on how to administer this tax.

2.48 In 1995 Bahrain International Airport launched what is believed to be the world's first airport loyalty programme offering to its members free parking, first-class check-in and use of a lounge, discounts at airport restaurants and duty-free shopping incentives, personalized baggage tags, and the use of arrival lounges to receive business associates.

FARES AND RATES

Tariff establishment

2.49 In 1995 the IATA multilateral tariff negotiation process continued to function against the background of uncertainty arising from governmental regulatory requirements, particularly

implications of competition laws, for its tariff co-ordination activities. While there were no new developments with respect to the United States authorities' review of the IATA anti-trust immunity, the European Commission published a draft regulation in December to amend the existing "block exemption" for inter-airline tariff consultations from certain aspects of the EU competition law requirements. The current exemption, which was granted in 1993 with a five-year validity until June 1998, subject to reassessment during the interim by the Commission, allows air carriers to hold passenger and cargo tariff consultations within IATA provided that such consultations are aimed at facilitating interlining. The proposed amendment would exclude cargo tariff consultations from the block exemption. Airlines have opposed the proposal.

2.50 During the year, IATA continued to adjust its tariff co-ordination process and structure to adapt to the changing operating environment. In the case of passenger tariffs, following the adoption in 1994 of changes to the fare-construction rules in respect of special fares in order to apply the pricing unit concept as the industry standard (i.e. permitting CRS fare quotation programs to calculate fares for a multiple-segment international journey by splitting such journey into several pricing units, as if selling separate tickets, and then combining them to see whether a lower fare can be obtained), IATA member airlines reached agreement to adopt the same concept for normal fares, with certain new measures introduced to protect airline revenue.

2.51 In the case of cargo tariffs, IATA had developed recommendations in 1994 aimed at simplifying the multilateral cargo rates structure and encouraging greater use of industry agreed rates. However, 1995 saw only limited progress made in reforming the existing process and structure. While some agreements were reached on adjusting rates/charges, mainly through reductions, to bring them more into line with market rate levels, few changes were made to cargo rates and structures affecting major markets. In recognition of the flexibility needed by member airlines to meet specific market requirements, IATA amended its filing procedures to enable airline members to introduce changes to agreed rate levels. Under the new rules, a carrier could file rates below the industry agreed levels but such rates would not become effective if protested. Where a carrier required rate levels higher than those agreed by the industry, it could also file them with IATA, but such higher rates would become carrier-specific rates if protested.

2.52 During the year, China Southern Airlines decided to participate as a voting member in the IATA Tariff Coordination Conferences. However, at year end Philippine Airlines revoked its election to participate in all IATA Tariff Coordination and American Airlines decided to withdraw from IATA passenger tariff co-ordination activities.

PRODUCT DISTRIBUTION

2.53 In 1995 airlines, travel agents and computer reservation systems pressed forward with a number of innovative means to market and sell the air transport product. This trend was fuelled by such technological advances as the Internet and electronic ticketing, as well as a continuing concern with reducing distribution costs in the face of increased competition.

Although airline costs attributed to ticketing, sales, promotion and commissions for international passenger services have remained fairly stable at about 20 per cent they have tended to attract attention because they have grown in actual terms with the increase in airline costs.

2.54 The rapid expansion in the use of personal computers, and in particular those that access the Internet, caught the attention of all three segments of the air transport distribution system: airlines, CRS vendors and travel agents. Five major airlines are selling directly from a customer's personal computer via CD-ROM or diskettes. Over 100 major airlines from 62 countries and all world regions were on the Internet, as were 5 major CRS vendors, several travel agent groups and numerous individual agents. Although these sites are initially focused on information, several have moved to provide booking facilities and others plan to do so.

2.55 A total of 21 airlines were offering some form of electronic ticketing (sometimes referred to as "ticketless" travel) in which air travellers either use a credit card or a specially designed "smart card" to pay for their travel and as a basis for issuing boarding cards. This facility tended to be concentrated in domestic markets because of questions concerning liability notices for international travel and immigration/visa requirements which required visitors to produce evidence of onward or return travel. Although generally aimed at the individual passenger, and in some instances a particular segment of the market such as frequent flyers, several major CRSs as well as individual travel agents offer the facility.

2.56 A commission limit paid to travel agents for sale of domestic air travel was adopted by some major airlines in the United States in February and remains in place, although one airline has ceased to apply it and some travel agents are pursuing legal action claiming that the manner the limits were imposed violated United States anti-trust laws. Although no similar commission "cap" has been adopted for international air travel, several airlines have sought to reduce this aspect of their costs by reducing overrides and incentive payments or reducing the basic commission levels for electronic ticketing. In response to airline efforts to limit commission expense, travel agents have adopted transaction fees for their airline customers, diversified and increased their sources of non-airline revenue and consolidated.

2.57 In the regulatory area Canada adopted a comprehensive set of CRS rules in June 1995 and the European Commission released and discussed with interested parties a study on options for funding the cost of CRS bookings. Concern about CRS pricing was also reflected in the efforts of some airlines to continue to seek relief via complaints to regulatory authorities in Europe and the United States and by encouraging passengers and travel agents to book directly with the air carrier. To counter criticism from airlines that the cost of using CRSs was unduly high because of the number of fictitious or duplicate bookings CRS vendors took actions such as tightening incentive schemes for subscribers (for example, only crediting bookings which can be linked with the issuance of a ticket), taking technical measures to enhance the airlines ability to refuse bookings which they regard as unnecessary, and programming the system to not accept bookings for travel which is impractical.

2.58 In 1995 the ICAO Secretariat completed its work on the review of the ICAO Code of Conduct for the Regulation and Operation of Computer Reservation Systems, proposing a number of changes, including expanding the scope to include non-scheduled services, stronger

measures to safeguard privacy of personal data, prohibiting fictitious bookings, more specific criteria on flight display order, provisions concerning code-shared flights, and market access and exemption provisions which take into account the General Agreement on Trade in Services (GATS). The ICAO Council will formally consider the proposed changes to the Code in 1996.

TRAFFIC

2.59 Indicators are given below of the development of airline scheduled traffic in 1995, international and domestic, including rates of growth, load factors and the ranking of airlines, States and city-pairs by volume of airline traffic, along with some estimates regarding the development of non-scheduled traffic.

Scheduled: world totals

2.60 The total scheduled traffic (domestic plus international) carried by the airlines of the 184 Contracting States of ICAO in 1995 is estimated at about 292 billion tonne-kilometres performed, an increase of about 7 per cent over 1994. The airlines carried a total of about 1 288 million passengers in 1995, compared with 1 231 million passengers in 1994, and 21 million tonnes of freight compared with some 20 million tonnes in 1994 (Table 2-2). The passenger load

Table 2-2. Scheduled services of airlines of ICAO Contracting States

	Passengers carried (millions)	Passenger-km performed (millions)	Passenger load factor (%)	Freight tonnes carried (millions)	Freight tonne-km performed (millions)	Mail tonne-km performed (millions)	Total tonne-km performed (millions)	Weight load factor (%)
TOTAL (international plus domestic)								
1994	1 231	2 098 000	66	19.9	77 230	5 410	273 300	60
1995	1 288	2 230 000	67	21.1	83 940	5 600	292 340	60
Percentage change	4.6	6.3	1.0	6.0	8.7	3.5	7.0	0.0
INTERNATIONAL								
1994	347	1 143 000	68	11.8	64 690	2 240	173 100	63
1995	371	1 242 000	68	12.7	70 750	2 370	188 610	63
Percentage change	6.9	8.7	0.0	7.6	9.4	5.8	9.0	0.0
DOMESTIC								
1994	884	955 000	65	8.1	12 540	3 170	100 200	55
1995	917	988 000	65	8.4	13 190	3 230	103 730	55
Percentage change	3.7	3.5	0.0	3.7	5.2	1.9	3.5	0.0

Source: ICAO Air Transport Reporting Form A-1.

factor increased by one percentage point to 67 per cent, while the over-all (weight) load factor remained at 60 per cent.

2.61 International scheduled traffic continued to show strong growth during 1995, with increases of about 9 per cent in tonne-kilometres performed, 7 per cent in passengers carried, and some 8 per cent in freight tonnes carried. International traffic accounted for 56 per cent of total passenger-kilometres performed, 84 per cent of the freight tonne-kilometres performed and some 64 per cent of the total tonne-kilometres performed.

2.62 During 1995 domestic traffic showed more modest growth, increasing some 4 per cent from about 100 billion tonne-kilometres performed in 1994 to almost 104 billion tonne-kilometres performed in 1995. The low growth in domestic traffic was to a large extent due to the relatively low increase (less than 3 per cent) in domestic traffic in the United States, which represents about 65 per cent of the world's total domestic air traffic.

Table 2-3. Growth of scheduled traffic by region of airline registration: 1994-1995
(annual percentage change)

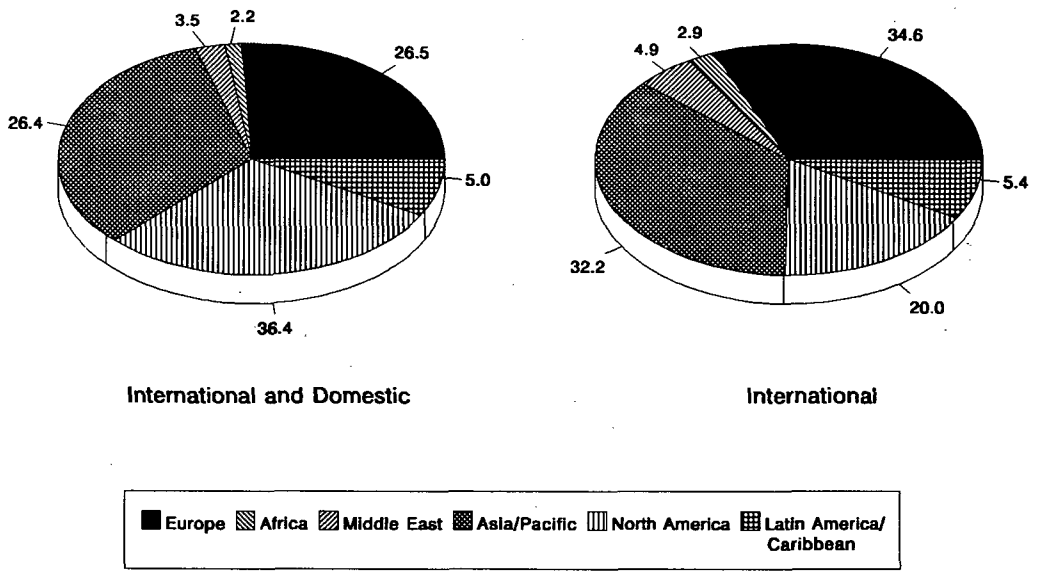
Region of registration	Passengers carried	Passenger-kilometres	Freight tonne-km performed	Mail tonne-km performed	Total tonne-km performed
TOTAL (international plus domestic)					
Africa	8.2	12.2	7.8	2.9	11.1
Asia and Pacific	11.9	11.6	11.2	7.6	11.2
Europe	4.3	4.8	8.2	—1.7	6.2
Middle East	10.4	12.3	15.5	—8.3	13.1
North America	1.5	3.5	5.1	3.3	3.8
Latin America and Caribbean	—3.3	6.2	8.3	31.1	7.5
Total	4.6	6.3	8.7	3.5	7.0
INTERNATIONAL					
Africa	6.4	12.2	7.9	3.3	11.0
Asia and Pacific	8.0	10.8	11.2	16.1	10.9
Europe	7.2	7.7	8.3	0.9	8.2
Middle East	12.4	13.1	15.8	—9.0	13.7
North America	4.0	5.1	6.0	4.1	5.4
Latin America and Caribbean	5.5	10.8	9.5	20.0	10.7
Total	6.9	8.7	9.4	5.8	9.0

Source: ICAO Air Transport Reporting Form A-1.

Scheduled: regional breakdown

2.63 Between 1994 and 1995 development in total and international scheduled traffic varied considerably among regions of carrier registration with respect to both passengers and freight. In terms of total passenger-kilometres performed, the increase in traffic ranged from some 4 per cent for the airlines registered in North America to 12 per cent for those registered in Africa, Asia/Pacific and Middle East (Table 2-3). International scheduled services also posted increases in passenger-kilometres performed for all regions, ranging from about 5 per cent for airlines registered in North America to some 13 per cent for those registered in Middle East. In 1995 double digit percentage increases in total and international freight tonne-kilometres performed were recorded only for carriers registered in the Middle East and Asia/Pacific.

2.64 The differences in the regional traffic development between 1994 and 1995 caused some small changes in the distribution of the regional traffic. The regional distribution for total and for international scheduled traffic in 1995 is shown in Figure 2-1 (detailed traffic data by region are shown in Table A1-1 in Appendix 1). In terms of total scheduled traffic (international plus domestic) in 1995, the airlines of North America carried about 36 per cent of the total world traffic. However, the largest share of international scheduled traffic (about 35 per cent) was carried by the airlines of Europe.



Source: ICAO Air Transport Reporting Form A-1.

Figure 2-1. Percentage distribution of scheduled traffic in 1995 according to region of registration of airline — total tonne-kilometres performed

2.65 In 1995 airlines registered in Europe showed the highest average annual weight load factor on international scheduled services (about 66 per cent), while those in Africa showed the lowest average load factor (some 52 per cent). Compared with 1994, the weight load factors for international scheduled services (shown in Table A1-1 in Appendix 1) represent an increase in average weight load factor of about five percentage points for the airlines of Latin America and the Caribbean, some two percentage points for those of the Middle East and one percentage point for those of Africa. For the airlines of Europe and North America, the average weight load factor decreased about one percentage point, while there was no change in the average weight load factor for airlines of Asia/Pacific between 1994 and 1995.

Scheduled: carrier rankings

2.66 Table 2-4 shows the top 30 air carriers in the world in 1995 in terms of the over-all volume of passenger-kilometres performed, freight and mail tonne-kilometres performed and total (passenger, freight and mail) tonne-kilometres performed, compared with the ranking of the same carriers in 1994 and in 1986. Table 2-5 shows the top 30 air carrier rankings according to the same parameters but in terms of international scheduled traffic.

2.67 These tables show the rise in ranking of a number of Asian carriers associated with the relatively high growth in traffic in that region. They also illustrate the restructuring which has taken place in the air transport industry in the United States. In this respect the changes in ranking of the United States carriers operating international scheduled services are particularly striking. In 1986 Pan American, now defunct, ranked 3rd (after British Airways and JAL) in the world in terms of passenger-kilometres performed and 5th in terms of total traffic carried, and TWA which ranked 10th and 15th respectively in 1986 moved to 30th and 37th in 1995. On the other hand, United which ranked 13th (passenger-kilometres) and 17th (total) in 1986, rose to 2nd and 6th respectively by 1995, American moved from 22nd to 5th in terms of passenger-kilometres and from 29th to 9th in total, and Delta moved from 40th to 11th (passenger-kilometres) and from 44th to 13th (total) over the same period.

Scheduled: country rankings

2.68 Rankings for the top 30 countries or groups of countries by volume of scheduled traffic generated by their airlines in 1995, 1994 and 1986 according to the same parameters of passenger-kilometres, freight and mail tonne-kilometres and total (passenger, freight and mail) tonne-kilometres, for over-all and for international services, are presented in Tables 2-6 and 2-7. In 1995, approximately 42 per cent of the total volume of scheduled passenger, freight and mail traffic on international and domestic services was accounted for by the carriers of two countries, the United States and the United Kingdom (34 and 8 per cent, respectively). On international services, about 29 per cent of all traffic was carried by the airlines of the same two countries, the United States and the United Kingdom (18 and 11 per cent, respectively).

Table 2-4. Top 30 scheduled air carriers in 1995 and their ranking in 1994 and 1986 in terms of TOTAL (international and domestic) scheduled traffic carried[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
		Ranking					Ranking					Ranking		
Carrier	1995 (millions)	1995	1994	1986	Carrier	1995 (millions)	1995	1994	1986	Carrier	1995 (millions)	1995	1994	1986
United	179 466	1	1	2	Federal Express	7 058	1	1	11	United	19 582	1	1	2
American	165 194	2	2	3	Lufthansa	6 002	2	2	4	American	18 020	2	2	3
Delta	136 940	3	3	5	Korean Air Lines	4 608	3	4	9	Delta	14 486	3	3	9
Northwest	100 567	4	4	7	Air France	4 568	4	3	5	Northwest	12 404	4	4	6
British Airways	90 944	5	5	8	JAL	3 962	5	5	3	British Airways	12 197	5	6	10
JAL	69 775	6	6	9	KLM	3 782	6	7	7	Lufthansa	12 171	6	5	7
Lufthansa	61 600	7	9	13	Singapore Airlines	3 773	7	8	12	JAL	10 180	7	8	4
USAir	60 530	8	7	20	United	3 297	8	10	8	Air France	9 680	8	7	8
Continental	57 140	9	8	11	Northwest	3 278	9	6	6	Singapore Airlines	8 389	9	9	15
Qantas	51 870	10	11	17	British Airways	3 188	10	9	10	KLM	7 983	10	10	14
Air France	49 520	11	10	12	American	3 030	11	11	22	Korean Air Lines	7 837	11	11	18
Singapore Airlines	48 400	12	12	14	Cathay Pacific	2 768	12	12	14	Federal Express	7 058	12	12	35
KLM	44 674	13	13	18	Delta	2 061	13	13	26	Qantas	6 570	13	14	19
All Nippon Airways	42 855	14	15	16	Qantas	1 736	14	14	17	Cathay Pacific	6 081	14	16	21
TWA	40 073	15	14	6	Nippon Cargo	1 592	15	16	34	USAir	5 876	15	15	28
Southwest	37 538	16	17	35	Swissair	1 561	16	15	21	Continental	5 855	16	13	13
Korean Air Lines	36 424	17	18	28	Alitalia	1 498	17	17	15	All Nippon Airways	4 560	17	19	27
Cathay Pacific	34 767	18	16	27	Thai Airways	1 346	18	18	28	Alitalia	4 356	18	18	22
Alitalia	31 747	19	19	26	Varig	1 292	19	19	18	TWA	4 277	19	17	11
Thai Airways	27 053	20	20	33	Malaysian Airlines	1 201	20	25	37	Thai Airways	3 788	20	20	33
Air Canada	26 117	21	21	15	Asiana[2]	1 121	21	26	—	Southwest	3 515	21	24	47
Iberia	23 804	22	22	19	El Al	1 075	22	20	24	Swissair	3 497	22	21	23
Malaysian Airlines	23 475	23	25	49	All Nippon Airways	1 026	23	22	39	Air Canada	3 350	23	23	17
Canadian	22 974	24	24	32	United Parcel Service[2]	1 000	24	28	—	Varig	3 245	24	22	24
America West	21 356	25	26	53	Air Canada	981	25	21	19	Malaysian Airlines	3 140	25	27	45
Varig	20 877	26	23	31	Saudia	918	26	23	29	Iberia	2 850	26	25	20
Swissair	19 725	27	28	29	Canadian	742	27	31	38	Canadian	2 823	27	26	34
SAS	18 510	28	27	30	Air China[3]	721	28	27	—	Saudia	2 583	28	28	26
Saudia	18 501	29	29	25	Iberia	707	29	33	25	Garuda	2 288	29	29	42
Garuda	17 584	30	30	37	Garuda	680	30	30	43	Air New Zealand	2 192	30	31	38

1. Some 1994 data are rounded estimates, thus the ranking may change when final data become available.
2. Started operations in 1988.
3. No data for individual air carriers were reported by China prior to 1993.

Source: ICAO Air Transport Reporting Form A-1 and IATA.

Table 2-5. Top 30 scheduled air carriers in 1995 and their ranking in 1994 and 1986 in terms of INTERNATIONAL scheduled traffic carried[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
		Ranking					Ranking					Ranking		
Carrier	1995 (millions)	1995	1994	1986	Carrier	1995 (millions)	1995	1994	1986	Carrier	1995 (millions)	1995	1994	1986
British Airways	88 401	1	1	1	Lufthansa	5 935	1	1	1	British Airways	11 968	1	1	3
United	69 557	2	2	13	Korean Air Lines	4 515	2	3	6	Lufthansa	11 587	2	2	2
Lufthansa	56 325	3	3	4	Air France	4 480	3	2	3	Air France	8 819	3	3	4
JAL	54 544	4	4	2	KLM	3 782	4	5	5	JAL	8 715	4	4	1
American	53 615	5	5	22	Singapore Airlines	3 773	5	6	8	Singapore Airlines	8 389	5	6	7
Singapore Airlines	48 400	6	6	5	JAL	3 641	6	4	2	United	8 302	6	5	17
KLM	44 669	7	8	9	British Airways	3 183	7	7	7	KLM	7 982	7	7	6
Northwest	43 658	8	9	8	Cathay Pacific	2 768	8	8	11	Korean Air Lines	7 347	8	8	10
Air France	42 063	9	7	6	Federal Express	2 550	9	9	58	American	6 639	9	9	29
Qantas	38 993	10	11	7	United	1 990	10	11	28	Cathay Pacific	6 081	10	11	11
Delta	37 021	11	10	40	Northwest	1 967	11	10	9	Northwest	5 928	11	10	8
Cathay Pacific	34 767	12	12	11	American	1 774	12	12	37	Qantas	5 175	12	12	9
Korean Air Lines	31 462	13	13	16	Nippon Cargo	1 592	13	15	26	Delta	4 442	13	13	44
Alitalia	25 847	14	14	15	Qantas	1 570	14	13	13	Alitalia	3 796	14	14	12
Thai Airways	24 087	15	15	18	Swissair	1 552	15	14	14	Thai Airways	3 487	15	15	18
Malaysian Airlines	19 751	16	17	38	Alitalia	1 470	16	16	12	Swissair	3 462	16	16	13
Swissair	19 438	17	16	14	Thai Airways	1 313	17	17	19	Malaysian Airlines	2 804	17	19	34
Iberia	18 288	18	18	12	Malaysian Airlines	1 168	18	21	32	Federal Express	2 550	18	17	90
Air New Zealand	16 125	19	19	25	Asiana[2]	1 093	19	24	—	Varig	2 332	19	18	20
Air Canada	16 121	20	24	19	Delta	1 083	20	18	57	Iberia	2 269	20	20	16
Canadian	15 177	21	23	27	El Al	1 075	21	19	16	Air Canada	2 239	21	23	19
Garuda	14 673	22	22	32	United Parcel Service[2]	1 000	22	23	—	Air New Zealand	2 129	22	22	28
SAS	14 567	23	21	21	Varig	957	23	20	17	El Al	2 091	23	25	24
Varig	14 056	24	20	23	Saudia	847	24	22	27	Saudia	1 998	24	24	23
Virgin Atlantic	14 014	25	26	66	Air Canada	776	25	25	20	Garuda	1 995	25	21	36
Aeroflot (Aria)	13 058	26	28	17	Air China[3]	648	26	27	—	Asiana[2]	1 978	26	35	—
Saudia	12 781	27	25	20	Garuda	629	27	28	40	Canadian	1 962	27	26	32
All Nippon Airways	12 518	28	30	88	Iberia	623	28	31	18	All Nippon Airways	1 867	28	31	104
PAL	11 977	29	27	26	All Nippon Airways	608	29	35	142	SAS	1 802	29	27	22
TWA	11 296	30	29	10	Air New Zealand	592	30	29	29	Virgin Atlantic	1 770	30	29	65

1. Some 1995 data are rounded estimates, thus the ranking may change when final data become available.
2. Started operations in 1988.
3. No data for individual air carriers were reported by China prior to 1993.

Source: ICAO Air Transport Reporting Form A-1 and IATA.

Table 2-6. Top 30 countries or groups of countries in 1995 and their ranking in 1994 and 1986 in terms of TOTAL (international and domestic) traffic carried on their airlines' scheduled services[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
Country or group of countries	Estimated 1995 (millions)	Ranking 1995	1994	1986	Country or group of countries	Estimated 1995 (millions)	Ranking 1995	1994	1986	Country or group of countries	Estimated 1995 (millions)	Ranking 1995	1994	1986
United States	858 009	1	1	1	United States	22 996	1	1	1	United States	100 852	1	1	1
United Kingdom	152 453	2	2	4	United Kingdom	7 043	2	2	5	United Kingdom	21 739	2	2	4
Japan	129 981	3	3	3	Japan	6 877	3	3	2	Japan	17 903	3	3	3
Australia	67 145	4	6	7	Germany	6 002	4	4	4	Germany	12 224	4	5	6
France	66 932	5	4	5	Republic of Korea	5 730	5	5	7	France	11 454	5	4	5
China[2]	64 204	6	8	18	France	4 704	6	6	3	Republic of Korea	10 018	6	6	12
Germany	62 158	7	7	8	Netherlands	3 806	7	7	6	Singapore	8 389	7	7	10
Russian Federation	61 035	8	5	—	Singapore	3 774	8	8	8	Netherlands	8 364	8	9	9
Canada	49 288	9	10	6	Australia	1 923	9	9	10	Australia	8 114	9	8	8
Netherlands	48 474	10	11	11	Canada	1 746	10	13	11	China[2]	6 779	10	11	21
Republic of Korea	48 441	11	12	19	Brazil	1 657	11	14	15	Russian Federation	6 433	11	10	—
Singapore	48 400	12	9	10	China[2]	1 569	12	15	27	Canada	6 214	12	12	7
Brazil	34 370	13	13	9	Switzerland	1 562	13	10	12	Brazil	4 831	13	13	11
Italy	33 289	14	14	13	Italy	1 501	14	11	9	Italy	4 497	14	14	13
Spain	29 003	15	15	12	Thailand	1 346	15	12	17	Thailand	3 788	15	15	20
Thailand	27 053	16	16	21	Malaysia	1 207	16	18	26	Switzerland	3 557	16	16	15
Indonesia	24 028	17	18	22	Israel	1 076	17	16	14	Spain	3 309	17	17	14
Malaysia	23 475	18	20	30	Gulf States[4]	978	18	17	34	Malaysia	3 146	18	19	30
Scandinavia[3]	21 873	19	19	16	Russian Federation	940	19	26	—	Indonesia	2 939	19	18	26
India	20 960	20	23	15	Saudia Arabia	918	20	19	20	Gulf States[4]	2 743	20	22	33
Switzerland	20 359	21	21	20	Indonesia	780	21	20	31	Saudia Arabia	2 583	21	21	18
Mexico	19 403	22	17	14	Chile	779	22	21	35	India	2 518	22	25	16
Gulf States[4]	18 716	23	25	32	Spain	720	23	25	16	Scandinavia[3]	2 471	23	20	17
Saudi Arabia	18 501	24	22	17	India	680	24	28	18	New Zealand	2 277	24	24	23
New Zealand	18 008	25	24	24	Belgium	614	25	24	13	Israel	2 103	25	26	22
South Africa	14 496	26	27	26	New Zealand	608	26	22	22	Mexico	1 799	26	23	19
Philippines	14 374	27	26	23	Scandinavia[3]	518	27	27	19	Philippines	1 798	27	27	24
Argentina	11 976	28	28	25	Colombia	491	28	23	21	South Africa	1 551	28	29	27
Israel	11 412	29	30	28	Pakistan	454	29	29	23	Pakistan	1 400	29	28	28
Pakistan	10 384	30	29	27	Philippines	387	30	30	29	Belgium	1 390	30	31	25

1. Most 1995 data are rounded estimates, thus the ranking may change when final data become available.
2. Not including the Taiwan Province.
3. Three States, Denmark, Norway and Sweden, are partners in the consortium airline "Scandinavian Airlines System".
4. Four States, Bahrain, Oman, Qatar and United Arab Emirates, are partners in the multinational airline "Gulf Air".

Source: ICAO Air Transport Reporting Form A-1.

Table 2-7. Top 30 countries or groups of countries in 1995 and their ranking in 1994 and 1986 in terms of traffic carried on their airlines' INTERNATIONAL scheduled services[1]

PASSENGER-KILOMETRES PERFORMED					FREIGHT AND MAIL TONNE-KILOMETRES PERFORMED					TOTAL TONNE-KILOMETRES PERFORMED				
Country or group of countries	1995 (millions)	Ranking 1995	1994	1986	Country or group of countries	1995 (millions)	Ranking 1995	1994	1986	Country or group of countries	1995 (millions)	Ranking 1995	1994	1986
United States	240 215	1	1	1	United States	11 579	1	1	1	United States	33 376	1	1	1
United Kingdom	146 938	2	2	2	United Kingdom	7 025	2	2	5	United Kingdom	21 258	2	2	2
Japan	70 157	3	3	3	Japan	6 002	3	3	2	Japan	12 622	3	3	3
Germany	56 545	4	4	5	Germany	5 935	4	4	4	Germany	11 608	4	4	5
Singapore	48 400	5	5	6	Republic of Korea	5 608	5	5	7	Republic of Korea	9 325	5	6	9
Netherlands	48 249	6	7	8	France	4 500	6	6	3	France	9 096	6	5	4
France	44 810	7	6	4	Netherlands	3 807	7	7	6	Singapore	8 389	7	7	7
Republic of Korea	41 296	8	9	13	Singapore	3 774	8	8	8	Netherlands	8 343	8	8	6
Australia	41 056	9	8	7	Australia	1 648	9	9	10	Australia	5 438	9	9	8
Canada	31 421	10	10	9	Switzerland	1 554	10	10	12	Canada	4 231	10	10	10
Italy	26 156	11	11	12	Italy	1 470	11	11	9	Italy	3 824	11	11	12
Thailand	24 087	12	12	15	Canada	1 383	12	13	11	Switzerland	3 517	12	13	11
Brazil	20 118	13	13	18	Thailand	1 313	13	12	17	Thailand	3 487	13	12	14
Switzerland	20 016	14	14	11	Malaysia	1 170	14	18	26	Brazil	3 077	14	14	15
Malaysia	19 807	15	16	29	Brazil	1 143	15	14	15	Malaysia	2 811	15	16	26
Spain	19 681	16	15	10	Israel	1 075	16	16	14	Gulf States[4]	2 731	16	15	29
Gulf States[4]	18 584	17	17	27	Gulf States[4]	978	17	17	34	Spain	2 391	17	17	13
New Zealand	16 125	18	21	21	China[2]	926	18	15	27	China[2]	2 238	18	20	34
Russian Federation	15 972	19	20	—	Saudi Arabia	848	19	19	20	New Zealand	2 129	19	19	22
Indonesia	15 454	20	18	25	Chile	750	20	21	35	Indonesia	2 102	20	18	28
Scandinavia[3]	15 148	21	19	17	Indonesia	644	21	20	31	Israel	2 091	21	24	19
China[2]	13 900	22	23	35	Spain	625	22	25	16	Saudi Arabia	1 998	22	21	18
Saudia Arabia	12 781	23	22	16	Belgium	614	23	24	13	Russian Federation	1 980	23	23	—
Philippines	11 977	24	24	22	New Zealand	592	24	22	22	Scandinavia[3]	1 855	24	22	17
India	11 916	25	25	20	India	553	25	28	18	India	1 648	25	26	20
Israel	11 287	26	26	23	Russian Federation	543	26	26	—	Philippines	1 561	26	25	23
South Africa	9 952	27	28	30	Scandinavia[3]	485	27	27	19	Belgium	1 390	27	27	21
Belgium	8 620	28	30	24	Colombia	470	28	23	21	Pakistan	1 177	28	28	24
Pakistan	8 341	29	29	26	Pakistan	418	29	29	23	Chile	1 150	29	30	45
Argentina	7 884	30	32	31	Kuwait	336	30	31	28	South Africa	1 096	30	29	27
Mexico	7 884	30	27	19										

1. Most 1995 data are rounded estimates, thus the ranking may change when final data become available.
2. Not including the Taiwan Province.
3. Three States, Denmark, Norway and Sweden, are partners in the consortium airline "Scandinavian Airlines System".
4. Four States, Bahrain, Oman, Qatar and United Arab Emirates, are partners in the multinational airline "Gulf Air".

Source: ICAO Air Transport Reporting Form A-1.

Scheduled: city-pair rankings

2.69 The 25 largest city-pair traffic flows in terms of passengers carried on international scheduled services represented a total of about 44 million passengers in 1994 (Table 2-8; owing to incomplete data it has not been possible to include figures for 1995). This represents some 13 per cent of the world total of international scheduled passengers. The table shows that of the 25 major passenger flows 12 involved international routes within eastern Asia, five routes were within Europe, four routes were across the North Atlantic, two routes across North-Mid Pacific, and one route each within North America, and between Europe and Asia. In terms of cities, London and Tokyo appear most frequently, eight and seven times respectively. Almost all the city-pairs shown involve over-water sectors.

Table 2-8 . Scheduled passenger traffic on world's major international city-pairs
(top 25 city-pairs ranked by international passengers, 1994)

Rank	City-pair	Distance (km)	1994 (thousands)	1993 (thousands)	1994/93 %	1994/86 average
1	Hong Kong-Taipei	777	4 050	3 926	3.2	13.6
2	London-Paris	346	3 637	3 365	8.1	6.6
3	London-New York	5 539	2 574	2 386	7.9	4.3
4	Dublin-London	456	2 456	2 167	13.3	11.3
5	Kuala Lumpur-Singapore	335	2 436	2 318	5.1	8.5
6	Honolulu-Tokyo	6 134	2 285	2 022	13.0	9.5
7	Seoul-Tokyo	1 227	2 189	1 944	12.6	10.0
8	Bangkok-Hong Kong	1 743	2 074	1 978	4.9	8.2
9	Amsterdam-London	369	2 052	1 932	6.2	6.7
10	Hong Kong-Tokyo	2 938	1 881	1 799	4.6	5.5
11	Jakarta-Singapore	906	1 708	1 614	5.8	10.1
12	Taipei-Tokyo	2 182	1 540	1 423	8.2	3.0
13	Bangkok-Singapore	1 444	1 490	1 477	0.9	8.7
14	Hong Kong-Singapore	2 578	1 490	1 446	3.0	7.9
15	Frankfurt-London	654	1 410	1 313	7.4	6.4
16	Brussels-London	349	1 207	1 100	9.7	7.2
17	Hong Kong-Manila	1 126	1 207	1 058	14.1	8.0
18	New York-Paris	5 833	1 151	1 063	8.3	4.9
19	Singapore-Tokyo	5 356	1 106	1 064	3.9	14.4
20	Los Angeles-Tokyo	8 752	1 024	1 051	-2.6	3.1
21	London-Los Angeles	8 759	1 010	1 053	-4.1	8.8
22	London-Tokyo	9 590	988	874	13.0	16.6
23	Hong Kong-Seoul	2 059	980	914	7.2	13.7
24	Frankfurt-New York	6 172	958	827	15.8	4.6
25	Chicago-Toronto	699	954	965	-1.1	2.3
	TOTAL		43 857	41 079	6.8	7.9

Source: ICAO Air Transport Reporting Form B plus estimates for non-reporting air carriers.

Table 2-9. Estimated international non-scheduled revenue passenger traffic, 1994-1995

Category	Millions of passenger-kilometres performed 1994	1995	Annual change (%) 1995/94
Scheduled carriers	100 400	100 400	0.0
% of total carriers	45	42	
Non-scheduled carriers	124 300	137 200	10.4
% of total carriers	55	58	
TOTAL NON-SCHEDULED TRAFFIC	224 700	237 600	5.7
Scheduled traffic	1 143 100	1 241 600	8.6
Total traffic	1 367 800	1 479 200	8.1
NON-SCHEDULED TRAFFIC AS PERCENTAGE OF TOTAL	16.4	16.1	

Source: ICAO Air Transport Reporting Forms A-1 and A-2.

Non-scheduled

2.70 Total international non-scheduled passenger-kilometres performed throughout the world increased by an estimated 6 per cent in 1995 (Table 2-9). In 1995 the share of international non-scheduled air passenger traffic remained at about 16 per cent of over-all international air passenger traffic. According to preliminary estimates in 1995 the shares of charter operators and scheduled airlines in the carriage of the non-scheduled traffic were 58 per cent and 42 per cent respectively. Non-scheduled traffic in Europe remains the largest single component of the world charter market. Domestic non-scheduled passenger traffic is estimated to represent some 10 per cent of total non-scheduled passenger traffic and about 2 per cent of total domestic passenger traffic world-wide. Non-scheduled cargo operations tend to be largely of an ad hoc nature and little information is available as to their volume.

FLEETS

2.71 The evolution of the commercial air transport fleets summarized below does not generally include aircraft fleet and manufacturer data for the Commonwealth of Independent States (CIS) and China. However, statistics on certain types of aircraft manufactured in the CIS and employed in the fleets of States other than the CIS and China are included in the tables shown unless otherwise stated. Also, unless otherwise stated, statistics of aircraft having a maximum take-off mass of less than 9 000 kg (20 000 lbs) are not included.

Table 2-10. Main aircraft types ordered and delivered in 1995

Aircraft	Orders	Deliveries	Backlog
Boeing 737	176	89	491
Boeing 777	92	13	217
Airbus A319/320/321	70	56	373
Douglas MD 80/90	51	32	141
BAe 146/RJ	50	21	43
Douglas MD 95	50	—	50

Source: Aircraft manufacturers.

Orders and deliveries

2.72 In 1995 the number of turbo-jet aircraft ordered was 678 compared with 314 in 1994. The financial commitment represented by orders placed in 1995 for these aircraft is estimated to be about $36 billion, more than double the $14 billion estimated for 1994. In 1995, 481 aircraft were delivered compared with 513 aircraft in 1994. The backlog of unfilled orders increased from 1 878 aircraft at the end of 1994 to 2 032 aircraft at the end of 1995. The status of orders and deliveries for the year 1995 is shown in Table A1-2 in Appendix 1, which gives data by manufacturer and model for turbo-jet and turboprop aircraft.

2.73 The turbo-jet types shown in Table 2-10 were most active in 1995 in terms of orders and deliveries, accounting for about 72 per cent of the orders, and for about 44 per cent each of the deliveries made and 65 per cent of the backlog of unfilled orders in 1995. The number of turbo-prop aircraft ordered in 1995 was 168, and 191 aircraft were delivered during the year. The backlog of turbo-prop aircraft was 245 at the end of the year.

Composition

2.74 Between 1986 and 1995 the number of commercial air transport fixed-wing aircraft in service with a take-off mass of 9 000 kg and over increased by over 60 per cent, from 9 723 to 15 540, as shown in Table 2-11. During this period, the number of jet aircraft increased from 7 356 to 12 200, rising from about 76 per cent to 79 per cent of the fleet, while turbo-prop aircraft increased from 1 705 to 2 990, or from about 18 to over 19 per cent. On the other hand, the number of piston-engine aircraft declined by almost 47 per cent, from 662 to 350, and now constitutes a little over 2 per cent of the total world fleet.

2.75 It is estimated that by the end of 1995 there were some 675 commercial jet aircraft in storage, compared to 907 aircraft in storage at the beginning of the year and 1 103 aircraft in January 1994. Similarly, during 1995 the number of commercial jets for sale or lease continued to decline from 533 in January to 470 in December. However, the proportion of new generation aircraft available for lease or sale remained unchanged at about 16 per cent.

Table 2-11. Commercial transport fleet[1] at the end of each year — 1986,1994,1995[2]

Year	TURBO-JET Number	TURBO-JET Percentage	TURBO-PROP Number	TURBO-PROP Percentage	PISTON ENGINE Number	PISTON ENGINE Percentage	Total aircraft all types
1986	7 356	75.7	1 705	17.5	662	6.8	9 723
1994	11 906	78.4	2 897	19.1	383	2.5	15 186
1995	12 200	78.5	2 990	19.2	350	2.3	15 540

1. Aircraft having a maximum take-off mass of less than 9 000 kg (20 000 lb) are not included.
2. Owing to lack of information, data for China and the Commonwealth of Independent States are not included, with the exception of the Ukraine from 1993 onwards.

Source: ICAO Air Transport Reporting Form H.

Table 2-12. Number of civil aircraft[1] on register by region at the end of 1995 — commercial air transport operators[2]

Region	AIRCRAFT MAXIMUM TAKE-OFF MASS: 9 000 kg and over: Turbo-jet	Turbo-prop	Piston	Total	Under 9 000 kg	Total
Africa	530	230	30	790	1 550	2 340
Asia and Pacific	1 610	530	20	2 160	5 100	7 260
Europe	2 950	1 060	10	4 020	7 950	11 970
Middle East	470	40	—	510	110	620
North America	5 500	950	210	6 660	16 800	23 460
Latin America and Caribbean	850	270	110	1 230	3 930	5 160
TOTAL	11 910	3 080	380	15 370	35 440	50 810

1. Includes fixed and rotary-wing aircraft.
2. Preliminary data. Excludes aircraft registered for China and the CIS with the exception of the Ukraine.

Source: ICAO Air Transport Reporting Form H.

2.76 Recent industry surveys suggest that the operational life of aircraft has steadily increased. In 1995 some major international airlines opted to extend the life of their existing fleets: United Airlines decided to rejuvenate its 75 Boeing 727-200s and many of its 69 Boeing 737-200s by hush-kitting them and upgrading their cockpits (as well as making an order of up to 76 Boeing 737-600s), SAS decided to hush-kit its entire fleet of DC-9s (about 30 aircraft); American Airlines cancelled its plan to retire 23 Boeing 727s and instead relocated them to Caribbean routes; and USAir announced plans to fit hush-kits on up to 64 of its Boeing 737-200s.

2.77 During 1995 the market value of new generation wide- and narrow-body aircraft remained fairly stable. Many models of old narrow-body aircraft saw only a moderate decline in prices (within 10 per cent) while demand for some of the older models of the DC-9 and Boeing 727 drove their prices up by as much as 30-40 per cent. As in the previous year, prices for the older models of wide-body jets declined considerably, with the Airbus A300s and Boeing 747s losing more than one-fifth and the DC-10s and L-1011s more than one quarter of their market value with respect to 1994.

2.78 It is estimated that at the end of 1994 (complete data for 1995 not yet being available), there were 15 186 fixed-wing civil aircraft (cf. Table 2-11) and some 180 rotary-wing aircraft, for a total of 15 370 civil aircraft on register with a maximum take-off mass of 9 000 kg or more. In addition, there were some 35 440 fixed- and rotary-wing civil aircraft of lesser mass, for a total of some 50 810 fixed- and rotary-wing civil aircraft registered with commercial air transport operators in ICAO Contracting States, excluding the CIS (with the exception of Ukraine) and China. Table 2-12, which gives the regional distribution of registration of these aircraft, shows that some 46 per cent of all aircraft used by commercial operators were registered in North America.

Leasing developments

2.79 At the end of 1995 there were 36 major leasing companies owning 1 740 jet aircraft compared with 1 812 commercial jets owned by the same number of companies in 1994. The approximate aggregate value of this fleet remained the same at about $36 billion. About 60 per cent of the jet aircraft available for operating leases were owned by just two companies, both of which are based in the United States: General Electric Capital Aviation Services (742 aircraft) and International Lease Finance Corporation (307 aircraft).

2.80 In 1995, excluding China and the CIS for which complete data were not available (except for Ukraine), the proportion of jet aircraft owned by major leasing companies decreased by one percentage point to 14.2 per cent of the total number of commercial jet aircraft. The number of jets leased from other institutions, other carriers, the aircraft manufacturers, and smaller leasing companies of which many deal predominantly with turbo-prop aircraft is also rather significant. According to data published by Airclaims Limited, at 31 December 1995 the world airlines owned only 55.7 per cent of their jet fleet while the aircraft leasing companies accounted for the rest. Another industry estimate puts the breakdown of all leases into operating leases and financial leases in the proportion of two to three.

2.81 As in the two previous years, the share of stored aircraft in the total fleet owned by major leasing companies continued to decrease (by nearly 3 percentage points to 7.5 per cent). Despite reductions in stored aircraft, both in terms of their number and as a proportion of the total, market conditions caused leasing rates to continue to fall. As in the previous year, narrow-body aircraft complying with the ICAO noise standards in Annex 16, Volume I, Chapter 3, were the least affected by the reduction in leasing rates, although for some models leasing rates decreased by up to 24 per cent, a significantly higher reduction than in 1994 when leasing rates decreased by no more than 6 per cent. However some aircraft types (such as most models of the Boeing 737 and 757, and the Canadair RJ family) experienced no reductions in their rates. Depending on aircraft type, leasing rates for narrow-body aircraft complying with Chapter 2 of Annex 16, Volume I were some 10 to 65 per cent lower than in 1994 with the exception of hush-kitted DC-8 freighters and DC-9-30s for which rates remained unchanged from the previous year. Among the wide-body aircraft for the "combi" aircraft models of the Boeing 747 and MD-11 leasing rates remained almost unchanged at the 1994 level; for the Boeing 767 models rate reductions were relatively modest (between 2 and 9 per cent), while earlier models of the Airbus A300, Boeing 747, DC-10 and L-1011 all suffered decreases in their leasing rates of between 15 and 60 per cent compared to 1994.

AIRCRAFT TECHNOLOGY

2.82 The world's largest twin-engine airliner, the Boeing 777, powered by Pratt & Whitney PW4084 engines, was simultaneously certified by the United States' Federal Aviation Administration (FAA) and the European Joint Aviation Authorities (JAA) in April 1995 and entered into commercial service in June. The Boeing 777 powered by General Electric GE90 became operational in November, while one powered by Rolls-Royce Trent 890 engines made its first flight in May, with certification expected in early 1996. The Boeing Company also commenced production of a stretched version, the Boeing 777-300, which would provide on average 20 per cent more seating (between 370 and 450 seats) but its introduction into service is not expected until the spring of 1998. This aircraft is intended to replace early models of the Boeing 747 in the airline fleets. In October the first Boeing 767 freighter was delivered to its launch customer.

2.83 The initial development phase of the Airbus Industrie A330/A340 family was completed in February with the delivery of the first Rolls-Royce Trent 700 powered A330. A new version of the A340, with a take-off mass of 271 tonnes, flew for the first time in August, with certification expected in early 1996. The manufacturer also launched extended-range versions of these two aircraft, for entry into service in the first half of 1997 for the former and one year later for the latter. However, by the end of 1995 no orders for either of these variants had been announced. In October, the A300-600ST "Beluga", the world's widest cargo aircraft (with a 7.4 m usable-diameter fuselage), made its first transport flight for its owners, Airbus Industrie.

2.84 During 1995, the second generation of wide-body twin-jets increased their extended-range twin-engine operations (ETOPS) capabilities. The A330 with Pratt & Whitney PW4168 engines, the first aircraft/engine combination in the world to have ETOPS approval prior to entry into airline service (90 minutes in November 1994), obtained from the JAA successively

the 120 and 180 minutes ETOPS approval whereas the A330s powered by General Electric (CF6-80E1) and Rolls-Royce (Trent 700) engines were granted by JAA increases in their ETOPS approvals to 180 and 120 minutes respectively. The Boeing 777 powered by Pratt & Whitney engines became the first aircraft ever to be awarded by the FAA a full 180 minutes ETOPS approval at entry into service, whereas the JAA cleared it for 120 minutes.

2.85 The Tupolev Design Bureau completed its feasibility studies on a wide-body twin-jet dubbed the Tu-304 (312 to 400 seats), powered by Rolls-Royce Trent 884 engines. Depending on availability of funds, its construction might begin in 1998 leading to its certification in 2001. Production of the first Soviet-era wide-body passenger jetliner, the IL-86, was ended in December with a total output of 108 aircraft, while that of the four-engine narrow body IL-62 was stopped in June.

2.86 During the year there were also some important developments in the mid-size medium-haul aircraft market. The Airbus Industrie single-aisle aircraft family which includes the A320 and A321 (covering a range of options from 140 to 185 seats), was joined by the 124-seat A319. The latter flew for the first time in August, with certification expected by March 1996. Airbus Industrie also launched a stretched version of the A321. Boeing launched another new version of the Boeing 737, the 108-seater 737-600, with deliveries planned for the second half of 1998. It also began assembly of the Boeing 737-700 (128-149 seats), with expected entry into service in October 1997. The McDonnell Douglas MD-90, a 150-seat derivative of the MD-88, with V2500 engines from International Aero Engines, entered revenue service in April. The company also launched an aircraft for the 100-seat market, the MD-95 with two new-generation BMW Rolls-Royce BR715 engines. The first member of this new family of aircraft, the MD-95-30 (80 to 130 seats), was expected to be delivered to a launch customer by June 1999. During 1995, Tupolev's twin-jet 214-seat Tu-204 completed its certification, while prototypes of its smaller derivative, the 160-seat Tu-234 (formerly known as Tu-204-300), and of the 100-seat Tu-334 were both rolled out in August. Also in 1995, Ilyushin's stretched version of the IL-76 freighter made its maiden flight. The only prototype of the Antonov's four-engine freighter An-70, the first aircraft in the world to be flown powered by prop-fans, crashed during a test flight, delaying indefinitely its development programme.

2.87 With regard to the regional aircraft market, two new models entered airline operations in 1995: the Fokker 70 regional jet, a smaller derivative of the Fokker 100 and the Avions de Transport Regional (Aerospatiale/Alenia) twin turbo-prop ATR 42-500. In August 1995, two 50-seat commuter aircraft took to the air for the first time: the Brazilian Embraer EMB-145 jet and the Indonesian Industri Pesawat Terbang Nusantara (IPTN) N-250 high-speed fly-by-wire turbo-prop, with expected deliveries in late 1996 and in early 1998 respectively. In addition to a local production plant, IPTN also selected assembly sites in Germany and the United States. As a follow-up to this programme, the company announced plans to build the N-2130 regional twin-jet in 80-, 100- and 130-seat configurations, with deliveries envisioned in 2006. In Canada the Bombardier Aerospace Group launched the de Havilland Dash 8 Series 400 programme. This 70-passenger high-speed twin turbo-prop aircraft is expected to enter service during the first quarter of 1999.

2.88 In the United States the High Speed Research (HSR) programme continued with studies on environmental, economic and technical issues associated with the development of

high-speed civil transport (HSCT). Towards year end, some of the preliminary conclusions on the environmental acceptability of HSCT had to be reviewed in the light of the results obtained from the direct measurements of the Concorde's engine emissions. These may lead to revisions in the design of the engines and in the type of fuel used by the HSCT.

2.89 In July 1995 Boeing and four European aircraft manufacturers suspended for six months their joint feasibility study on a 600- to 800-seat Very Large Commercial Transport (VLCT) which they had been conducting since January 1993. The study concluded that though the aircraft was technically feasible there was insufficient demand to justify its development. This was contrary to earlier market studies which had estimated a need for some 400 to 500 VLCTs by the year 2010. Two of the major aircraft manufacturers also carried out their own separate VLCT studies. Airbus Industrie offered airlines a double deck A3XX with models ranging from 530 to 966 seats. In response three Asian airlines indicated interest in an aircraft seating 500-550, but larger models have yet to obtain airline support. Boeing consulted airlines on two models of the Boeing 747 under study: the -500X with a slightly greater payload and a longer range than the -400, and the 550 to 700 seater -600X. Either version could be available by the year 2000. The Tupolev Bureau conducted studies on a 400/600-seat and a 750/1200-seat aircraft designated respectively the Tu-304 and the Tu-404. With conventional aircraft design capacity limits at around 900 seats, the major aircraft manufacturers were studying new concepts such as a "flying wing" or a "blended wing body" for markets beyond the year 2020. During 1995, the Russian design bureaus continued development work on non-conventional aircraft designs, the Ekranoplan wing-on-ground-effect craft and the EKIP round flying wing, which appear to have the potential to carry over 500 passengers at a much lower cost than present day aircraft.

2.90 In 1995 two very large turbo-fan engines, the Pratt & Whitney PW4084 and the General Electric GE90, entered service on the Boeing 777. The third engine in this class, the Rolls-Royce Trent 890, was certified in January with a thrust rating of 400 kN and was expected to enter commercial service in January 1996. For upcoming versions of the Boeing 777, Pratt & Whitney launched the development of a 436 kN thrust version of the PW4090. Similarly, General Electric embarked upon a programme leading to the certification of a 409 kN-derivative of GE90, designated GE90-92, in May 1996. The Rolls-Royce Trent 895, a 423 kN thrust version of the -800 series, was planned to be available in May 1998. Engines for mid-size and regional aircraft saw no significant development, except for a few derivatives. One of them was the new 142 kN thrust CFM International CFM56-5B/P of which certification on the A321 was scheduled for March 1996. Its core will serve as the basis for future CFM56 engines such as those which will power the new Boeing 737-600/700/800 series.

2.91 During 1995, consolidation and new alliances were also in evidence among the aircraft and engine manufacturers. Aerospatiale (France), Alenia (Italy) and British Aerospace formed Aero International (Regional) or AI(R). Initially this joint company will assume responsibilities for the marketing and after-sales support of the products of the partners and later for the joint manufacturing of new aircraft. Also during 1995 Rolls-Royce completed acquisition of the Allison Engines Company. One year after announcing plans to build a new 100-seat aircraft, the AE-100, China and South Korea (joined in August by India as a 30 per cent partner) could not overcome a number of stumbling blocks such as the selection of a western partner, work-sharing arrangements, including the location of final assembly plant, or the size of aircraft (100

or 115 seats). At the same time, both Chinese and South Korean companies had separate discussions with major Western manufacturers on the possibility of launching a similar project without their partners on the AE-100. Faced with a high yen and uncertain sale prospects, Boeing and its Japanese partners postponed indefinitely plans to launch the YS-X 80-100-seat regional jet. During 1995 some North American and European aircraft manufacturers continued to relocate part of their production to other regions of the world, mainly Asia. Also during the year a few new co-operative initiatives between Russian aerospace companies and western manufacturers were added to those already under development. Although some of these initiatives encountered financial difficulties at the implementation stage, others, such as the production of parts for the General Electric CT-7 and CFM-56 engines by the Rybinskie Motory plant, were successfully put into operation.

PERSONNEL

2.92 Between 1994 and 1995 there was little change in the number of staff employed by the world's scheduled airlines (excluding those of the CIS and China). Preliminary estimates suggest that in 1995 the number amounted to about 1.52 million, compared with 1.51 million in 1994. The number of staff employed by the international scheduled airlines remained at about 1.12 million.

2.93 These generic figures cannot fully describe the over-all impact of employment changes in the airline industry, since they encompass both recruitment by some airlines and lay-offs by others, which in many instances do not involve the same personnel.

2.94 In their continuing effort to reduce labour costs, some carriers announced staff reductions during 1995 which, with few exceptions, were of a moderate magnitude and were intended to be carried out through natural attrition, voluntary early retirement or leave-of-absence. Some labour unions also agreed to make concessions in terms of work rules, productivity, salaries and/or other benefits. However, also during 1995, some major carriers started hiring new staff, especially pilots, and the staff of some carriers (such as Air Canada, American Airlines, America West Airlines, Continental Airlines, KLM, Lufthansa, and SAS) were able to negotiate pay increases in exchange for higher productivity.

2.95 In 1995 Europe in particular continued to be affected by industrial action, with five major international airlines (Air France, Alitalia, Iberia, Sabena, and SAS) and one regional carrier (Air Inter) experiencing staff strikes, accounting for nearly all work stoppages in that region.

FINANCES

Financial results

2.96 Preliminary estimates for 1995 indicate that the world's scheduled airlines as a whole experienced an operating profit of 5.1 per cent of total operating revenues, compared with 3.4 per cent in 1994. This is the third successive year of operating profit following three years of

operating loses (1990-1992). The operating revenues of scheduled airlines (excluding operations within the CIS) are tentatively estimated at $274.0 billion in 1995, an increase of some 11 per cent compared with the $247.4 billion earned in 1994. Expressed in United States currency, operating revenues per tonne-kilometre performed increased from 87.7 cents in 1994 to an estimated 89.8 cents in 1995. The operating expenses for the same airlines are tentatively estimated at $260.0 billion in 1995, an increase of 9 per cent over the $239.0 billion incurred in 1994. Operating expenses per tonne-kilometre performed rose by less than 1 per cent from 84.7 cents in 1994 to 85.2 cents in 1995.

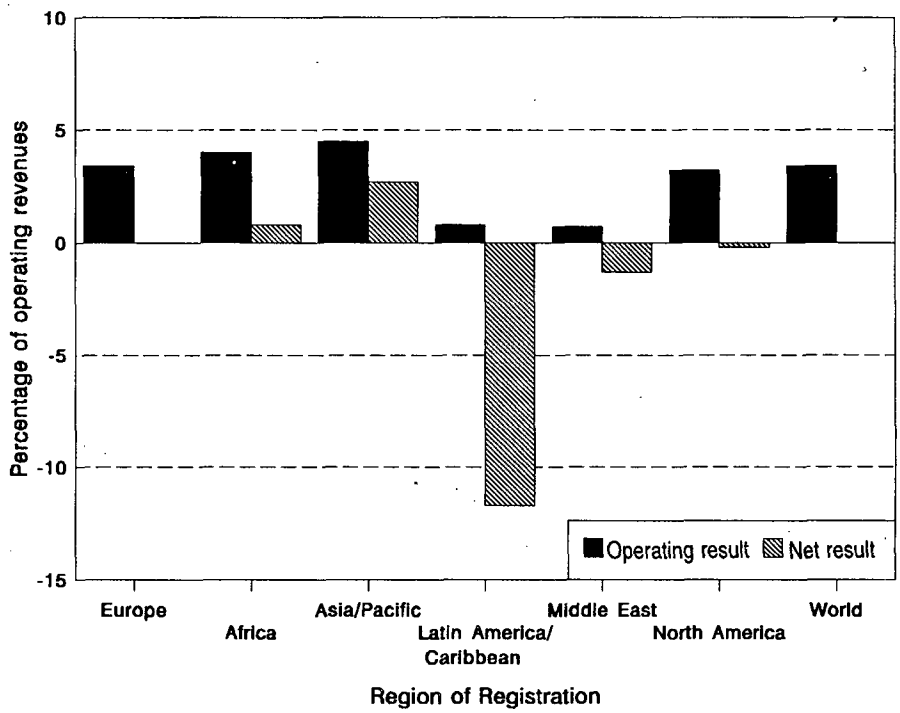
2.97 The estimated operating result for the world's scheduled airlines is the difference between estimated operating revenues and expenses and is therefore subject to a relatively wide margin of error. For 1995, the estimated operating profit of about $14 billion represents a significant improvement over the 1994 operating profit of $8.4 billion. The improved operating results in 1995 reflect a continuing growth of the world economy, sustained traffic growth, stable fuel prices, a general reduction in the value of the United States dollar in relation to other world currencies, and continuing airline efforts around the world to reduce their operating costs.

2.98 In 1995, the United States scheduled airlines ("majors" and "nationals") as a group accounted for about 35 per cent of the total operating revenues of the scheduled airlines of ICAO contracting States (excluding operations within the CIS). Preliminary data indicate that their operating result in 1995 was a profit of $5.8 billion, more than double the profit of $2.7 billion experienced in 1994. For the airlines of the rest of the world combined (excluding operations within the CIS), the preliminary estimated operating profit in 1995 is $8.2 billion compared with an operating profit of $5.7 billion shown for 1994.

2.99 The net result is derived from the operating result by taking into account the non-operating items and taxes. Preliminary estimates suggest that in 1995 the net result for the world's scheduled airlines will be positive for the first time since 1989 (in 1994 the net result was just marginally negative). Information on both operating and net results over the period 1984-1994 and distribution of operating revenues and expenses by item in 1984 and 1994 may be found in Tables 5-4 and 5-5 in Chapter 5.

2.100 The estimates of the world's scheduled airlines as a whole do not portray the considerable difference in results achieved by individual airlines. In 1994 (complete data were not available for 1995 at the time of writing) about 65 per cent of airlines experienced operating profits, with 35 per cent reporting operating losses. On a regional basis, airlines in all ICAO statistical regions experienced positive aggregated operating results in 1994, with operating profits expressed as a percentage of operating revenues ranging from 4.5 per cent for the airlines in Asia/Pacific to 0.7 per cent for those based in the Middle East. Net results ranged from a surplus of 2.7 per cent of operating revenues for the airlines based in Asia/Pacific to a net loss of 11.7 per cent of operating revenues for those in Latin America/Caribbean (Figure 2-2).

2.101 Available data on non-scheduled carriers are insufficient to produce accurate financial estimates.



Source: ICAO Air Transport Reporting Form EF-1.

Figure 2-2. Financial results by region in 1994 — scheduled airlines

Consolidated balance sheet

2.102 At the end of the fiscal year 1994 (1995 data were not available at the time of writing), the total assets of the scheduled airlines of ICAO Contracting States (excluding operations within the CIS) stood at $307.6 billion, compared with $277.8 billion at the end of the fiscal year 1993 (Table 2-13). Of these, 24 per cent were represented by current assets, some 61 per cent by fixed assets and the remainder by other assets.

2.103 At the end of 1994, the net value of the aircraft fleet (i.e. after depreciation charges) was $144.2 billion, compared with $128.3 billion at the end of 1993, representing an increase of some 12 per cent, although they remained at about 46 per cent of total assets. Accumulated depreciation charges stood at about $124.3 billion of which $95.2 billion were for the aircraft fleet, representing some 40 per cent of the gross value of the fleet. The remaining accumulated depreciation charges covered ground property and equipment and represented some 51 per cent of their gross value.

Table 2-13. Consolidated balance sheet Scheduled airlines of ICAO Contracting States[1] End of fiscal years 1986, 1993 and 1994

	1986		1993		1994	
	U.S.$ (million)	% of total	U.S.$ (million)	% of total	U.S.$ (million)	% of total
ASSETS						
Current assets	40 850	30	68 660	25	74 340	24
Fixed assets						
Flight equipment	63 350	48	128 330	46	144 160	46
Ground property and equipment	14 290	11	25 760	9	27 390	9
Land	500	0	2 340	1	2 840	1
Investments in affiliated companies	1 960	1	12 610	5	14 120	5
Other assets	13 430	10	40 140	14	44 760	15
TOTAL ASSETS	136 380	100	277 840	100	307 610	100
LIABILITIES						
Current liabilities						
Current liabilities	32 930	24	69 720	25	74 670	24
Unearned transportation revenues	9 580	7	14 390	5	15 610	5
Long/medium-term liabilities						
Long-term debt	46 380	34	104 220	38	114 910	38
Other medium/long-term liabilities	16 320	12	46 460	17	55 430	18
Stockholders' equity						
Share capital	12 350	9	23 110	8	21 950	7
Other capital	18 820	14	19 940	7	25 040	8
TOTAL LIABILITIES	136 380	100	277 840	100	307 610	100
ACCUMULATED DEPRECIATION						
Flight equipment	41 070	78	82 360	76	95 230	77
Ground property and equipment	11 680	22	26 290	24	29 050	23
TOTAL ACCUMULATED DEPRECIATION	52 750	100	108 650	100	124 280	100

1. Excludes domestic operations within the CIS.

Source: ICAO Air Transport Reporting Form EF-1.

2.104 Between the fiscal years 1993 and 1994, the value of stockholders' equity increased by some 9 per cent (from $43.1 billion to $47.0 billion), but in relative terms it remained at 15 per cent of total liabilities. During the same period long-term debt increased from $104.2 billion to $114.9 billion, but it fell in relative terms from 38 to 37 per cent of total liabilities. At the end of fiscal year 1994 current liabilities, including unearned transportation revenue, stood at $90.3 billion, or some 29 per cent of total liabilities, compared with some 30 per cent in 1993. Hence, during 1994 the acquisition of fleet equipment and other investments appear to have been financed mainly through an increase in long-term debt. Unearned transportation revenue represented about 5 per cent of total liabilities and some 6 per cent of the total traffic revenue for 1994.

2.105 Long-term trends in the balance sheet elements may be discerned from comparing the figures for 1994 with those for 1986, which are also contained in Table 2-13. At the end of fiscal year 1994 total assets stood at $307.6 billion compared with $136.4 billion at the end of 1986. Relative to the totals, the most significant difference between 1986 and 1994 is the decrease in the proportion of current assets (from 30 to 24 per cent of the total) and the corresponding increase in other assets, largely due to the relative increase in deferred charges. The proportion of fixed assets is virtually the same in both years (about 60 per cent of total assets); however there was a significant relative increase in investment in affiliated companies (from about 1 per cent of total assets in 1986 to some 5 per cent in 1994), and a reduction in the relative amounts represented by flight equipment and ground property and equipment.

2.106 As regards liabilities, between 1986 and 1994 there was a reduction in the proportion of current liabilities including unearned transportation revenue (from 31 to 29 per cent of total liabilities) and stockholders' equity (from 23 to 15 per cent) with a corresponding increase in long-term liabilities. The change in the latter was due to increases in long-term debt, in some reserves and in advances from affiliated companies. With regard to stockholders' equity, between 1986 and 1994 there was a significant decrease in relative terms due to the negative net balance of unappropriated retained earnings (i.e. cumulative losses) at the end of fiscal year 1994 and a small decrease in proportion of share capital and capital surplus.

GENERAL AVIATION

2.107 General aviation is here defined as civil aviation other than scheduled and non-scheduled commercial air transport. On the basis of world-wide statistics for 1994 and available 1995 data for those States where general aviation activity is highly developed, it is possible to draw some over-all conclusions on the development of this branch of civil aviation in 1995. The number of civil aircraft on register in ICAO Contracting States which are operated by other than commercial air transport operators provides another indication of the volume of general aviation activity.

2.108 General aviation flying in ICAO Contracting States (excluding the CIS and China) is estimated to have decreased slightly in 1995 from the 1994 estimate of about 39 million hours, to about 38 million hours (Table 2-14). Of this total for 1995, an estimated 9 million hours

Table 2-14. Estimated number of hours flown in general aviation activities, 1994-1995
(excluding the CIS and China)

	Millions of hours	
Type of flying	1994	1995
Instructional	9.0	9.0
Business/pleasure	21.0	20.5
Aerial work/other	9.0	8.5
TOTAL	39.0	38.0

Source: ICAO survey on aviation activities.

(24 per cent) were flown in instructional flying, 20 million hours (52 per cent) in business and pleasure flying and 9 million hours (24 per cent) in aerial work and other flying. The total of 38 million general aviation flying hours compares with a total of about 26 million hours flown on scheduled services by the airlines of the same Contracting States in 1995.

2.109 The number of civil aircraft on register in ICAO Contracting States (excluding the CIS and China), operated by other than commercial air transport operators and mostly utilized in general aviation activities, decreased slightly from 338 820 at the end of 1993 to an estimated 336 670 at the end of 1994. During the same period, the number of fixed-wing aircraft also decreased marginally, from 323 530 to an estimated 320 970; the United States accounts for about 72 per cent of such aircraft. The number of turbo-jet and turbo-prop aircraft increased relatively rapidly over the period but piston-engine aircraft remained by far the dominant category and single-engine types constituted 82 per cent of the total general aviation fleet at the end of 1994.

2.110 The number of valid private pilot licences at the end of 1995 in ICAO Contracting States (excluding the CIS and China) was estimated at about 560 000, the same level as for 1994.

Chapter 3
Airports and Air Navigation

3.1 This chapter discusses developments in 1995 in the management and organization of airports and air navigation facilities and services, in the infrastructure, traffic and financing of airports, and in technical aspects of air navigation services.

MANAGEMENT AND ORGANIZATION

3.2 The trend towards governments establishing autonomous authorities to operate airports and/or air navigation services continued in 1995, with increased attention being given to more active private involvement in airport operations, management, and financing. Thus, in Canada, management and operation of Toronto's Pearson International Airport will be transferred to the Greater Toronto Airport Authority (GTAA) under a 60-year lease agreement; Halifax International Airport will be transferred to the newly created Halifax International Airport Authority; Winnipeg and Hamilton airports will also be transferred to local authorities; by April 1997, 13 major airports in Canada will be transferred to new local authorities, and the final 6 by April 1998. In the United States, the BAA plc (from the United Kingdom) took over the management of Indianapolis International Airport; also, New York City is studying the impact of removing control of John F. Kennedy and La Guardia airports from the Port Authority of New York and New Jersey and the consequences of changing their management structure to allow for more private involvement.

3.3 In the Russian Federation, a new company Aero Moskva has been established to manage and develop Sheremetyevo, Domodedovo, Vnukovo and Bykovo airports serving Moscow. The government will retain a controlling share in Sheremetyevo and Domodedovo airports, which handle the bulk of international and domestic traffic, and will have minority stakes in the other two. In Italy, steps are being taken towards the sale of a controlling equity stake (75 per cent) of Italy's fourth largest airport, Naples-Capodichino; consideration is also being given to some form of private sector involvement in the management of Rome and Milan airports. In Germany, the Federal Government announced its intention to sell its shares in Hamburg airport (26 per cent) and Cologne-Bonn airport (31 per cent) as part of a large programme which would subsequently include Frankfurt, Munich and Berlin-Brandenburg airports (26 per cent each). In Portugal, a study has been initiated on the possibility of private involvement in seven major airports.

3.4 In Mexico, the Government is introducing new airport legislation to authorize foreign investors to own up to a 49 per cent stake in consortia operating the airports under a 50-year

renewable concession arrangement, and in Argentina, a study on the transfer of about 60 airports to local and foreign operators has been completed. In Aruba, the Government plans to set up an independent authority to manage Queen Beatrix International Airport, where investors, employees, local and foreign companies would be involved.

3.5 In Namibia, the Government has recommended the setting up of a company to own, operate and develop the country's airports; however, the Government will retain all shares of the corporation. In Nigeria, the Federal Civil Aviation Authority and the Nigerian Airports Authority were being merged into a single entity, the Federal Airports Authority of Nigeria (FAAN), which has assumed the responsibilities of the former Nigerian Airports Authority and the added responsibility of air traffic control, while flight safety will remain under central Government control. In Australia the Federal Government continued work on the development of an airport regulatory and leasing regime to apply to Australia's federal airports.

3.6 While the trend towards providing air navigation services through autonomous authorities continued in 1995, private involvement was not as actively pursued as it was in the case of airports. In Canada, the transfer of the Canadian air navigation services (ANS) to a not-for-profit corporation (NavCan) is expected to be completed in 1996. NavCan will handle all air traffic control and flight information services and is expected to operate 7 area control centres, 55 control towers and 102 flight service stations. The Federal Government will retain responsibility for safety regulations. The corporation will rely mostly on user charges for its revenue. In the United States, a proposal to transfer the air traffic control functions to a new not-for-profit federal corporation has yet to be considered by the legislative authority. In Switzerland, starting from 1 January 1996 Swisscontrol, the Swiss air traffic control joint stock company, will become financially independent and cease to receive federal budget funding; ATC facilities and properties have been taken over by the company, which is being given the task of setting and collecting ATC charges. In Italy, the Government is planning the transfer of its air traffic control agency (ANAV) into a joint-stock company.

MAJOR AIRPORT PROJECTS

3.7 There were 1 118 airports in the world at the end of 1995 open to international civil operations. During 1995, new international airports were opened at Denver (United States) and at Macau. Construction continued on a number of other new airports, notably in the Asia/Pacific region, including Chek Lap Kok in Hong Kong, due to open in 1998; Kuala Lumpur International (Malaysia), due to open in 1997; Seoul Metropolitan (Republic of Korea), due to open in 1999; and the new Bangkok International (Thailand), due to open in the year 2000. In China, phase I of Nanjing International at Jiangsu is expected to be completed in 1996; construction of the new Meilin International Airport at Haikou, the capital of Hainan, has started and is expected to be completed by the year 1997; and new international airports were also being planned for Guangzhou in the city of Huadu and for Shanghai Pudong area. In Europe, the new Oslo airport at Gardermoen (Norway) is to become operational by the end of 1998. In the Middle East, King Fahd International Airport in Saudi Arabia is nearing

completion. Plans are being made for new international airports for Berlin (Germany), Paris (France), and Tokyo (Japan).

3.8 Major airport expansion projects were under way in all regions in 1995. Projects completed during the year included: new passenger terminals for New York Newark (United States), Leipzig/Halle (Germany), Bangkok Don Muang International (Thailand), Guadeloupe Le Raizet (French Antilles), and Brisbane (Australia), and new piers at Changi (Singapore), Rome/Fiumicino (Italy) and Miami (United States). Work continued on rebuilding Beirut International (Lebanon). New terminals were under construction at Palma de Mallorca (Spain), Bordeaux-Mérignac (France), New York John F. Kennedy (United States), and at Vancouver (Canada). Development of new terminals is in advanced stages of planning for Cairo (Egypt), Abu Dhabi and Dubai (both in the United Arab Emirates), Lahore (Pakistan), Istanbul (Turkey), London/Heathrow (United Kingdom), Prague (Czech Republic), Miami and Washington National (both in United States), Toronto Pearson (Canada), Sao Paulo/Guarulhos (Brazil), Havana (Cuba), Jakarta (Indonesia), Manila Ninoy Aquino (Philippines), Hanoi Noi Bai (Vietnam) and Wellington (New Zealand).

3.9 Major construction development projects, including new terminals, are under way for San Francisco International (United States) and for Beijing Capital Airport (China). A new parallel runway for Sydney/Kingsford Smith (Australia) was opened. Completion of the third runway for Stockholm/Arlanda (Sweden) is scheduled for 1999, and for Vancouver (Canada) in 1996. New runways are also being planned for Tokyo/Narita and Kansai International (both in Japan), Paris/Charles de Gaulle Roissy (France), Amsterdam/Schiphol (Kingdom of the Netherlands), Leipzig/Halle (Germany), Ashkhabad (Turkmenistan), Addis Ababa/Bole International (Ethiopia) and Bogota Eldorado (Colombia).

AIRPORT TRAFFIC

3.10 The 25 largest airports in the world in terms of passenger throughput, 17 of which are located in the United States, handled a combined total of about 877 million passengers in 1995 (Table 3-1). This represents about 31 per cent of the world total of scheduled and non-scheduled passengers or an average per airport of some 96 000 passengers every twenty-four hours. These 25 airports also handled a combined total of about 10 million aircraft movements in 1995, corresponding to an average per airport of one take-off or landing every 76 seconds.

3.11 There are significant differences between the rankings of airports by passengers and by movements. For example, Tokyo/Haneda ranks 6th in terms of passengers handled but 48th in terms of aircraft movements, Frankfurt 7th by passengers but 18th by movements, and Hong Kong 17th by passengers but 65th by movements, illustrating that a substantial part of traffic at these airports was carried on wide-body aircraft. Airports which do not make the listing by passengers but which would make a top 25 listing by movements are Pittsburgh (11), Charlotte (16), Seattle(17), Philadelphia (19), Cincinnati (21), Salt Lake City (23), and Toronto (24).

Table 3-1. Scheduled and non-scheduled traffic at world's major airports
(top 25 airports ranked by TOTAL passengers, 1995)

Rank No.	Airport (ranking by total commercial aircraft movements given in brackets)	Passengers embarked and disembarked				Aircraft movements			
		1995 (thousands)	1994 (thousands)	Change 1995/94 (%)	Average change per annum 1995/86 (%)	1995[1] (thousands)	1994 (thousands)	Change 1995/94 (%)	Average change per annum 1995/86 (%)
1	Chicago (2)	67 255	66 458	1.2	2.6	822.8	806.7	2.0	1.7
2	Atlanta (4)	57 735	54 110	6.7	2.8	569.1	533.4	6.7	–3.1
3	Dallas/Ft. Worth (1)	54 299	52 564	3.3	3.5	864.2	826.2	4.6	5.1
4	London-Heathrow (10)	54 132	51 359	5.4	6.3	421.3	411.6	2.4	4.1
5	Los Angeles (3)	53 909	51 050	5.6	3.0	671.8	632.6	6.2	3.0
6	Tokyo-Haneda (48)	45 823	42 194	8.6	6.0	201.7	193.4	4.3	1.4
7	Frankfurt (18)	38 180	35 124	8.7	7.6	370.8	357.6	3.7	5.4
8	San Francisco (15)	36 260	34 632	4.7	3.0	396.2	394.6	0.4	0.3
9	Miami (5)	33 236	30 215	10.0	4.7	497.2	480.4	3.5	6.1
10	Denver (8)	31 028	33 150	–6.4	–1.2	438.6	499.6	–12.2	–0.9
11	Seoul (58)	30 941	27 094	14.2	17.6	193.0	178.9	7.9	15.2
12	New York-Kennedy (27)	30 328	28 802	5.3	1.2	321.1	327.0	–1.8	2.8
13	Detroit (9)	29 013	26 789	8.3	5.7	436.1	416.5	4.7	2.5
14	Las Vegas (20)	28 001	26 821	4.4	9.6	351.1	345.9	1.5	4.5
15	Paris-Charles de Gaulle (25)	27 995	28 364	–1.3	7.6	331.4	318.7	4.0	9.6
16	Phoenix (13)	27 820	25 617	8.6	8.6	399.7	383.2	4.3	3.8
17	Hong Kong (65)	27 424	25 252	8.6	11.1	175.7	143.6	22.4	11.6
18	Minneapolis (12)	26 783	24 482	9.4	5.1	411.0	401.4	2.4	3.5
19	Paris-Orly (40)	26 577	26 498	0.3	4.1	239.5	209.0	14.6	4.3
20	New York-Newark (14)	26 567	28 024	–5.2	–1.1	398.4	415.4	–4.1	0.9
21	St. Louis (6)	25 719	23 360	10.1	2.6	469.3	433.7	8.2	1.8
22	Amsterdam (30)	25 356	23 072	9.9	9.0	288.9	274.1	5.4	6.9
23	Boston (7)	24 744	24 843	–0.4	1.4	455.7	445.9	2.2	2.5
24	Houston (22)	24 725	22 518	9.8	6.5	340.7	320.5	6.3	3.4
25	Honolulu (35)	23 581	23 006	2.5	2.9	259.7	249.7	4.0	–0.1
	TOTAL	877 431	835 396	5.0	4.4	10 325.1	9 999.6	3.3	2.8

1. Aircraft movements for 1995 have been estimated.

Source: ICAO Air Transport Reporting Form I and Airports Council International.

Table 3-2. Scheduled and non-scheduled traffic at world's major airports
(top 25 airports ranked by INTERNATIONAL passengers, 1995)

Rank No.	Airport (ranking by international commercial aircraft movements given in brackets)	International passengers embarked and disembarked				International aircraft movements			
		1995 (thousands)	1994 (thousands)	Change 1995/94 (%)	Average change per annum 1994/86 (%)	1995[1] (thousands)	1994 (thousands)	Change 1995/94 (%)	Average change per annum 1994/86 (%)
1	London-Heathrow (1)	46 830	44 262	5.8	6.9	348.3	335.9	3.7	5.6
2	Frankfurt (3)	30 257	27 546	9.8	8.5	282.2	272.1	3.7	6.3
3	Hong Kong (11)	27 424	25 248	8.6	11.1	150.2	143.3	4.8	9.8
4	Paris-Charles de Gaulle (2)	25 534	25 690	–0.6	7.9	285.8	280.9	1.7	9.0
5	Amsterdam-Schipol (4)	24 709	22 943	7.7	8.8	280.4	266.0	5.4	7.0
6	Singapore (10)	21 743	20 203	7.6	10.4	150.8	145.3	3.8	9.2
7	Tokyo-Narita (14)	21 488	20 681	3.9	9.4	115.8	115.5	0.3	4.9
8	London-Gatwick (9)	20 604	19 417	6.1	3.4	159.4	149.1	6.9	2.3
9	New York-Kennedy (21)	16 973	15 898	6.8	1.1	98.2	100.0	–1.8	0.8
10	Bangkok (17)	15 119	13 747	10.0	11.1	106.5	102.6	3.8	8.9
11	Miami (8)	14 443	13 071	10.5	7.3	163.0	157.5	3.5	6.1
12	Zurich (6)	13 987	13 111	6.7	5.3	182.5	181.1	0.8	5.0
13	Los Angeles (26)	13 406	12 679	5.7	8.5	74.8	70.4	6.2	5.1
14	Seoul (30)	13 369	11 823	13.1	13.7	73.3	69.0	6.3	11.9
15	Brussels (5)	12 503	11 237	11.3	9.1	221.7	202.6	9.4	10.6
16	Manchester (20)	12 135	12 064	0.6	8.1	101.3	100.7	0.6	7.4
17	Rome-Fiumicino (16)	11 833	11 086	6.7	7.5	112.9	107.9	4.6	5.9
18	Copenhagen (7)	11 145	11 091	0.5	4.0	174.5	165.1	5.7	4.6
19	Paris-Orly (22)	11 044	11 144	–0.9	4.9	91.5	87.8	4.2	4.1
20	Palma de Mallorca (32)	10 960	10 609	3.3	3.9	68.3	67.3	1.5	3.2
21	Dusseldorf (18)	10 469	10 347	1.2	5.7	102.7	103.6	–0.9	6.2
22	Toronto (12)	10 400	10 002	4.0	3.0	124.1	121.7	2.0	2.9
23	Madrid (19)	9 505	8 965	6.0	7.5	101.4	98.1	3.4	7.1
24	Munich (15)	8 903	8 219	8.3	7.2	114.3	110.4	3.5	7.0
25	Vienna (13)	8 013	7 159	11.9	10.3	121.4	114.5	6.0	9.6
	TOTAL	422 796	398 242	6.2	7.2	3 805.3	3 668.4	3.7	6.3

1. Aircraft movements for 1995 have been estimated.

Source: ICAO Air Transport Reporting Form I and Airports Council International.

annum on average over the 1986-1995 period, while aircraft movements increased at some 3 per cent per annum, illustrating a trend to the use of larger aircraft. There were substantial differences in the rates of growth amongst individual airports.

3.13 Table 3-2 lists the 25 largest airports in the world in terms of *international* passengers handled. In marked contrast to Table 3-1, only 3 of the 25 airports are located in the United States. The 25 airports together, representing less than 2.5 per cent of airports serving international operations, handled about 423 million passengers in 1995, or about 51 per cent of the world total of international scheduled and non-scheduled passengers.

3.14 Over the 1986-1995 period the number of international passengers handled at these airports increased at about 7 per cent per annum and the number of international aircraft movements increased at about 6 per cent per annum. Over this period, the highest annual growth rates recorded in terms of individual passengers were in general for airports in the Asia/Pacific region (Seoul 14 per cent, Bangkok and Hong Kong each at 11 per cent, Singapore 10 per cent and Tokyo-Narita 9 per cent). Seoul also achieved the highest annual growth rate in terms of international aircraft movements (12 per cent, followed by Brussels at 11 per cent, Hong Kong and Munich each at 10 per cent, and Bangkok, Paris-Charles de Gaulle and Singapore each at 9 per cent).

AIRPORT FINANCES

3.15 The number of international airports with total revenues exceeding total expenses continued to increase. This applies mainly to the major international airports in Europe and North America as well as a number of airports with a high volume of traffic in other regions of the world. However, the majority of the 1 118 airports listed in the ICAO regional air navigation plans probably still operate at a loss. The main reasons continue to be, *inter alia*, relatively high capital costs, low traffic volume and the need to keep charges on aircraft operators at reasonable levels.

3.16 There was a small increase in the share which landing and associated airport charges represent in total airline operating expenses (1995 data were not available at time of writing). That share was 4.3 per cent in 1994 compared to 4.1 per cent recorded in 1993.

AIR NAVIGATION FACILITIES AND SERVICES

3.17 In 1994 the share which route facility charges represent in total airline operating expenses increased to 2.5 per cent from 2.4 per cent in 1993 (1995 data were not available at time of writing). This is primarily a reflection on the growing emphasis by States in general to reduce their deficit in providing air navigation services.

time of writing). This is primarily a reflection on the growing emphasis by States in general to reduce their deficit in providing air navigation services.

3.18 Major developments during the year in the fields of aeronautical communications, navigation and surveillance, air traffic services, search and rescue, and aeronautical meteorology are described below.

Communications, navigation and surveillance

3.19 Major progress continued to be made in the development and implementation of communications, navigation and surveillance/air traffic management (CNS/ATM) systems as described under the individual headings below. Of note was the certification by a number of States of the Boeing FANS-1 avionics package, a major step in implementing "future air navigation systems (FANS)" routes in the South Pacific which will permit lower separation minima and consequential fuel savings for FANS-equipped aircraft on these routes.

3.20 The aeronautical community holds the view that the aeronautical telecommunication network (ATN) will provide the data communications infrastructure required to support the future ICAO CNS/ATM systems. The impact of the ATN transition will affect virtually every existing ground network, air-ground network and end system involved in aeronautical data communications; clear, practical technical provisions and plans will therefore be necessary to ensure a smooth transition to the ATN.

3.21 Work continued in a number of States and international organizations, with industry input, on developing and assessing candidate architectures for ATN sub-systems. This work was co-ordinated by the ICAO Aeronautical Telecommunication Network Panel (ATNP). Work also continued in the development and assessment of technologies, such as time-division multiple access (TDMA) digital voice/data systems to improve VHF communication spectrum utilization.

3.22 At an ICAO Special COM/OPS Divisional Meeting held during the year, it was recommended that the channel spacing for air-ground VHF communications be reduced from 25 kHz to 8.33kHz. This change will be introduced on the basis of Regional Air Navigation agreements; where implemented, the number of available communication channels will approximately triple, providing an immediate solution to the VHF congestion in those regions.

3.23 At least one South Pacific State has implemented controller-pilot data link communication (CPDLC) which allows controllers to communicate, via data link, with FANS-1 equipped aircraft in oceanic airspace and also enables controllers to receive automatic dependent surveillance (ADS) reports. It is anticipated that other States in this region will commence application of similar procedures in the near future.

3.24 Significant progress continued in a number of States and international organizations in global navigation satellite systems (GNSS) development and implementation.

3.25 Development of satellite-based augmentation systems continued in a number of regions. This form of augmentation has the potential to support sole-means use of GNSS for all

phases of flight down to Category I precision approach. Several architectures for ground-based augmentation systems which have the potential to support Category II/III precision approach applications continue to be developed and tested. This type of augmentation may also be used by some States to support Category I operations. A number of States have approved global positioning system (GPS) for supplemental or primary use for some operations and types of airspace. Additional global orbiting navigation satellite system (GLONASS) satellites were launched during the year and this system neared initial operational capability. During the course of 1995, the European Space Agency (ESA), Eurocontrol and the European Commission, under an agreement known as the Tripartite Agreement, started work on the European geostationary navigation overlay system (EGNOS). This system is intended to provide for initial operational capability in 1998.

3.26 Considerable progress continued to be reported during the year in improving surveillance capabilities. This included development of automatic dependent surveillance (ADS) and implementation of new radar systems, such as monopulse secondary surveillance radar (SSR) and SSR Mode S stations, which were being implemented in the United States (23 SSR Mode S stations), in Europe (5 experimental SSR Mode S stations), in India (6 SSR Mode S stations ordered), and in Japan (1 experimental SSR Mode S station).

3.27 In other States, a two-step implementation has been preferred: upgrade/renew conventional SSR stations with the monopulse technique as a first step, and change to Mode S in a second step when the level of equipage of aircraft makes it more efficient and cost-effective. This approach has been taken, for example, in Australia, Singapore, South Africa and Europe.

Air traffic management

3.28 Air traffic control systems around the world are being updated as part of the evolutionary process leading to a future global air traffic management system, which will include satellite-based automatic dependent surveillance systems to complement current radar equipment.

3.29 Many States developed short- and medium-term programmes and ordered equipment to update their ATC systems within the near future. Modernization of systems was achieved through introduction of multi-radar tracking systems, raster scan colour displays, new flight plan data processing systems and ATC simulators. In the European region, the Central Flow Management Unit (CFMU) of Eurocontrol has started its tactical operations as planned. In 1996 the FMU will assume responsibility for Air Traffic Management service throughout the European Civil Aviation Conference (ECAC) area.

3.30 In areas where the implementation of radar service is not possible or practicable, it is envisaged that implementation of automatic dependent surveillance (ADS) will provide air traffic control with surveillance and intervention capability similar to that achieved through radar. Operational requirements have been developed to ensure an orderly and co-ordinated development of ADS-based systems.

3.31 ADS is an integral part of the ICAO CNS/ATM systems concept. Considerable progress has already been achieved by ICAO, States and international organizations in the development of ADS systems. Airborne ADS capabilities, combined with data link communications and global positioning system (GPS), have been implemented in 1995 in the South Pacific Region. Air traffic control (ATC) improvements and operational procedures are being developed to support the integration of those airborne and ground ATC systems components.

3.32 The concept of required navigation performance (RNP) has been developed as another cornerstone of the ICAO CNS/ATM systems. The implementation of RNP, together with the progressive introduction of area navigation (RNAV) techniques in compliance with RNP requirements, is anticipated to support a more efficient utilization of the available airspace. It is envisaged that satellite-based navigation systems, in combination with airborne navigation systems, will meet any future navigation performance requirements, at least for en-route purposes.

Aeronautical meteorology

3.33 Many States continued to install automated weather observing systems to support human observers. In this respect, a number of States introduced visibility and runway visual range (RVR) assessments using scatter meters.

3.34 A tendency towards the centralization and commercialization of meteorological forecast services continued in 1995, and in a number of States the meteorological services were commercialized to varying degrees.

3.35 Developments continued towards computer preparation of global forecasts of significant weather by the world area forecast centres (WAFCs). As a result, the significant weather (SIGWX) charts for Europe, Middle East and the North Atlantic are currently prepared in WAFC London by means of an interactive computer workstation. The capability to prepare such SIGWX charts with a global coverage is expected to be achieved in this centre by the end of 1996. In parallel, research in WAFCs is aimed at selecting a suitable existing meteorological code which could be used for more effective dissemination of the global SIGWX charts and which would also allow for automated manipulation of SIGWX information on the charts by users. In preparing their aviation forecasts, both the London and Washington WAFCs benefit from the increasing number of air-reports sent automatically through air/ground data link. In addition, meteorological authorities are also increasingly benefiting from this information received as basic meteorological data. During 1995 two world area forecast system (WAFS) satellite broadcasts to cover the Caribbean, North American and South American regions and the African, Asian (western part), European and Middle East regions were implemented. The third broadcast, covering the Pacific and Asian (eastern part) regions, will be implemented early in 1996, to complete the global coverage by WAFS satellite broadcasts.

3.36 Available data link communications have been increasingly used to provide operational meteorological (OPMET) information to aircraft in flight.

3.37 The installation of terminal Doppler weather radar at key aerodromes in the United States continued during the year. Replacement of the existing weather radar with a new Doppler weather radar was also in progress at Changi Airport (Singapore). Doppler radar's remote-sensing capability and highly sophisticated signal-processing techniques permit it to detect wind shear, including microbursts, in the terminal area. Work continued on the development of an "add-on" wind shear processing capability for the Doppler radars used by air traffic control or airport surveillance. A forward-looking airborne wind shear warning system based on Doppler radar technology, certificated in the United States, was installed in aircraft by more than 30 airlines world-wide.

3.38 Volcanic ash forecast transport and deposition computer models were applied to the tracking of ash clouds from volcanic eruptions by the designated volcanic ash advisory centres. The forecast products are intended for use by pilots, operators and air traffic controllers, showing relative ash concentrations through different layers of the atmosphere. The possibility of disseminating this advisory information in graphical format to meteorological watch offices (MWOs) and area control centres (ACCs) is being studied.

3.39 Preparations continued in certain States towards the full worldwide implementation of the new aeronautical meteorological codes (METAR, SPECI, and TAF).

Search and rescue

3.40 The satellite-based COSPAS-SARSAT[1] system continued to play an important role in detecting emergency locator transmitters (ELTs) and in locating aviation distress sites.

3.41 The system also continued to expand its capability. There were 6 satellites in operation and several replacement satellites incorporating technical enhancements were being built. The ground system of local user terminals (LUTs) and mission control centres (MCCs) was improved and expanded. At year's end, 33 LUTs and 17 MCCs were in operation or under test. Although global coverage was already provided on 406 MHz, additional LUTs and MCCs were planned to increase the real-time coverage of the system and reduce over-all response time. A geostationary component of the system was being developed which would provide for almost instantaneous alert.

3.42 Since it began trial operations in September 1982, the COSPAS-SARSAT system has contributed to the rescue of over 5 500 persons in aeronautical, maritime and terrestrial incidents.

COSPAS – space system for search of vessels in distress;
SARSAT – search and rescue satellite-aided tracking.

Chapter 4
User and Public Interest

4.1 This chapter reviews the levels of safety and security in air transport in 1995, efforts during the year to improve compensation for passengers arising from aircraft accidents and to further facilitate the flow of passengers and cargo at airports, and air transport aspects of the broader social issues of environmental protection and of smoking restrictions.

SAFETY

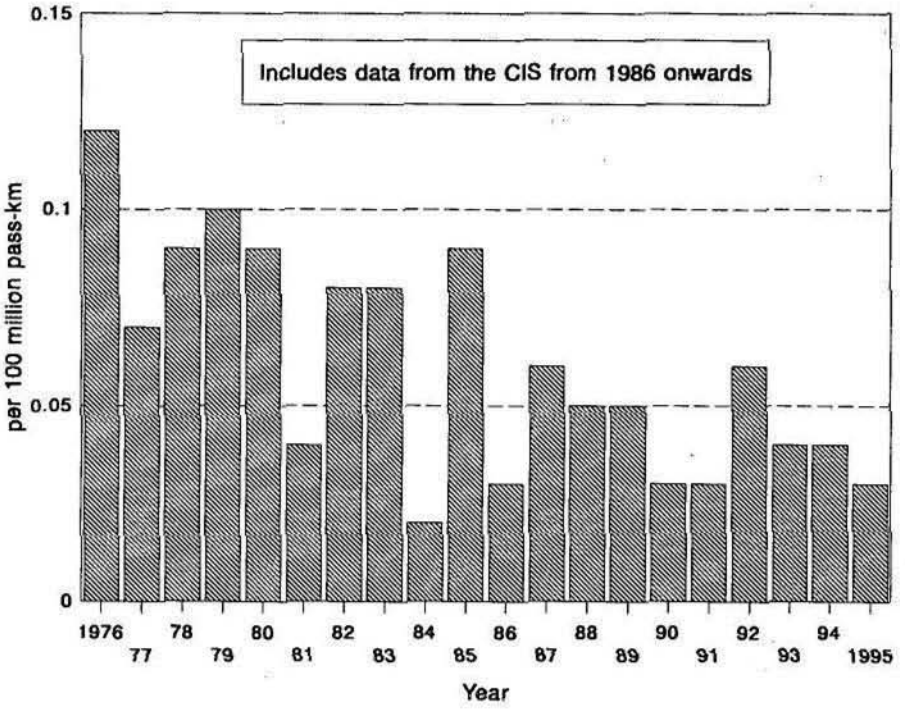
Scheduled operations

4.2 Preliminary information on aircraft accidents involving passenger fatalities in scheduled air services for ICAO Contracting States shows that there were 26 fatal aircraft accidents in 1995 involving 710 passenger fatalities compared to 28 fatal accidents and 941 passenger fatalities in 1994 (Table A1-3 in Appendix 1). Relating passenger fatalities to the volume of traffic, the rate of passenger fatality per 100 million passenger-kilometres declined from 0.045 to 0.03 in 1995 (Figure 4-1). Excluding the Commonwealth of Independent States, for which the relevant data were not available, the rate of fatal aircraft accidents per 100 million aircraft-kilometres flown decreased from 0.14 in 1994 to 0.12 in 1995 (Figure 4-2), and the rate of fatal aircraft accidents per 100 000 landings also decreased from the previous rate of 0.15 in 1994 to 0.13 in 1995 (Figure 4-3).

4.3 The safety levels are significantly different for the various types of aircraft operated on scheduled passenger services. For instance, in turbo-jet aircraft operations, which account for about 95 per cent of the total volume of scheduled traffic in terms of passenger-kilometres performed, there were 9 accidents in 1995 with 541 passenger fatalities; in turbo-prop and piston-engined aircraft operations, which account for about 5 per cent of the scheduled traffic volume, there were 17 accidents with 169 passenger fatalities. The fatality rate for turbo-jet aircraft operations was, therefore, far lower than for propeller-driven aircraft.

Non-scheduled commercial operations

4.4 Non-scheduled commercial operations include both the non-scheduled flights of scheduled airlines and all air transport flights of non-scheduled commercial operators. Data available to ICAO on the safety of non-scheduled passenger operations show that in 1995 there



Source: ICAO Air Transport Reporting Form G and other reports.

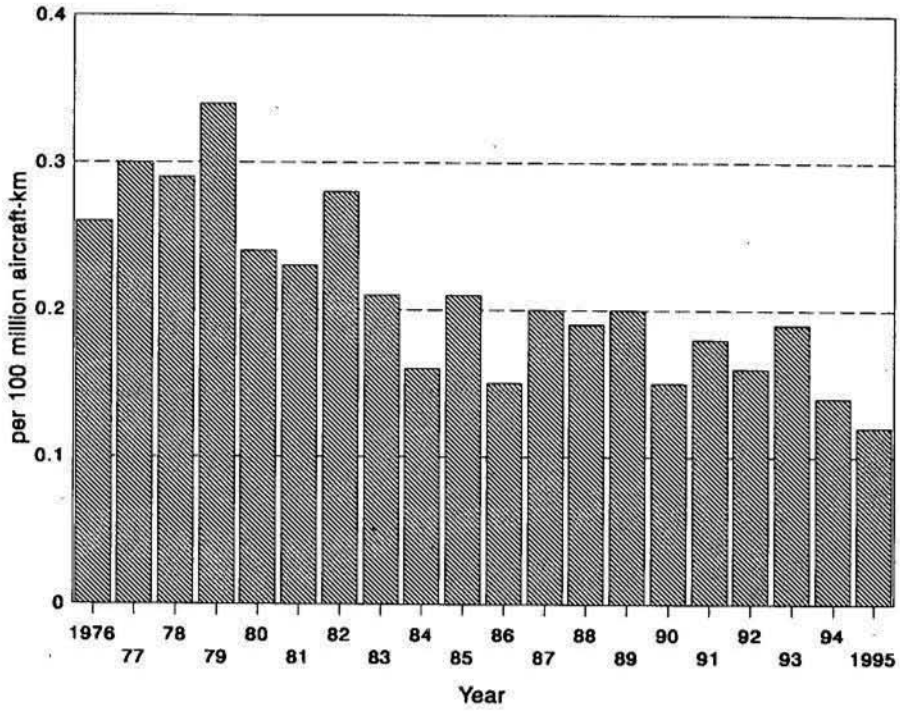
Figure 4-1. Passenger fatalities per 100 million passenger-kilometres on scheduled services

were 40 fatal accidents with 391 passenger fatalities compared to 54 fatal accidents with 251 passenger fatalities in 1994.

4.5 In non-scheduled operations performed with aircraft of more than 9 000 kg take-off mass, whether by scheduled airlines or non-scheduled operators, there were 13 fatal accidents with 271 passenger fatalities in 1995.

General aviation

4.6 Complete statistical information is not available on safety in general aviation operations. In 1994, it is estimated that general aviation aircraft were involved in about 770 fatal accidents and that the number of fatalities in these accidents was about 1 660 (data for 1995 were not available at time of writing). The number of fatal accidents per 100 000 aircraft hours flown was about 1.97 in 1994. In the United States, which accounts for about 60 per cent of all reported general aviation activities in the world, there were 408 fatal accidents in 1995 resulting in 725 fatalities, according to preliminary information. The



Note.— Excludes data from the CIS as some information was not available.

Source: ICAO Air Transport Reporting Form G and other reports.

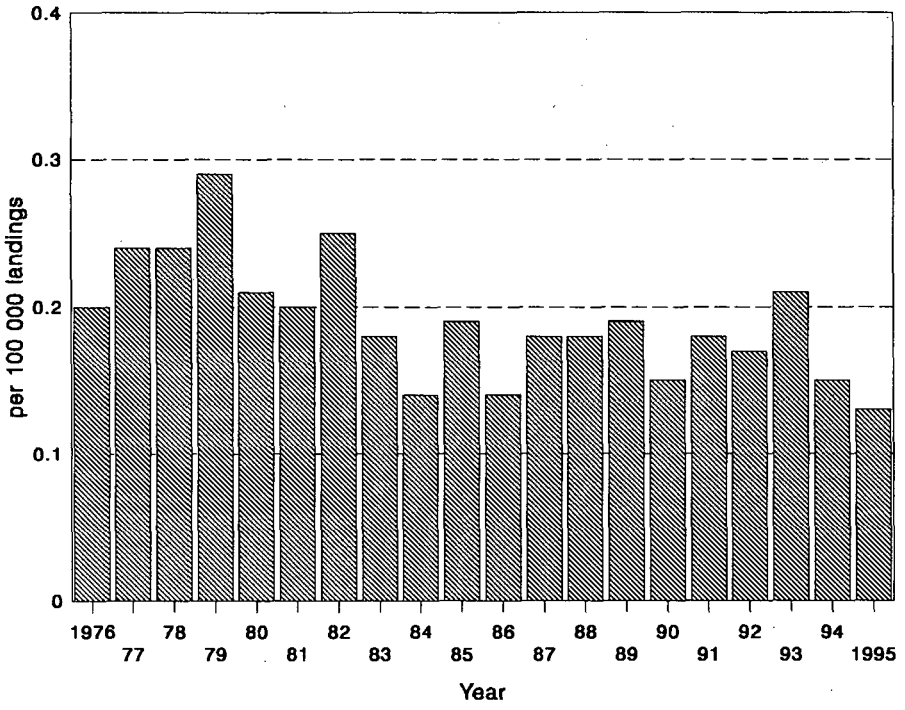
Figure 4-2. Fatal accidents per 100 million aircraft-kilometres flown on scheduled services

corresponding numbers for 1994 were 402 fatal accidents and 716 fatalities. For the United States, the rate of fatal general aviation accidents per 100 000 aircraft hours flown was about 2.04 in 1995, compared to 1.83 in 1994.

Safety oversight

4.7 In 1995 the ICAO Assembly recognized the eminent role of Organization in providing guidance with regard to safety oversight and endorsed a safety oversight programme and a mechanism for financial and technical contributions to the programme. By the end of 1995, 24 States had requested a safety oversight assessment by an ICAO team, 9 States had offered funds or assistance-in-kind to finance the safety oversight programme and 12 States had offered experts to the programme through secondment.

4.8 During 1995 the United States' Federal Aviation Administration (FAA) continued its assessment of compliance with the ICAO safety standards by States whose carriers operate into that country. In western Europe a campaign for a tougher line on States which fail to exercise



Note.— Excludes data from the CIS as some information was not available.

Source: ICAO Air Transport Reporting Form G and other reports.

Figure 4-3. Fatal accidents per 100 000 landings by aircraft on scheduled services

effective air transport safety supervision gathered momentum. The European Civil Aviation Conference (ECAC) looked at the possibility of applying operational sanctions similar to those imposed by FAA. However, in the absence of a general agreement, ECAC proposed setting up an inspection team, possibly using the European Joint Aviation Authorities structure, to check the safety standards in other States and to maintain a database of its findings.

4.9 Under the auspices of the Andean Committee of Aeronautical Authorities, government and airline officials from the Andean Pact sub-region met in November 1995 with officials of the United States to discuss the issue of compliance with ICAO standards concerning aviation safety, and specifically addressed certain aspects of the U.S. International Aviation Safety Assessment programme which are creating problems with respect to the operation of international commercial air services for governments and airlines of the region. In a related action concerning the safety of flight operations the civil aviation authorities of six Central American States concluded the Ilopango Agreement in June 1995, which committed them to the adequate implementation of homogeneous inspection procedures for which the agreement established an Aeronautical Technical and Operational Inspection Service to assist in this task.

4.10 In 1995, the Netherlands and the United States signed the world's first bilateral air safety agreement which provides for close collaboration between two civil aviation authorities on certification of airworthiness, environmental tests and flight simulator assessments.

SECURITY

4.11 In 1995, there were 14 acts of unlawful interference, which represents a significant decrease when compared to 37 in 1994. Of the acts, 9 were classified as unlawful seizures, 2 were attempted seizures, 2 were attacks on a ground facility and 1 was an unlawful act against the safety of civil aviation. Developments in acts of unlawful interference since 1976 are shown in Figures 4-4 to 4-6 and in Appendix 1, Table A1-4.

4.12 The ICAO mechanism for financial, technical and material assistance to States with regard to aviation security continued to enhance global implementation of the aviation security system. Since the commencement of the mechanism activities in 1989, 116 States have requested assistance; of these 82 received technical evaluation missions and 25 have been the

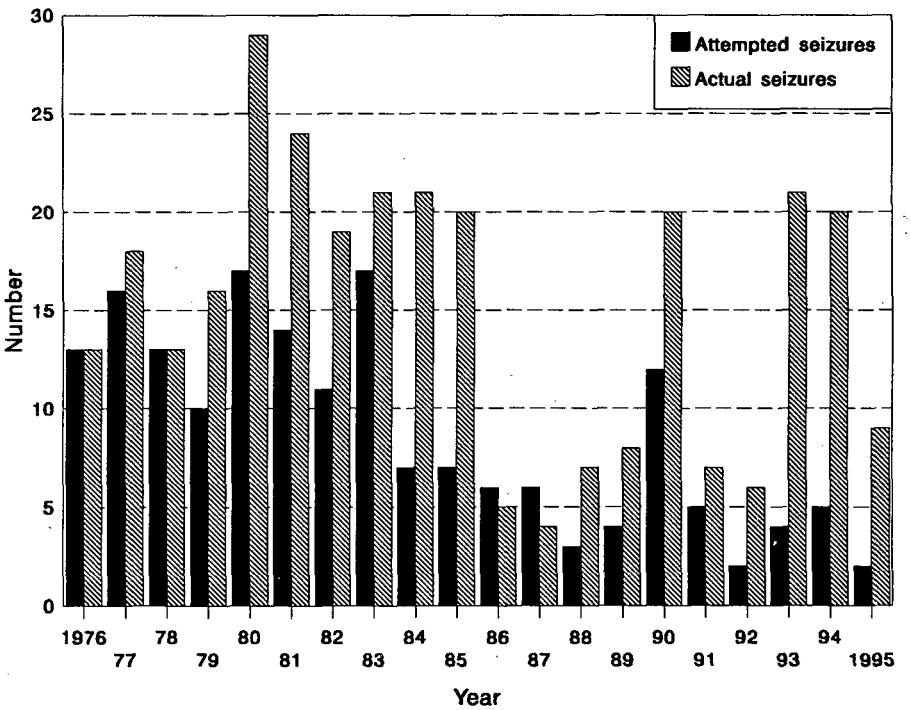


Figure 4-4. Acts of unlawful seizure

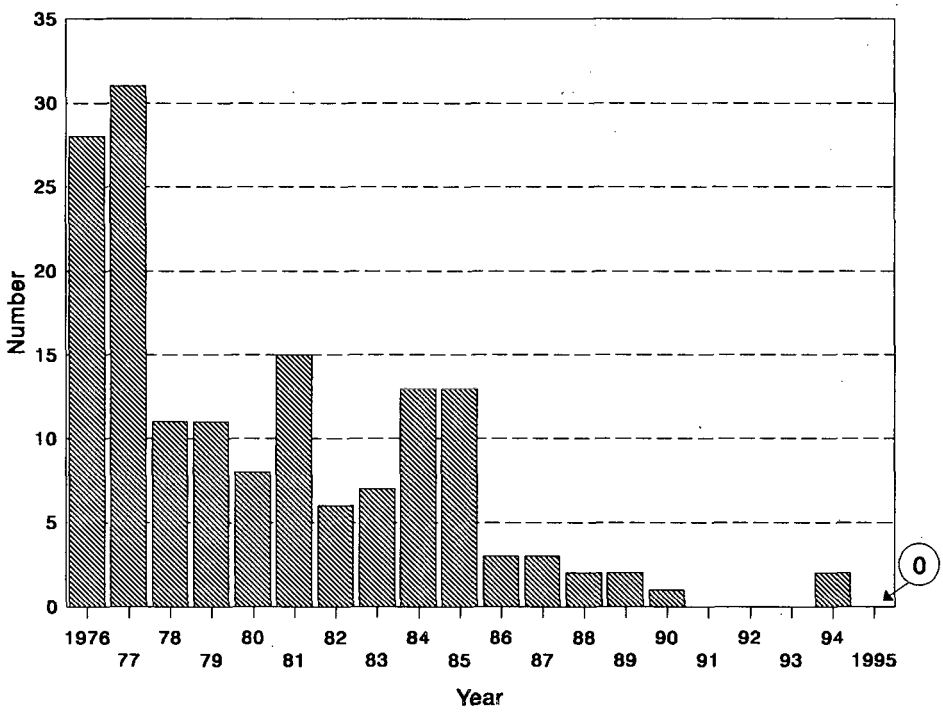


Figure 4-5. Incidents of sabotage

subject of follow-up missions. In light of expressed willingness by some States to continue voluntary contributions to the mechanism beyond 1995, the ICAO Council agreed to the extension of this programme until the end of 1998. In 1995 the ICAO Assembly, in endorsing the extension of the programme, directed the Council to explore ways and means to attract contributions from potential donor States to ensure the continuing implementation of the mechanism.

4.13 Arising from findings under the mechanism, and in recognition of the importance of the human element in the safeguarding of international civil aviation against acts of unlawful interference, ICAO is developing its Training Programme for Aviation Security, which comprises a series of Standardized Training Packages (STPs), designed for global application. The purpose of this initiative is to provide States with the necessary training tools that will in turn assist them in developing the components of their national aviation security training programme. Distribution of the completed packages to States is anticipated in 1996. Furthermore, in order to meet States' training requirements and to render assistance in the area of programme formulation, four topic-focused seminar/workshops have been developed and are being conducted in all ICAO regions.

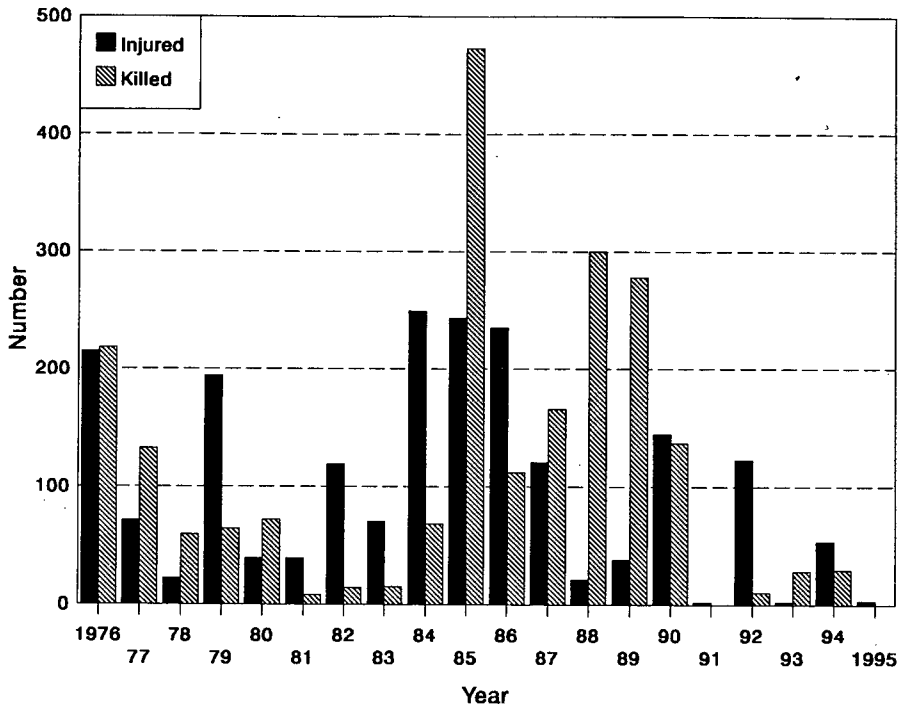


Figure 4-6. Number of persons killed or injured in acts of unlawful interference

AIR CARRIER LIABILITY

Compensation for passengers arising from aircraft accidents

4.14 Air carrier liability for death or personal injury to passengers arising from an accident during carriage by air has been regulated by uniform rules established since 1929 in Warsaw in the Convention for the Unification of Certain Rules Relating to International Carriage by Air, otherwise known as the Warsaw Convention. The original limit of the liability set in 1929 is 125 000 Poincaré gold francs (currently equivalent to approximately $8 300). This has been doubled by another agreement adopted in 1955 in The Hague. Since then, numerous attempts have been made to increase this limit on a worldwide basis, but so far without success. Carriers serving the United States, however, increased their liability limits to $75 000 for transportation to, from and through the United States under an intercarrier agreement adopted in 1966 in Montreal.

4.15 Due to inflation and other factors, the afore-mentioned liability limits have been eroded significantly in many jurisdictions in recent years. Consequently, unilateral action attempting to address the inadequacies of the limits has begun to proliferate. For instance,

Australia, Italy and the United Kingdom have respectively raised the limits, ranging from 100 000 SDR to 260 000 SDR (approximately $150 000 to $390 000), while Japan has abolished the limits. In June 1994, the European Civil Aviation Conference (ECAC) recommended to its Member States to update certain elements of the international air carrier liability regime, which would contain liability limits of at least 250,000 SDR (approximately $380 000).

4.16 In October 1995 the ICAO Assembly directed the Council to continue its efforts to modernize the Warsaw System as expeditiously as possible and action is under way. In the same month the IATA Annual General Meeting endorsed a new intercarrier agreement which includes an element of full compensatory damages, with no fixed liability figure; this agreement is intended to enter into force on 1 November 1996 or upon receipt of requisite government approvals, whichever is later.

FACILITATION

4.17 The purpose of facilitation is to achieve maximum efficiency in landside operations for clearance of aircraft, passengers and cargo through necessary border formalities (immigration, customs, quarantine and public health), while maintaining high quality security and law enforcement. The strategy for pursuing the twin objectives of effective compliance and productivity includes the use of information technology and risk assessment techniques to improve inspection processes, and the development of industry/government co-operative arrangements to prevent problems such as illicit narcotics trafficking and illegal immigration.

New ICAO recommendations on facilitation

4.18 In April 1995, the Eleventh Session of the ICAO Facilitation Division adopted over 100 recommendations for changes to ICAO Standards, Recommended Practices and guidance material (Annex 9 to the Chicago Convention), reflecting advancements in technology and changes in the worldwide political and economic environment which have occurred since the previous Division meeting in 1988. A number of recommendations promote the use of electronic data interchange and new technologies for faster, more efficient clearance, including advance passenger information systems, biometric identification and automated cargo manifest systems. Others endorse international guidelines for express cargo operations, minimal inspection for low-value shipments, and time goals for general cargo clearance. Still others address issues of special public interest, including limits on aircraft cabin disinsection, procedures for handling asylum seekers and illegal immigrants, and guidelines for improving access to air services by persons with disabilities. A new edition of Annex 9, incorporating these and other changes, is planned for publication in mid-1997.

Customs facilitation — the Kyoto Convention

4.19 In 1995 the World Customs Organization convened a working group to update the International Convention on the Simplification and Harmonization of Customs Procedures

(Kyoto, 1973). The Convention contains standards, recommended practices, and operational guidelines covering the full range of customs work, applicable to passengers as well as cargo. The aim of the revision process — to modernize the document to reflect sophisticated concepts of customs control, automated data processing, and facilitation of imports and exports — is fully compatible with the intent of ICAO's Annex 9.

Automated clearance and machine-readable travel documents

4.20 INSPASS, the United States immigration's automated passenger clearance project using biometric identification on a machine-readable card, remains in pilot mode while the agency seeks approval of its proposed guidelines for private sector ownership and operation of the system at airports around the country. In October 1995 a test of a similar concept, known as CANPASS, was launched by the Canadian Government at Vancouver airport. The principal difference between INSPASS and CANPASS is in the biometric used; for INSPASS it is the geometry of the hand, while for CANPASS it is the fingerprint. Pilot projects with biometrics are also planned for Schiphol (Amsterdam) and Frankfurt Airports, to start during 1996. To date no single biometric has been selected as a standard for use with machine-readable travel documents; ICAO has determined that further investigation and testing of alternatives is required. In the meantime, the list of States developing machine-readable passports and visas from ICAO specifications continues to grow.

ENVIRONMENTAL PROTECTION

4.21 In 1995, the aviation community continued to address the environmental problems associated with aircraft noise and aircraft engine emissions.

4.22 Concerning noise, some States — notably in Europe — started to implement operating restrictions on Chapter 2 aircraft (subsonic jet aircraft that meet the noise certification levels in Annex 16, Volume I, Chapter 2, but not those in Chapter 3), in accordance with the policy framework established by the ICAO Assembly in 1990. In December, ICAO's Committee on Aviation Environmental Protection (CAEP) met and considered to what extent further progress can be made in the long term, once States have implemented the phasing out of operations by Chapter 2 aircraft at noise-sensitive airports. It recommended to the ICAO Council new take-off noise abatement procedures and steps to promote land-use planning around airports.

4.23 In relation to aircraft engine emissions, the Intergovernmental Panel on Climate Change in its Second Assessment Report underlined the continuing uncertainties regarding the impact of oxides of nitrogen (NO_x), water vapour and sulphur and the consequent need for further scientific research. In order to encourage this research and to provide proper expectations and guidance to policy-makers, a symposium on the atmospheric effects of aviation

was planned for April 1996, to be hosted by the National Aeronautics and Space Administration (United States) and sponsored by ICAO and other international organizations.

4.24 Policy-making regarding engine emissions is currently hampered by continuing uncertainties regarding their impact and insufficient understanding of the trade-off between different types of emissions, for example carbon dioxide against NO_x. In April, Parties to the United Nations Framework Convention on Climate Change, which has the objective of stabilizing greenhouse gas concentrations in the atmosphere at safe levels, launched a new process (the "Berlin Mandate") with a 1997 deadline for strengthening developed country commitments. While that Convention has no specific provisions regarding civil aviation, some States would like to see measures to control aircraft engine emissions that contribute to climate change. In December, CAEP recommended to the ICAO Council that the NO_x emission standards for new engines in Annex 16, Volume II should be made more stringent.

SMOKING RESTRICTIONS

4.25 A study presented to the ICAO Assembly in October 1995 suggested that instituting a smoke-free environment did not constitute a flight safety hazard, provided adequate security measures were in place to deal with surreptitious smoking. The Assembly noted that Resolution A29-15, which it had adopted in 1992, urging all Contracting States to take necessary measures to restrict smoking on all international flights with the objective of implementing complete smoking bans by 1 July 1996, was being progressively implemented. The Assembly requested the ICAO Secretariat to consider the possibility of studying the development of separate smoking cabins with separate ventilation systems for aircraft.

4.26 In March 1995, Australia, Canada and the United States implemented an agreement to forbid smoking on non-stop flights between the three countries. In the United States, new legislation was introduced to prohibit smoking on international services to and from that country; an attempt to introduce such legislation in 1994 had been unsuccessful. The new bill met opposition from a group of ten foreign carriers on the grounds that it was a unilateral measure not compatible with international law. Six United States and two European air carriers were granted anti-trust immunity for 120 days to discuss a voluntary smoking ban on transatlantic flights, but could not reach consensus before their immunity expired. In the United Kingdom the seven largest non-scheduled airlines agreed to apply as from November 1995 a non-smoking rule on all flights of less than six hours.

4.27 Among individual airlines introducing or expanding voluntary smoking bans during the year were Asiana Airlines (Republic of Korea) and Icelandair. These carriers became respectively the first from Asia/Pacific and from Europe to offer completely smoke-free services across their whole network. All nine international and domestic carriers of the province of Taiwan (China) banned smoking on all their flights, with the exception of China Airlines services to and from Japan. In the Caribbean, Air Jamaica introduced a system-wide smoking ban. Also in 1995, Singapore Airlines received a World Health Organization (WHO) medal and citation recognizing the carrier's ban on smoking on more than 90 per cent of its flights.

4.28 In the United States, a lawsuit filed in 1991 by 30 non-smoking flight attendants claiming they were made ill by second-hand smoke was approved by a court to go forward as a national class action. Meanwhile, some airlines were trying to find solutions to keep both smoking and non-smoking passengers satisfied. One of them, Air France, decided to add enclosed standing-only smoking lounges (one for premium class passengers and the other in economy class) to each aircraft with separate ventilation systems while maintaining sitting areas smoke-free. Another carrier, Japan Airlines, was going to install a special "smokers nook" in the tail of each of its Boeing 747s with aft-facing seats and local air conditioning.

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PART II

WORLD OUTLOOK TO 1998

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Chapter 5
Global Trends and Forecasts

5.1 This chapter reviews developments in the world economy over the period since 1984 (and anticipated developments through to 1998), examines trends in airline traffic, productivity, prices and finances, and presents airline scheduled passenger traffic forecasts and, to the extent possible, airline financial forecasts, through to 1998.

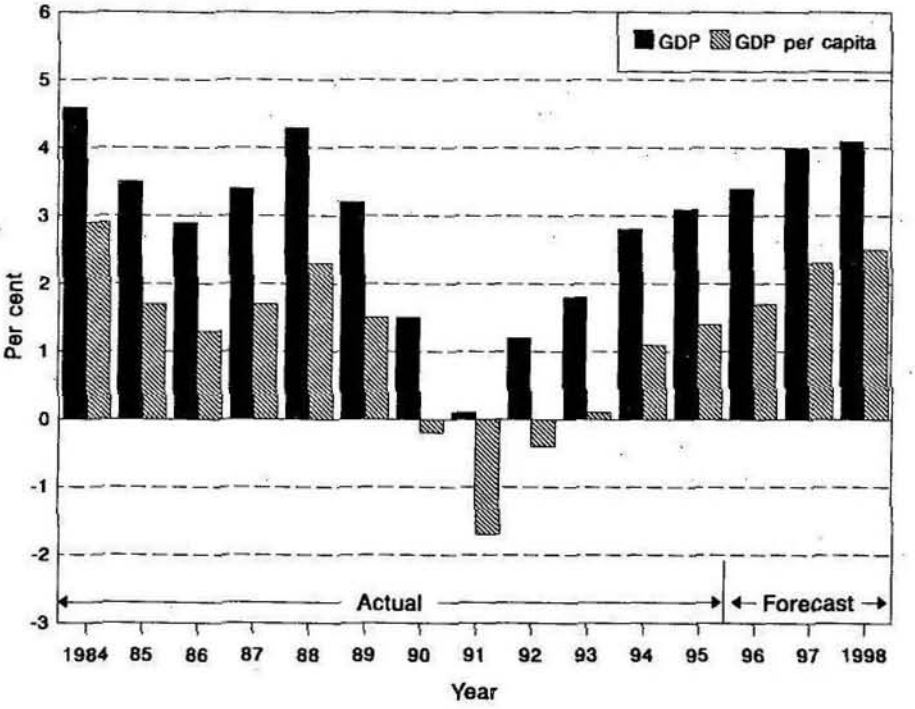
ECONOMIC TRENDS

5.2 The demand for air passenger travel is primarily determined by income levels and demographics, and the cost of air travel. World energy demand, supply and prices are critically important both to economic progress and to the cost of travel. Hence, the airline industry is highly vulnerable to economic cycles and fluctuations in fuel prices.

5.3 Between 1984 and 1994, the aggregate world economy measured in terms of Gross Domestic Product (GDP) grew at an average annual rate of 2.5 per cent in real terms. Growth rates varied across regions, from a high of 5 per cent for Asia/Pacific to a low of 0.1 per cent for Europe (see Chapter 6 for details). World population growth between 1984 and 1994 increased at an average annual rate of 1.7 per cent. Hence, growth of the world's GDP per capita between 1984 and 1994 increased at an average annual rate of 0.8 per cent, significantly lower than the growth of GDP itself, as indicated in Figure 5-1.

5.4 The years 1983 to 1989 saw the world economy experience its longest period of sustained progress since World War II, achieving an average annual growth rate of 3.7 per cent. This extended period of growth in the world economy came to a halt during 1990. The economies of the United States, the United Kingdom and Canada entered into a recession, followed later by slow-downs in Germany and Japan. In addition, the former centrally planned economies of eastern Europe and the CIS (designated "countries-in-transition" to developed market economies by the International Monetary Fund) went into serious decline. As a result, 1991 was the most difficult year for the global economy since 1982. Recovery commenced in North America in 1992, but it was not until 1994 that it took hold in most of western Europe and the Japanese economy remained weak well into 1995.

5.5 Developing countries as a group (excluding the "countries-in-transition") have generally maintained an annual growth of 4 to 6 per cent since the mid-1980s, despite the recent recession in the developed economies. Structural reform and the sustained



Source: IMF, Wharton Econometrics Services.

Figure 5-1. Annual change in real GDP and GDP per capita — World

implementation of prudent macro economic policies together with large capital inflows have supported consistently strong growth in East and South East Asia. The economies of Latin America, Africa and the Middle East have all had significant periods of difficulty and low growth during the past decade.

5.6 On several occasions in the last quarter century, sharp movements in crude oil prices have impacted powerfully on the world economy. In particular, the recessions of the mid-1970s and early 1980s were linked to the oil price increases of 1973 and 1979/80. Oil market conditions are therefore of great interest when assessing global economic performance. However, the capability of the economies of the industrialized countries to cope with the oil price increases has improved because of reduced energy dependency and the effects of structural reforms in the 1980s. Furthermore, world oil prices have settled into lower levels in recent years as markets have adjusted to shifts in supply and demand.

5.7 Oil price rises and accommodating monetary policies contributed to double digit inflation in the industrial countries in the 1970s and early 1980s. Since 1983, average inflation in these countries has moderated to the 3 to 5 per cent range. Inflation rates have been high and variable in many developing countries and tended to increase over the 1980s. Inflation has been particularly serious (with rates of well over 100 per cent per annum) in Latin America

Table 5-1. Economic growth (GDP) by region
(real average annual growth rates, per cent)

Region	Actual 1994	Estimated 1995	Forecast 1996	1997	1998
Africa	2.4	3.2	5.3	4.5	4.5
Asia/Pacific	4.3	4.7	5.1	5.5	5.7
Europe	0.1	2.0	2.3	3.1	2.9
Middle East	1.6	4.2	4.9	6.3	5.9
North America	4.2	3.2	2.3	2.4	2.4
Latin America and Caribbean	4.7	0.9	3.1	4.8	5.2
World	2.8	3.1	3.4	4.0	4.1

Source: ICAO estimates based on World Bank, International Monetary Fund (IMF), Wharton Econometrics Services and other economic sources.

since 1987, and in the "countries-in-transition" in Eastern Europe and the CIS since 1992. However, significant improvement was made in 1995.

5.8 There appears to be consensus among economic forecasters that the global economy will continue to expand over the medium term as recovery takes hold in Japan and conditions in the "countries-in-transition" improve. The assumptions for global and regional economic growth that have been used as a basis for air traffic forecasts over the period to 1998 are presented in Table 5-1. These assessments of the economic outlook take into account the most recent International Monetary Fund (IMF) and Wharton Econometrics forecasts, as well as the views of other government and private-sector organizations.

5.9 With the United States economy operating near to capacity, the moderate growth expected over the next three years must come from productivity improvement. Growth in western Europe will be affected in the short term by deteriorating cyclical conditions in Germany and France. Improved growth is expected in 1997 and 1998. The commencement of recovery in the CIS and further growth in eastern Europe should make a positive contribution to the European economic outlook over the next few years.

5.10 Countries in the Asia/Pacific region are expected to continue to expand rapidly on the assumption that further trade liberalization and reforms in financial markets and other economic sectors will encourage exports, investment and growth in productivity. Furthermore, a growing Japanese economy will enhance the region's economy. Latin America is likely to experience progressive improvement over the next three years, with Mexico and Argentina recovering from the repercussions of the financial crisis in late 1994. The outlook for Africa and the Middle East is regarded with some optimism as a result of stronger macro-economic and structural policies in an increasing number of the countries in these regions.

Table 5-2. World total international and domestic revenue traffic
(scheduled services of airlines of ICAO Contracting States, 1984-1995)

	Passengers carried		Passenger-km		Freight tonnes carried		Freight tonne-km performed		Mail tonne-km performed		Total tonne-km performed	
Year	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)
1984	848	6.3	1 278 000	7.4	13.4	8.9	39 670	13.0	4 310	7.8	159 200	8.7
1985	899	6.0	1 367 000	7.0	13.7	2.2	39 840	0.4	4 400	2.1	167 690	5.3
1986	960	6.8	1 452 000	6.2	14.7	7.3	43 190	8.4	4 540	3.2	178 800	6.6
1987	1 028	7.1	1 589 000	9.4	16.1	9.5	48 320	11.9	4 700	3.5	196 460	9.9
1988	1 082	5.3	1 705 000	7.3	17.2	6.8	53 270	10.2	4 830	2.8	212 110	8.0
1989	1 109	2.5	1 774 000	4.0	18.1	5.2	57 130	7.2	5 060	4.8	223 030	5.1
1990	1 165	5.0	1 894 000	6.8	18.4	1.7	58 800	2.9	5 320	5.1	235 220	5.5
1991	1 135	-2.6	1 844 000	-2.6	17.4	-5.4	58 530	-0.5	5 090	-4.3	230 570	-2.0
1992	1 145	0.9	1 928 000	4.6	17.6	1.1	62 570	6.9	5 120	0.6	241 920	4.9
1993	1 141	-0.3	1 949 000	1.1	17.9	1.7	67 540	7.9	5 230	2.1	249 710	3.2
1994	1 231	7.9	2 098 000	7.6	19.9	11.2	77 230	14.3	5 410	3.4	273 300	9.4
1995	1 288	4.6	2 230 000	6.3	21.1	6.0	83 940	8.7	5 600	3.5	292 340	7.0

Source: ICAO Air Transport Reporting Form A-1.

Table 5-3. World international revenue traffic
(scheduled services of airlines of ICAO Contracting States, 1984-1995)

	Passengers carried		Passenger-km		Freight tonnes carried		Freight tonne-km performed		Mail tonne-km performed		Total tonne-km performed	
Year	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)	Millions	Annual increase (%)
1984	185	6.9	556 000	8.8	5.8	13.7	28 940	14.8	1 840	8.2	81 800	10.9
1985	194	4.9	590 000	6.1	5.9	1.7	29 380	1.5	1 860	1.1	85 600	4.6
1986	198	2.1	603 000	2.2	6.4	8.5	32 220	9.7	1 880	1.1	89 710	4.8
1987	222	12.1	688 000	14.1	7.2	12.5	36 700	13.9	1 940	3.2	101 970	13.7
1988	243	9.5	761 000	10.6	7.8	8.3	41 020	11.8	1 990	2.6	113 180	11.0
1989	262	7.8	824 000	8.3	8.6	10.3	44 930	9.5	2 080	4.5	123 060	8.7
1990	280	6.9	894 000	8.5	8.6	0.0	46 320	3.1	2 190	5.3	130 730	6.2
1991	267	-4.6	860 000	-3.8	8.5	-1.2	46 380	0.1	2 210	0.9	128 120	-2.0
1992	300	12.4	983 000	14.3	9.3	9.4	50 750	9.4	2 190	-0.9	143 610	12.1
1993	319	6.3	1 047 000	6.5	10.1	8.6	56 040	10.4	2 200	0.5	155 470	8.3
1994	347	8.8	1 143 000	9.2	11.8	16.8	64 690	15.4	2 240	1.8	173 100	11.3
1995	371	6.9	1 242 000	8.7	12.7	7.6	70 750	9.4	2 370	5.8	188 610	9.0

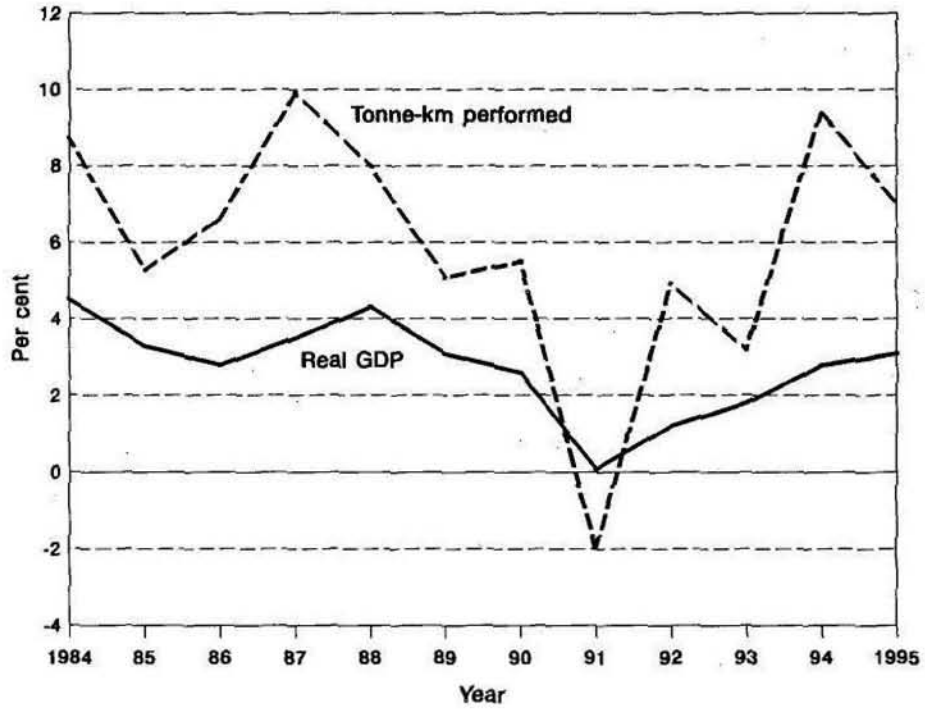
Source: ICAO Air Transport Reporting Form A-1.

AIRLINE TRAFFIC TRENDS

5.11 Total scheduled airline traffic, measured in terms of total tonne-kilometres performed, grew at an average annual rate of 5.7 per cent between 1984 and 1995. Passenger-kilometres grew at an average rate of 5.2 per cent per annum and freight tonne-kilometres at nearly 7.1 per cent per annum.

5.12 Global traffic data for each year of the decade 1984-1995 are given in Tables 5-2 (total traffic) and 5-3 (international traffic).

5.13 In broad terms, the pattern of traffic growth over the 1984-1995 period was a reflection of economic conditions experienced over this period. As depicted in Figure 5-2, the relatively buoyant economic and air traffic performance during most of the 1980s came to an end in the middle of 1990. The economic recession in 1991 had a serious effect on air traffic. The recovery in traffic in 1992, which occurred despite continuing poor economic performance, was achieved at a cost of significantly reduced revenue yield. Although real yields declined



Source: IMF, ICAO Air Transport Reporting Form A-1.

Figure 5-2. World GDP and scheduled traffic growth

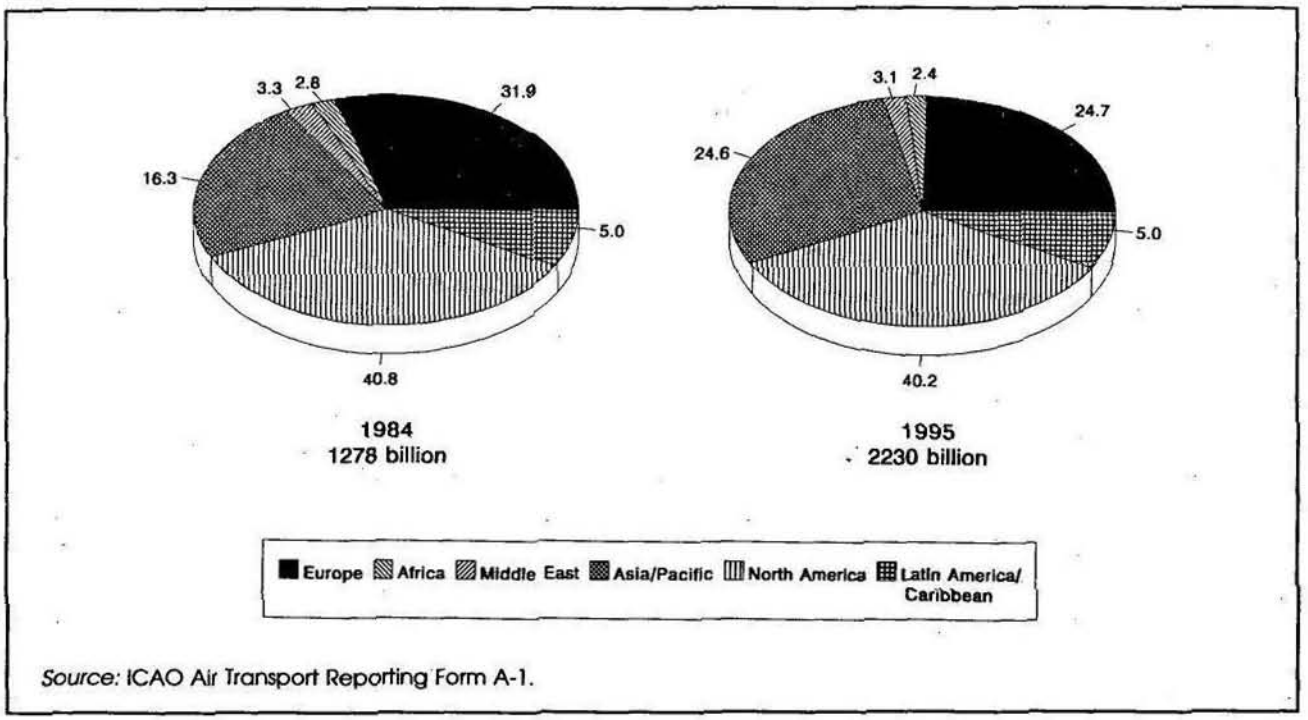


Figure 5-3. Regional distribution of scheduled passenger traffic — percentage of passenger-kilometres performed

further in 1993 and 1994, the stimulating effect on traffic demand was less dramatic than had been the case in 1992. On the other hand, economic growth began to provide a more solid foundation for traffic growth. These trends continued in 1995, resulting in an estimated growth for total scheduled passenger traffic of 6.3 per cent for the year.

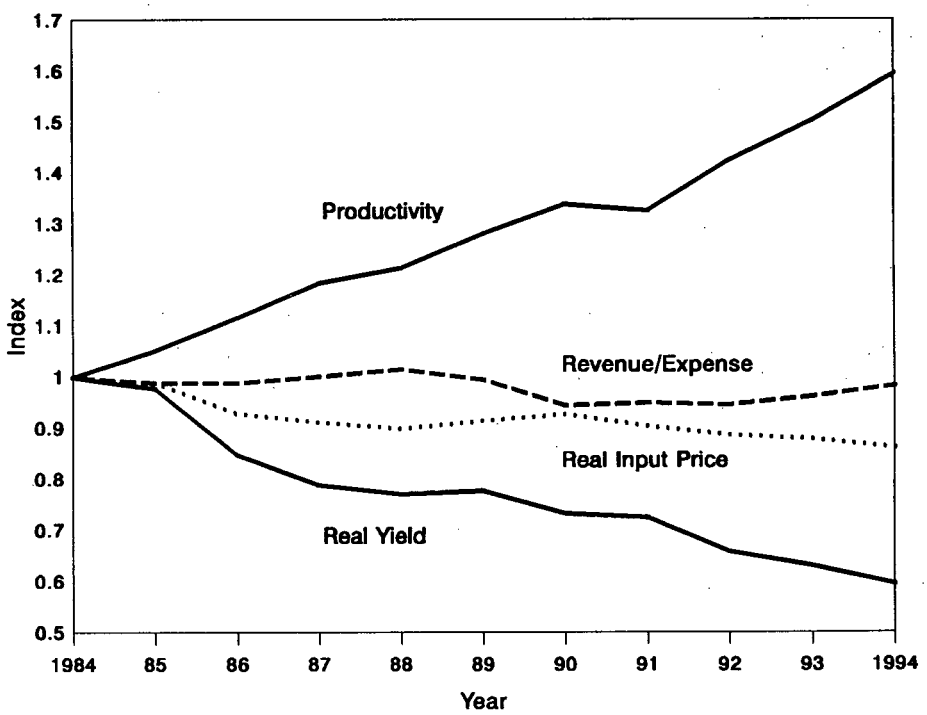
5.14 The regional distribution of scheduled passenger traffic for the years 1984 and 1995 is illustrated in Figure 5-3. The airlines of the North American and European regions dominate, contributing 72.5 per cent of the total traffic in 1984 and 64.9 per cent in 1995. Passenger traffic performed by airlines registered in the Asia/Pacific region increased from 16.4 per cent of the total world traffic in 1984 to about 24.6 per cent in 1995. Other regions contributed 11.1 per cent of the traffic in 1984 and 10.5 per cent in 1995.

AIRLINE PRODUCTIVITY, PRICES AND FINANCIAL PERFORMANCE

5.15 The scheduled airline industry has a long history of improving productivity. As a result, the growth in the output of the industry (traffic volumes, conveniently measured by

tonne-kilometres performed or TKP) has been greater than the growth in the various inputs used by the industry (mainly labour, fuel and aircraft). For the purposes of the present forecasts, separate partial productivity measures for labour (TKP per employee), fuel (TKP per tonne of fuel consumed) and aircraft (TKP per tonne of fleet payload) have been developed. The trend in total productivity, which is a combination of the partial productivities, is shown in Figure 5-4. The average annual growth in productivity since 1984 has been about 5 per cent. The progressive absorption of new technology aircraft into airline fleets has been a major reason for the improvement in productivity. In particular, the new aircraft are more fuel- and labour-efficient. Improved aircraft utilization and load factors have also made important contributions.

5.16 Improvements in productivity can, in principle, be used either to reduce the real fares and rates paid by passengers and shippers, to pay for increases in real input prices (e.g. wage rates, fuel prices), or to provide airlines with improved financial results. The trends in airline yields (revenue per tonne-kilometre performed) and input prices, deflated by the Consumer Price Index of industrial countries, are presented in Figure 5-4, together with the trend in the revenue/expense (R/E) ratio representing the financial performance of the scheduled airline



Source: IMF, ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 5-4. Trends in performance — scheduled airline industry

Table 5-4. Operating and net results[1]
(scheduled airlines of ICAO Contracting States)[2]

Year	Operating revenues U.S.$ (millions)	Operating expenses U.S.$ (millions)	Operating result		Net result[3]		Direct subsidies U.S.$ (millions)	Income taxes U.S.$ (millions)
			Amount U.S.$ (millions)	Percentage of operating revenues	Amount U.S.$ (millions)	Percentage of operating revenues		
1984	105 400	100 300	5 100	4.8	2 000	1.9	235	–1 100
1985	112 200	108 100	4 100	3.7	2 100	1.9	220	–660
1986	124 600	120 000	4 600	3.7	1 500	1.2	230	–1 150
1987	147 000	139 800	7 200	4.9	2 500	1.7	290	–1 670
1988	166 200	156 000	10 200	6.1	5 000	3.0	320	–3 340
1989	177 800	170 200	7 600	4.3	3 500	2.0	170	–2 950
1990	199 500	201 000	–1 500	–0.8	–4 500	–2.3	230	–300
1991	205 500	206 000	–500	–0.2	–3 500	–1.7	100	550
1992	217 800	219 600	–1 800	–0.8	–7 900	–3.6	140	1 040
1993	226 000	223 700	2 300	1.0	–4 400	–1.9	150	–300
1994	247 400	239 000	8 400	3.4	–100	0.0	120	–1 330
1995[4]	274 000	260 000	14 000	5.1	4 500	1.6		

1. About 14 per cent of revenues and expenses are estimated for non-reporting airlines. Being based on traffic information, these estimates can be considered quite reliable with respect to operating items but are very uncertain with respect to non-operating items and taxes.
2. Excluding operations within the Commonwealth of Independent States.
3. The net result is derived from the operating result by adding (with plus or minus sign as appropriate) non-operating items (such as interest and direct subsidies) and income tax. The operating and net results quoted, particularly the net results, are the small differences between estimates of large figures (revenues and expenses) and are therefore susceptible to substantial uncertainties.
4. Preliminary estimates.

Source: ICAO Air Transport Reporting Form EF-1.

industry. Expenses are defined here as operating expenses, excluding taxes and interest on debt. It is clear that, over the past decade, airline customers have benefited from lower real yields made possible by the combined impact of productivity growth and declines in the index of real input prices (primarily resulting from falls in fuel prices).

5.17 Although there has been neither an improvement nor a decline in the long-term trend in the financial performance of scheduled airlines as a whole, there have been relatively large changes in the operating results over the medium term. Table 5-4 shows the annual development since 1984 in operating revenues and expenses, the operating result (earnings before interest, other non-operating items and taxes) and the net result (after interest, other non-operating items and taxes). The growth in revenues and expenses over the period reflects an expansion in activity levels and general inflationary pressures, offset by improvements in the efficiency of the industry. However, the impact of these factors has varied considerably over the business cycle. During the buoyant years of the 1980s, rapid growth in demand resulted in

Table 5-5. Distribution of operating revenues and expenses in 1984 and 1994
(scheduled airlines of ICAO Contracting States[1], total domestic and international services)

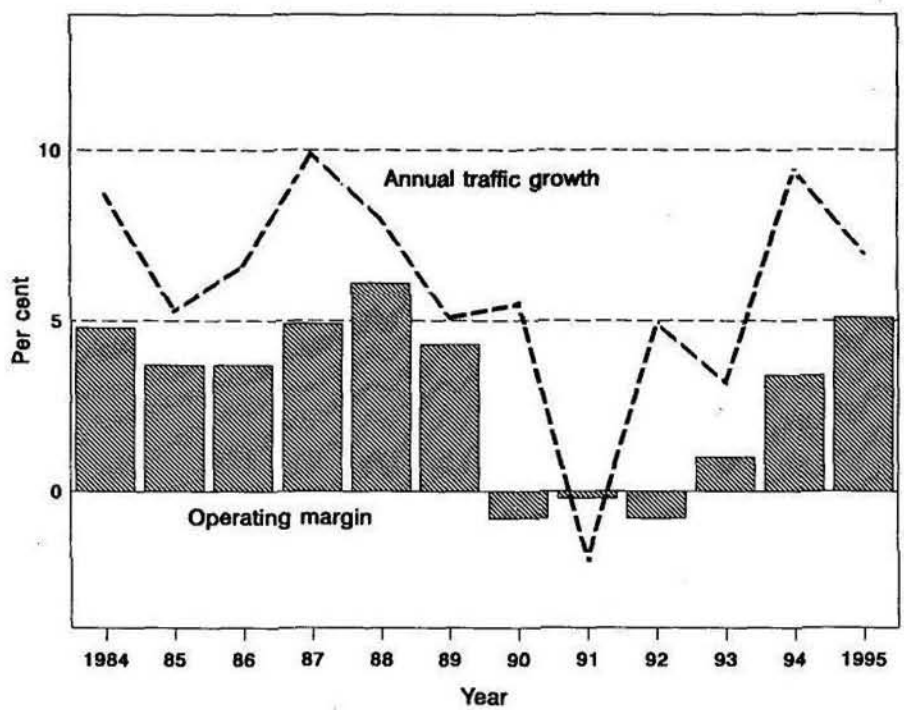
Description	Distribution by item (per cent) 1984	1994	Change in per cent share of item 1984 to 1994
OPERATING REVENUES			
Scheduled services (total)	90.8	85.4	-5.4
Passenger	77.5	74.9	-2.6
Freight	11.9	9.6	-2.3
Mail	1.4	0.9	-0.5
Non-scheduled operations	2.9	4.1	1.2
Incidental	6.3	10.5	4.2
TOTAL	100.0	100.0	—
OPERATING EXPENSES			
Direct aircraft			
Flight operations (total)	33.3	25.5	-7.8
Flight crew	6.9	7.4	0.5
Fuel and oil	23.3	11.2	-12.1
Other	3.1	6.9	3.8
Maintenance and overhaul	10.1	10.0	-0.1
Depreciation and amortization	7.2	7.6	0.4
Sub-total	50.6	43.1	-7.5
Indirect			
User charges and station expenses (total)	16.0	17.3	1.3
Landing and associated airport charges	3.0	4.3	1.3
En-route facility charges	1.4	2.5	1.1
Station expenses	11.6	10.5	-1.1
Passenger services	9.2	10.7	1.5
Ticketing, sales, promotion	16.5	15.7	-0.8
General, administrative and other	7.7	13.2	5.5
Sub-total	49.4	56.9	7.5
TOTAL	100.0	100.0	—

1. Excludes operations within the Commonwealth of Independent States.

Source: ICAO Air Transport Reporting Form EF-1.

a more intensive use of airline resources and strong productivity growth. Airlines were able to improve their operating results and also offer relatively low fares and rates to their customers. In the early 1990s, market conditions changed as demand weakened and the utilization of airline resources tended to decline. The emergence of excess capacity and consequent competitive pressures put downward pressure on yields. These factors combined to produce negative operating results in three consecutive years (1990-1992). In 1993, the airline industry started to move towards a more appropriate balance of supply and demand and achieved a small operating surplus. A much better operating result was obtained in 1994 and by 1995 the industry delivered an operating surplus of about $14 billion and obtained a positive net result of about $4.5 billion (according to preliminary estimates).

5.18 The change in the structure of operating revenues and expenses over the past decade is illustrated in Table 5-5. The share of incidental revenues (which include sales of services and maintenance, and the leasing of aircraft to other airlines) has increased from 6.3 per cent to 10.5 per cent, while there has been a comparable decline in the share of revenues from scheduled services. The counterpart of some of these changes on the expense side was an increase in the share of flight operations other, which includes rental of aircraft from other

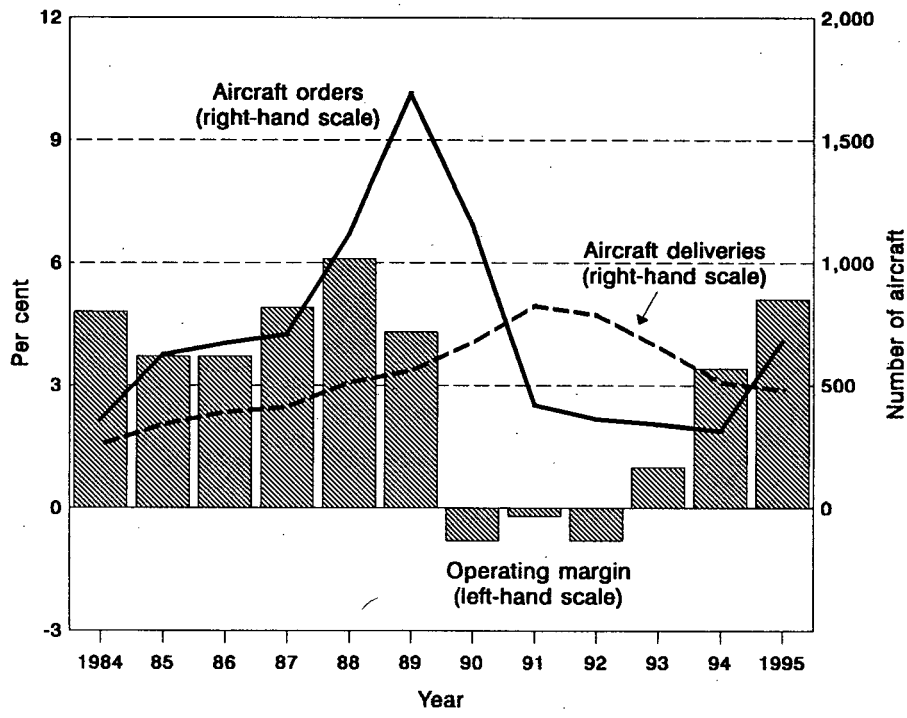


Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 5-5. Financial return and traffic growth — scheduled airline industry

companies. This suggests some restructuring within the airline industry. However, of more significance is the increase in the share of indirect expenses, and especially general, administrative and other operating expenses, and the corresponding decline in the share of direct aircraft expenses which benefited from productivity improvements and reductions in fuel prices.

5.19 The variations in the annual operating result, measured as a percentage of airline revenue, are illustrated graphically for the period 1984-1995 in Figure 5-5, which also shows the fluctuations in traffic growth over the same period. There is a positive correlation between this measure of financial return and the growth in traffic. However, close examination of the recent annual changes reveals that the recession in financial results began in 1990 when traffic growth was 5 per cent. Furthermore, traffic rebounded in 1992 after a decline in 1991, while the operating result remained in deficit. Part of the explanation of the financial outcome in 1990 lies in a substantial increase in fuel prices (and hence operating expenses), without compensating increases in yields. In 1992, yields declined significantly in nominal terms, helping to boost traffic but having a depressing effect on financial return. In 1993 and 1994, yields became somewhat more stable and cost efficiency increased progressively, resulting in successive improvements in financial performance.



Source: ICAO Air Transport Reporting Form EF-1 and aircraft manufacturers.

Figure 5-6. Financial return and aircraft supply

5.20 The pattern of investment in aircraft is related to the cycle of financial performance. Annual aircraft orders and deliveries are shown in Figure 5-6, together with the annual financial return of the carriers. The high levels of aircraft deliveries in the early 1990s were accompanied by introductory costs and higher depreciation expenses, and hence increased expense per unit of output. Furthermore, the arrival of large amounts of new capacity, combined with softening demand during the recessionary period, encouraged competitive reductions in fares and hence reduced revenue per unit of output.

5.21 The high rates of aircraft deliveries in the early 1990s resulted from very high volumes of aircraft orders in earlier years, which were generated by strong traffic growth and a ready availability of finance. Because of the lag between orders and deliveries, the buoyant market conditions which existed at the time of peak order levels had changed by the time the peak deliveries were made, which exacerbated the mismatch between supply and demand in the industry. With aircraft orders at low levels after 1990, aircraft deliveries returned to moderate levels in 1994 and 1995. Together with improved demand, this helped to reduce excess capacity in the industry.

AIRLINE PASSENGER TRAFFIC FORECAST

5.22 As a basis for the traffic forecasts for this study, econometric analyses were carried out to determine the historical relationship between airline passenger traffic, economic cycles and airline yield levels. These analyses were used to translate the expectations of future global economic development and yield levels into annual projections of traffic demand for the years 1996, 1997 and 1998 according to the methodology described in Appendix 2. These forecasts were then reviewed in the light of prospective changes in other relevant factors which could not be incorporated into the econometric models.

5.23 While at a global level these models appear to provide reasonably robust results, they have been less adequate at a micro or regional level because of the influence of unique factors and uncertainties in the air transport industry in recent years.

5.24 The economic forecasts, which were introduced at the beginning of this chapter, are based on assumptions about broad business cycle conditions and developments, fiscal and monetary policy settings and the international trade and financial environment. Assumptions related to population growth and productivity improvement which affect aggregate economic output over the longer term are also taken into consideration. These factors are largely external to the aviation sector. The reasonably positive economic outlook presented in Figure 5-1 and Table 5-1 augurs well for global traffic demand over the forecast period.

5.25 The prospects for airline yields are closely related to cost developments and market conditions in the airline industry. Productivity improvement in the airline industry should continue to produce cost savings, thereby providing some potential for real reductions in air fares. Changes in fuel prices have had important effects on costs, and hence on both financial returns and airline yields, at certain times in the past. However, in recent years, fuel price

Table 5-6. ICAO scheduled passenger traffic forecast for 1996-1998
(passenger-kilometres performed)

Region of airline registration	ACTUAL 1984 (billions)	ACTUAL 1994 (billions)	Average annual growth (%)	ESTIMATED 1995 (billions)	Growth (%)	FORECAST 1996 (billions)	Growth (%)	1997 (billions)	Growth (%)	1998 (billions)	Growth (%)
Africa	36.0	47.2	2.8	53.0	12.2	57.2	8.0	61.2	7.0	65.5	7.0
Asia/Pacific	207.8	490.1	9.0	546.8	11.6	598.8	9.5	664.6	11.0	734.4	10.5
Europe (incl. CIS)	407.9	525.5	2.6	550.8	4.8	582.1	5.7	621.8	6.8	660.0	6.1
Middle East	41.3	62.0	4.1	69.6	12.3	74.8	7.5	80.8	8.0	86.5	7.0
North America	521.0	867.2	5.2	897.5	3.5	931.6	3.8	971.7	4.3	1 010.5	4.0
Latin America/ Caribbean	64.1	105.8	5.1	112.3	6.2	119.6	6.5	129.2	8.0	138.2	7.0
World	1 278.1	2 097.8	5.1	2 230.0	6.3	2 364.1	6.0	2 529.4	7.0	2 695.2	6.6

volatility has been short term, with limited impact on year-average price levels and airline yields. Salaries and wages represent the largest airline expense item. Labour cost pressures could build up gradually over the next few years with consequences for airline yields. These various cost pressures will provide a benchmark for airline yields, with revenues needing to be sufficient to cover costs over the long term. However, in the short term, movements in yields will be influenced by competitive conditions in airline markets. The external factors encouraging traffic demand will act on a restrained supply of capacity, producing tighter market conditions than in the recent past and hence some upward pressure on airline fares.

5.26 The global and regional scheduled passenger traffic forecasts for 1996, 1997 and 1998, developed from the economic and yield assumptions and other considerations, are presented in Table 5-6. General economic expansion is expected to provide the main support for traffic demand. Global passenger traffic is expected to grow by 6 per cent in 1996, with some of the more lively markets of the last year or two (e.g. in Asia) cooling off a little. Improved economic growth should boost traffic by around 7 per cent in 1997 and 6.6 per cent in 1998. The forecast growth rates for total world traffic are illustrated in Figure 5-7, together with the annual growth pattern over the past 10 years.

5.27 Traffic growth will vary by geographic region because of the impact of specific local or regional factors. The developing regions of Asia/Pacific, Middle East, Africa and Latin America and the Caribbean are expected to experience relatively high rates of passenger traffic growth over the forecast period, reflecting the expectations of rapid economic growth. European aviation markets are also forecast to be reasonably buoyant, with some further benefits of liberalization and recovery in Eastern Europe and the CIS. More moderate growth is expected in the mature North American markets. Further details of the trends and forecasts on a region-by-region basis may be found in Chapter 6.

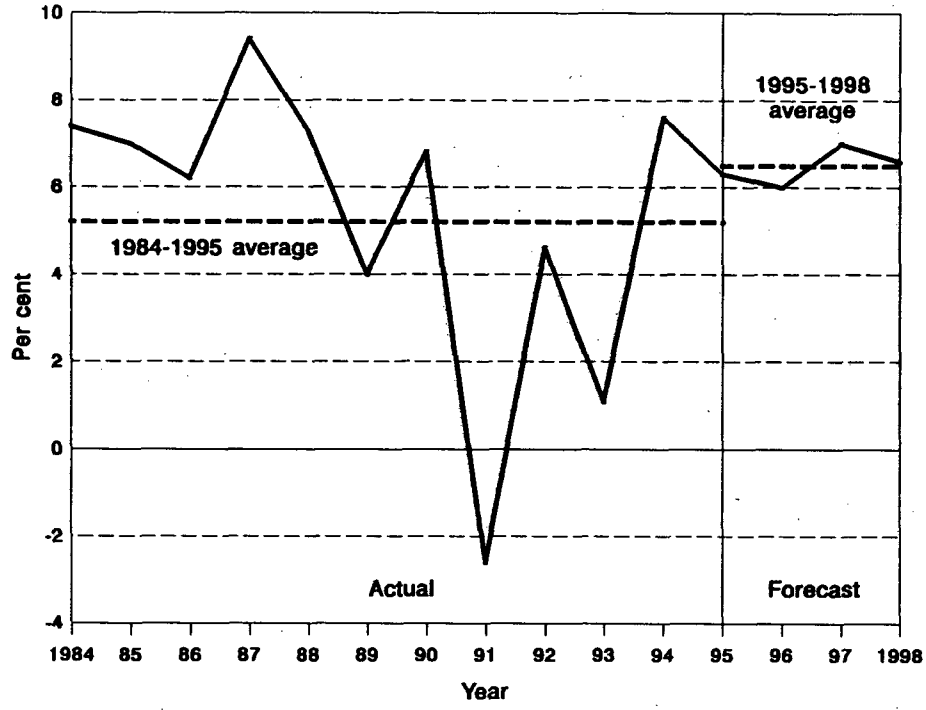


Figure 5-7. World scheduled passenger traffic growth — passenger-kilometres performed

AIRLINE FINANCIAL FORECAST

5.28 Financial trends in the airline industry are difficult to forecast because airlines are able to adjust capacity over time and manage yields through fare adjustments at relatively short notice to respond to (or to create) changes in demand. In addition, fluctuations in the value of the United States dollar complicate the interpretation and forecasting of global financial results which are presented in U.S. dollar terms. Also, ICAO receives airline financial data on an annual basis only, the period between transaction and reporting is much greater than for traffic data, and there are significant gaps in reporting. Because of these considerations, the forecasts are restricted to indicative global trends in financial results (excluding operations within the Commonwealth of Independent States, for which no historic data are available).

5.29 The forecast for total revenues for scheduled airlines is based on assumptions for passenger yields and on the passenger forecasts presented above, together with further assumptions for the trend in the share of airline revenue from sources other than scheduled passengers (i.e. freight, mail, non-scheduled operations and incidental). This produces a growth

in total revenues in current U.S. dollars of about 4.9 per cent in 1996, 9.7 per cent in 1997 and 8.7 per cent in 1998. These compare with an average rate of 9.3 per cent per annum over the past ten years. The U.S. dollar is expected to improve in 1996, which explains why the expected growth in airline revenues in 1996 is relatively low (compared to a growth of 10.7 per cent in 1995 where the U.S. dollar declined against the SDR by 6 per cent).

5.30 The forecast for airline expenses is based on assumptions for the expected trends in quantity of inputs (labour, fuel and aircraft capacity) and the prices of those inputs, the latter being primarily determined by the outlook for general inflation. Airlines are taking steps to trim employment levels and generally improve productivity in order to contain costs. However, wage pressures could increase as labour markets tighten in some regions over the next few years. As a result of these considerations, airline expenses in current U.S. dollars are expected to grow at rates of about 3.8 per cent in 1996, 8.7 per cent in 1997 and 10 per cent in 1998 (compared to an average rate of 9.1 per cent per annum over the past ten years). As in the case of revenues, the growth in expenses in 1996 is reduced because of the expected improvement in the U.S. dollar.

5.31 The operating result for the world's scheduled airlines is the difference between operating revenues and expenses, the forecasts of which have here been made independently and which are both subject to significant margins of error. It is therefore not possible to forecast the operating result with any reasonable degree of certainty. Nevertheless, the above forecasts of operating revenues and expenses imply that the operating result as a percentage of operating revenues will improve from an estimated 5.1 per cent in 1995 to just over 6 per cent in 1996, about 7 per cent in 1997 and about 6 per cent in 1998. These estimates suggest a buoyant outlook for the global airline industry in line with expectations for traffic growth and general economic development. As privatization proceeds and airlines around the world become more market-oriented, financial markets which supply the industry with the capital funds will expect such an improved financial performance.

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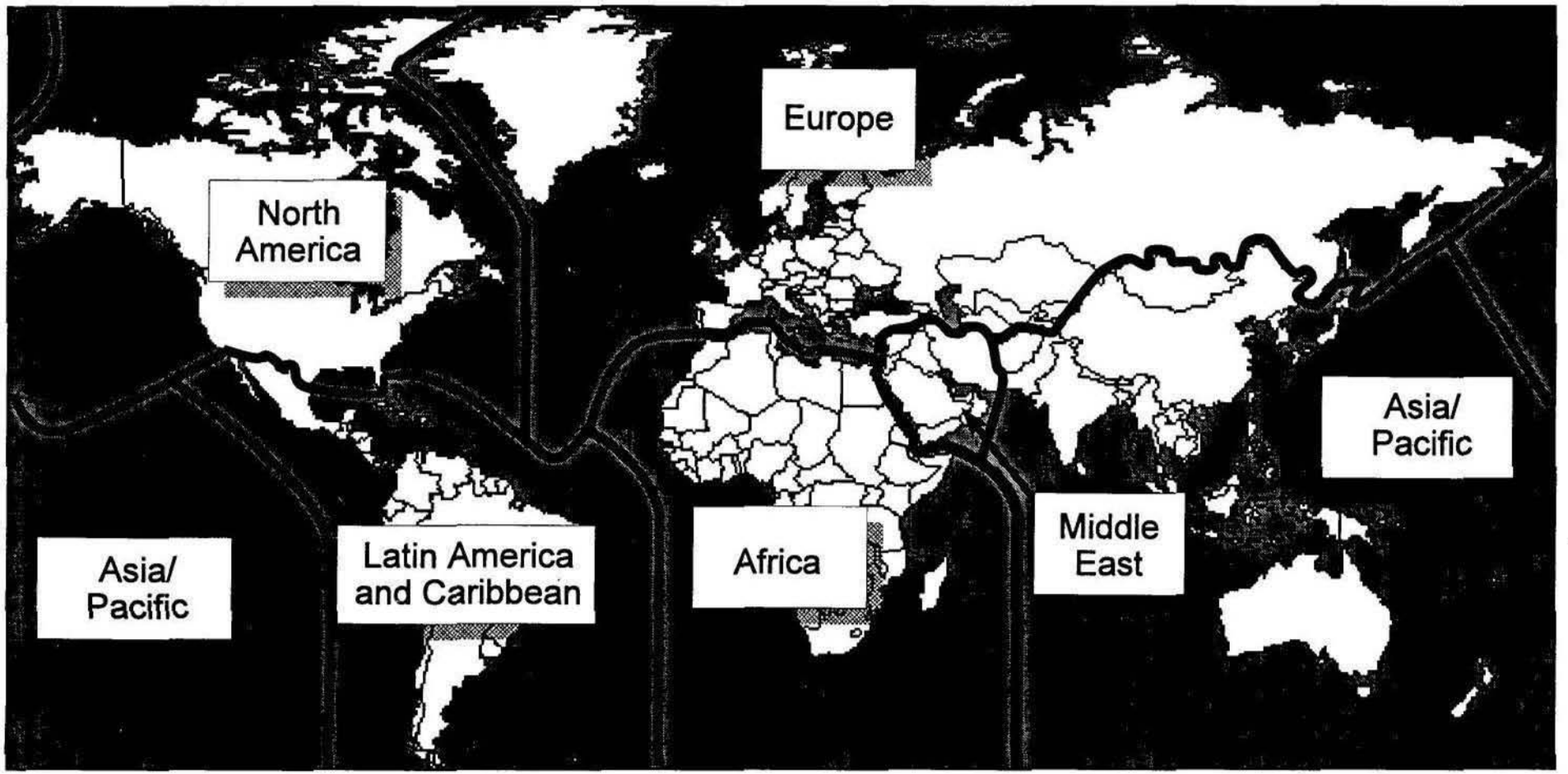
PART III

REGIONAL PERSPECTIVES, 1995 TO 1998

ICAO STATISTICAL REGIONS



International boundaries shown on this map do not imply official endorsement or acceptance by ICAO.

Chapter 6
Regional Highlights, Trends and Forecasts

6.1 This chapter reviews, on a region-by-region basis, some key developments affecting air transport in 1995, the economic environment over the period since 1984 and anticipated through to 1998, and airline finances and passenger traffic trends over the period since 1984, and presents scheduled passenger traffic forecasts for the airlines of each region through to 1998. The regional basis is that of the ICAO Statistical Regions (see map), presented as follows: Africa; Asia/Pacific; Europe; Middle East; North America; Latin America and the Caribbean.

AFRICA

The Region in 1995

Table 6-1. Scheduled traffic — airlines of Africa

	INTERNATIONAL			TOTAL		
	1995	Increase over 1994 (%)	Share of world traffic (%)	1995	Increase over 1994 (%)	Share of world traffic (%)
Passengers carried (thousands)	13 980	6.4	3.8	28 230	8.2	2.2
Passenger-kilometres performed (millions)	43 470	12.2	3.5	53 000	12.2	2.4
Freight and mail tonne-kms performed (millions)	1 450	7.8	2.0	1 570	7.7	1.8

Source: ICAO Air Transport Reporting Form A-1.

6.2 During 1995, continued attention was given in Africa to institutional and financial issues which have been identified as impeding the efficient performance of the African air transport industry: inadequate and inefficient aeronautical infrastructure; fragmented air space and airlines; underdeveloped route network; institutional and managerial instability of the African airlines; scarce funds for re-equipment; and under-capitalization. There were renewed

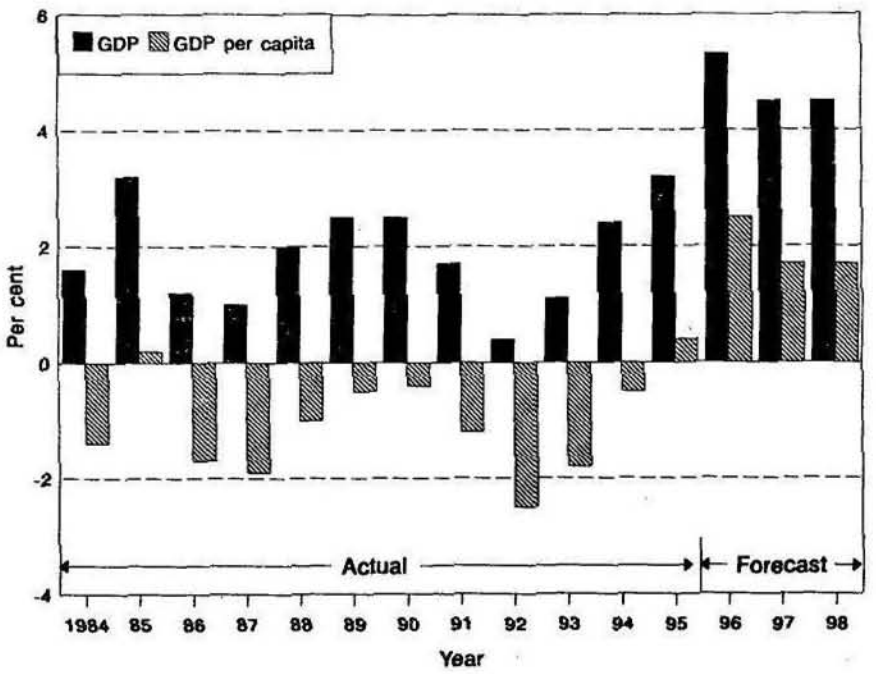
calls during the year for a serious commitment in line with the Yamoussoukro Declaration of 1988 which *inter alia* suggested that African airlines create mergers, joint ventures and consortia.

Economic trends

6.3 Over the 1984-1994 period, the aggregate African economy (GDP) grew at an average annual rate of 1.8 per cent in real terms, although GDP per capita fell at 1.1 per cent. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-1.

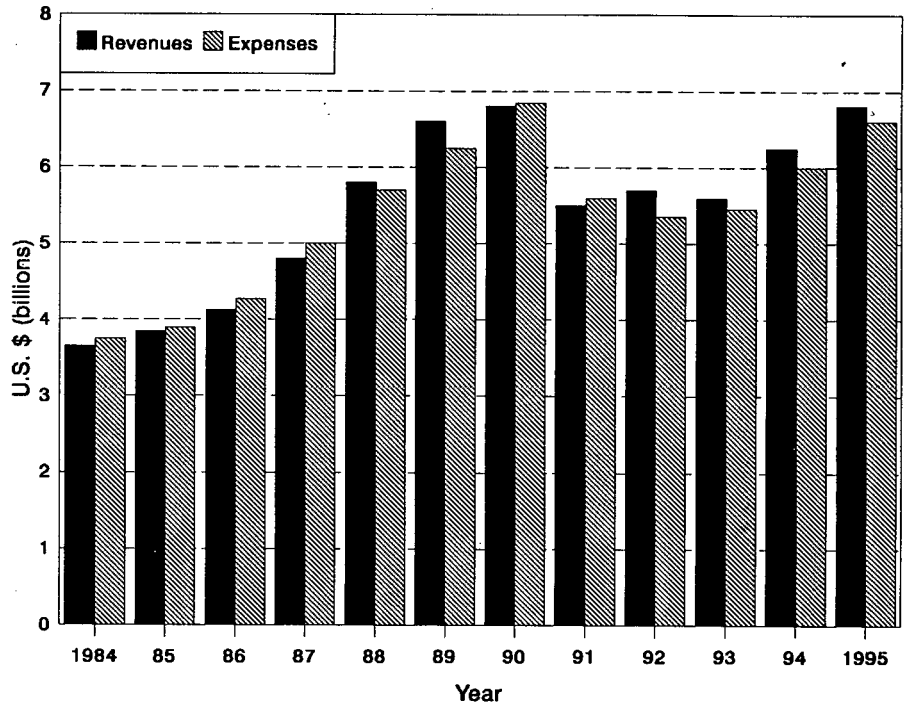
6.4 Economic conditions in the region have been adversely affected by the external environment, with slow growth in export markets and declining terms of trade, and States in the region have faced difficulties in foreign debt servicing. However, economic performance has improved recently, as mentioned in Chapter 1. The real growth of GDP for 1995 is estimated to have been around 3.2 per cent.

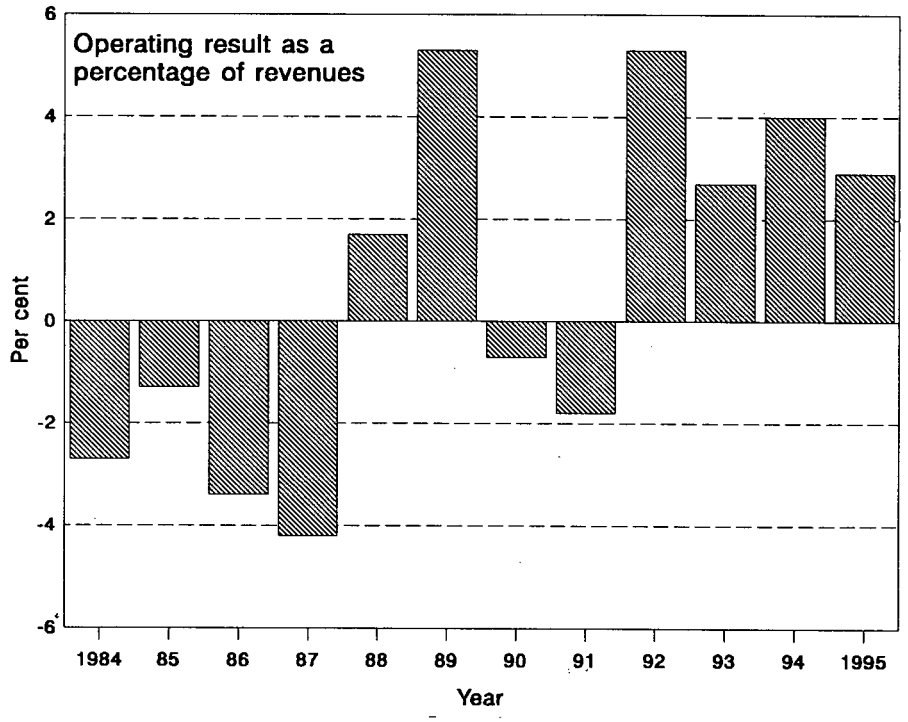
6.5 Over the next three years, economic growth in Africa is expected to further improve as the policy environment is strengthened and the global economy expands. However, there are



Source: IMF, Wharton Econometrics Services.

Figure 6-1. Annual change in real GDP and GDP per capita — Africa





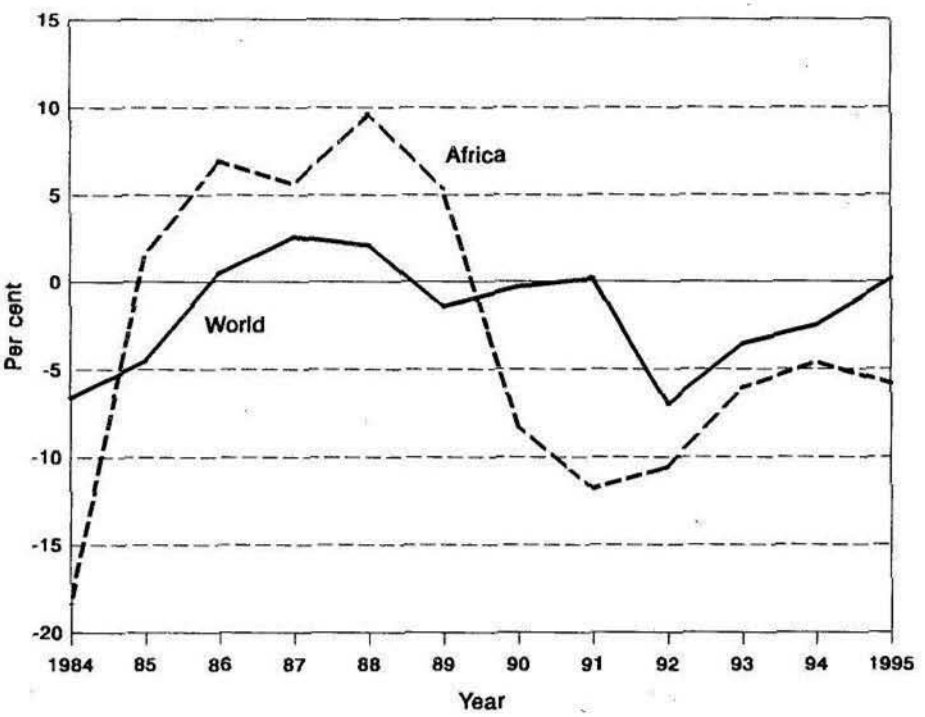
Note.— 1995 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-2. Scheduled airline operating revenues and expenses — Africa

a number of countries where conditions remain difficult. Also prospects are dependent on developments in commodity prices (e.g. coffee, oil, various minerals). The economy of the African region is projected to increase at 5.3, 4.5 and 4.5 per cent for the years 1996, 1997 and 1998, respectively.

Airline financial trends

6.6 Over the 1984-1994 period, operating revenues (in U.S. dollars) of the scheduled airlines of the African region increased at an average annual rate of 5.5 per cent (compared to the world annual average of 8.9 per cent). Operating expenses for the same period increased by 4.8 per cent per annum. These rates reflect the relatively low traffic growth experienced over most of the period, but also the efforts by the African industry to improve efficiency and financial performance. Positive over-all operating results have been achieved since 1992 as illustrated in Figure 6-2.



Notes: — *1995 figures are from estimated data.*
— *Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.*

Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 6-3. Annual change in real scheduled passenger yield — Africa and World

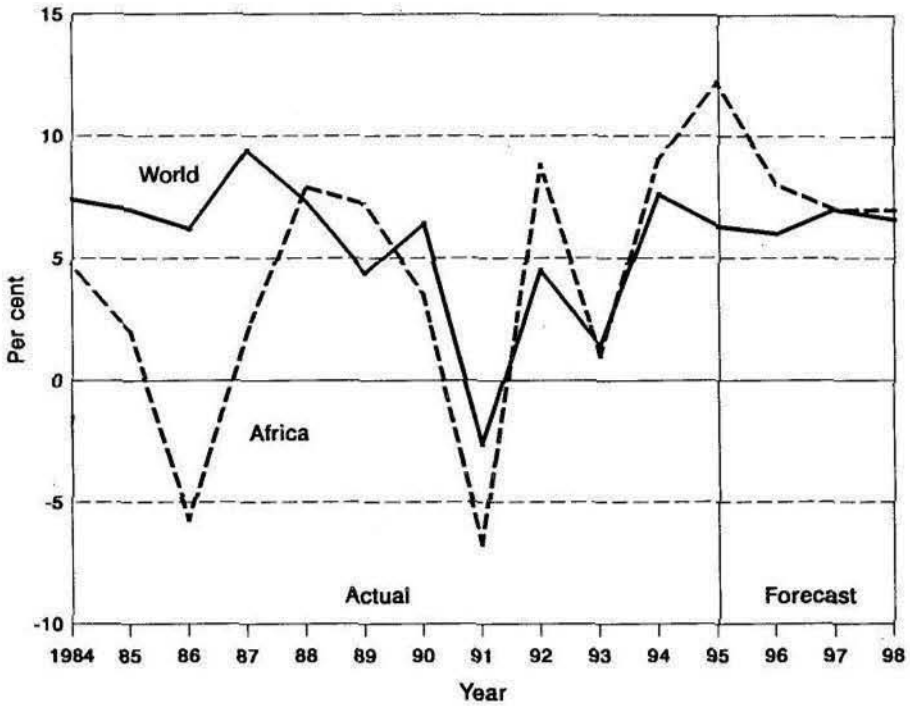


Figure 6-4. Scheduled passenger traffic growth (PKPs) — Africa and World

6.7 For the 1984-1994 period, average scheduled passenger yields for airlines of the region, measured in terms of cents per passenger-kilometre performed (PKP), declined at an average annual rate of 1.7 per cent in real terms (compared to a 1.4 per cent decline for the world). The year-to-year comparisons of the changes in real passenger yield of African and world airlines are illustrated in Figure 6-3. Throughout the period concerned, the region's airlines achieved a high average yield level in comparison with the world average.

Airline passenger traffic trends and forecast

6.8 Over the 1984-1994 period, scheduled passenger traffic (PKP) of airlines of the African region increased at an average annual rate of 2.8 per cent (compared to the world annual average of 5.1 per cent). A very high increase in traffic of over 12 per cent was recorded in 1995. The year-to-year traffic growth comparison between world and African airlines is shown in Figure 6-4.

6.9 As shown in Table 5-6 of Chapter 5 and illustrated in Figure 6-4, scheduled passenger traffic of the airlines of the African region is forecast to increase by 8, 7 and 7 per cent for the years 1996, 1997 and 1998, respectively, compared to world airline growth of 6, 7 and 6.6 per cent. The expectations for improved growth for African airlines are based primarily on an improved economic outlook.

ASIA/PACIFIC

The Region in 1995

Table 6-2. Scheduled traffic — airlines of Asia/Pacific

	INTERNATIONAL			TOTAL		
	1995	Increase over 1994 (%)	Share of world traffic (%)	1995	Increase over 1994 (%)	Share of world traffic (%)
Passengers carried (thousands)	89 480	8.0	24.1	305 890	11.9	23.8
Passenger-kilometres performed (millions)	371 230	10.8	29.9	546 820	11.6	24.5
Freight and mail tonne-kms performed (millions)	26 670	11.3	36.5	29 230	11.1	32.6

Source: ICAO Air Transport Reporting Form A-1.

6.10 At the meeting of the Transport Ministers of the Asia Pacific Economic Cooperation Council (APEC), a group of 18 trading partners round the Pacific rim, held in Washington D.C., United States, in June, agreement was reached that a small group of experts would be convened to develop an options paper for more competitive air services within the area concerned. The paper prepared by the group was presented in October and identifies eight areas where APEC economies could facilitate more competitive air services, including more flexible airline ownership and control arrangements; general easing of tariff regulations; facilitation of co-operative arrangements, such as code sharing, joint-operations, and interlining; and a more open market access. The paper will be considered by APEC in April 1996.

6.11 As from July 1995, in Australia the Civil Aviation Authority was replaced by Airservices Australia and the Civil Aviation Safety Authority (CASA). The role of Airservices Australia is to provide Australia's national airways system, including air traffic services, rescue and firefighting services, and search and rescue services. CASA is responsible for the safety regulation of civil aviation in Australia and will provide the regulatory framework for civil aviation in that country, including the regulatory oversight of the services provided by Airservices Australia and the administration of the carriers' mandatory death or injury insurance agreements announced in 1994.

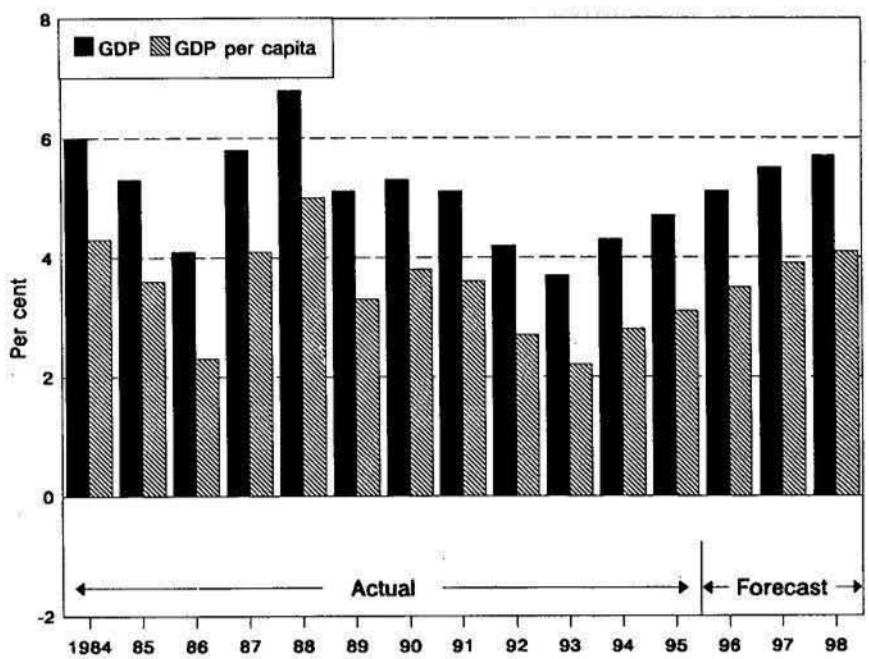
6.12 Foreign investment in new air carriers and alliances between carriers were also important features in this region during 1995.

Economic trends

6.13 Over the 1984-1994 period, the aggregate Asia/Pacific economy (GDP) grew at an average annual rate of 5 per cent in real terms, and GDP per capita increased at 3.3 per cent, the highest growth rates of all ICAO regions. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-5.

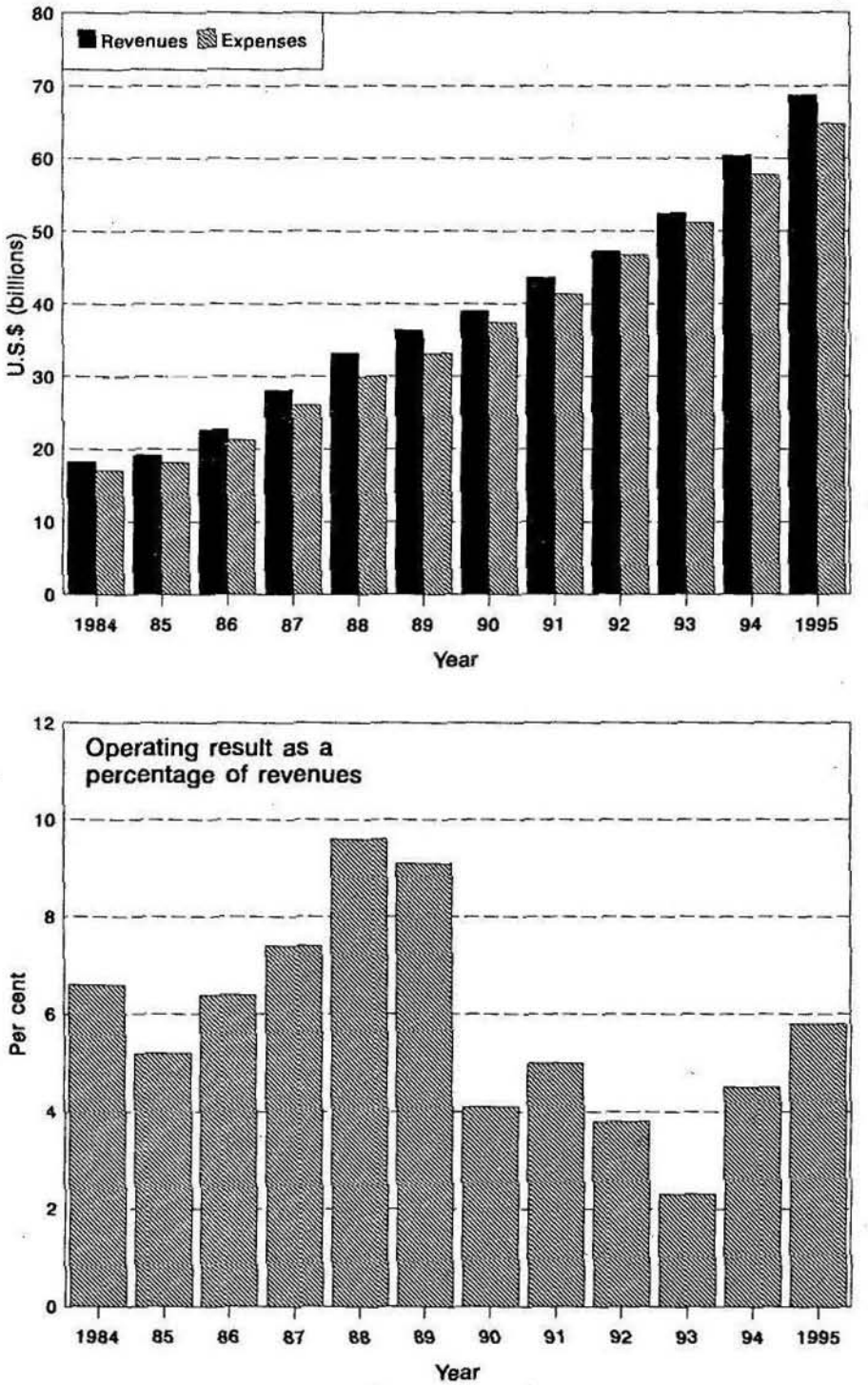
6.14 Economic growth in the region slowed in the 1991 to 1993 period, primarily because of a substantial slowdown in the Japanese economy. Recovery in Japan is progressing at a slow pace despite low interest rates and active fiscal stimulus. The developing economies of the region are expected to grow rapidly, fuelled by market-oriented structural reforms and investment in infrastructure. The economies of Australia and New Zealand have also gained momentum with growth rates of around 3 to 5 per cent per annum.

6.15 For the region as a whole, economic growth in 1995 is estimated to be about 4.7 per cent. Real growth in GDP is expected to be 5.1 per cent in 1996, 5.5 per cent in 1997 and 5.7 per cent in 1998.



Source: IMF, Wharton Econometrics Services.

Figure 6-5. Annual change in real GDP and GDP per capita — Asia/Pacific



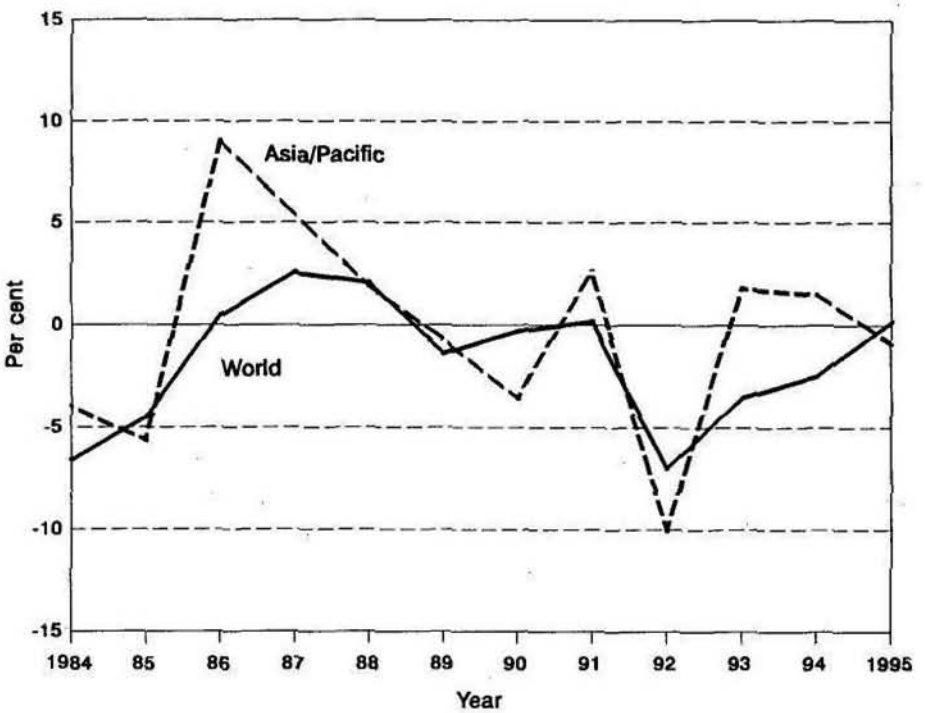
Note.— 1995 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-6. Scheduled airline operating revenues and expenses — Asia/Pacific

Airline financial trends

6.16 Over the 1984-1994 period, operating revenues of the scheduled airlines of the Asia/Pacific region increased at an average annual rate of 12.7 per cent (compared to the world average annual growth rate of 8.9 per cent). Operating expenses for the same period increased by 13 per cent per annum. In contrast to other regions, positive aggregate operating results have been achieved throughout the period under review to 1993 and 1994, as illustrated in Figure 6-6.

6.17 Average scheduled passenger yields for airlines of the region, measured in terms of cents per PKP, have fluctuated significantly since 1984. This is illustrated in Figure 6-7, which compares the annual changes in real yield for the Asia/Pacific scheduled airlines with those for the total world's airlines. The sharp increase in yield in U.S. cents in 1986 was exacerbated by a decline of 30 per cent in the value of the U.S. dollar against the yen.



Notes: — *1995 figures are from estimated data.*
— *Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.*

Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 6-7. Annual change in real scheduled passenger yield — Asia/Pacific and World

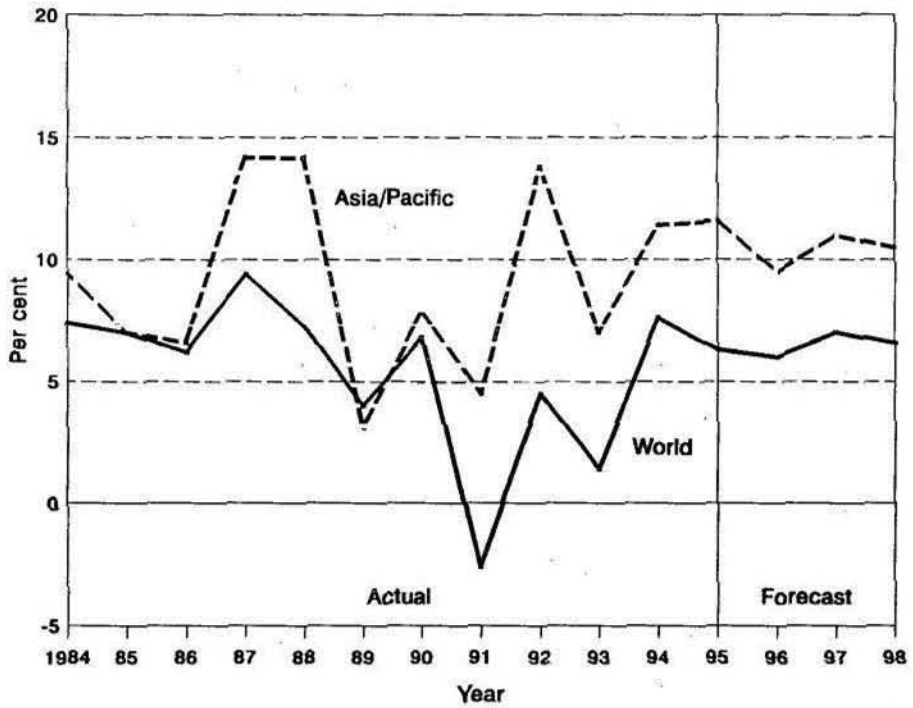


Figure 6-8. Scheduled passenger traffic growth (PKPs) — Asia/Pacific and World

Airline passenger traffic trends and forecast

6.18 Over the 1984-1994 period, scheduled passenger traffic (PKP) of airlines of the Asia/Pacific region increased at an average annual rate of 9 per cent (compared to the world annual average of 5.1 per cent). Very strong growth in traffic (11.6 per cent) was estimated for 1995. The year-to-year traffic growth comparison between world and Asia/Pacific airlines is shown in Figure 6-8.

6.19 As shown in Table 5-6 of Chapter 5 and illustrated in Figure 6-8, scheduled passenger traffic of the airlines of the Asia/Pacific region is expected to increase by 9.5, 11 and 10.5 per cent for the years 1996, 1997 and 1998, respectively, compared to world airline growth of 6, 7 and 6.6 per cent. The outlook for traffic growth of the airlines of the Asia/Pacific region is the strongest of any ICAO region.

EUROPE

The Region in 1995

Table 6-3. Scheduled traffic — airlines of Europe

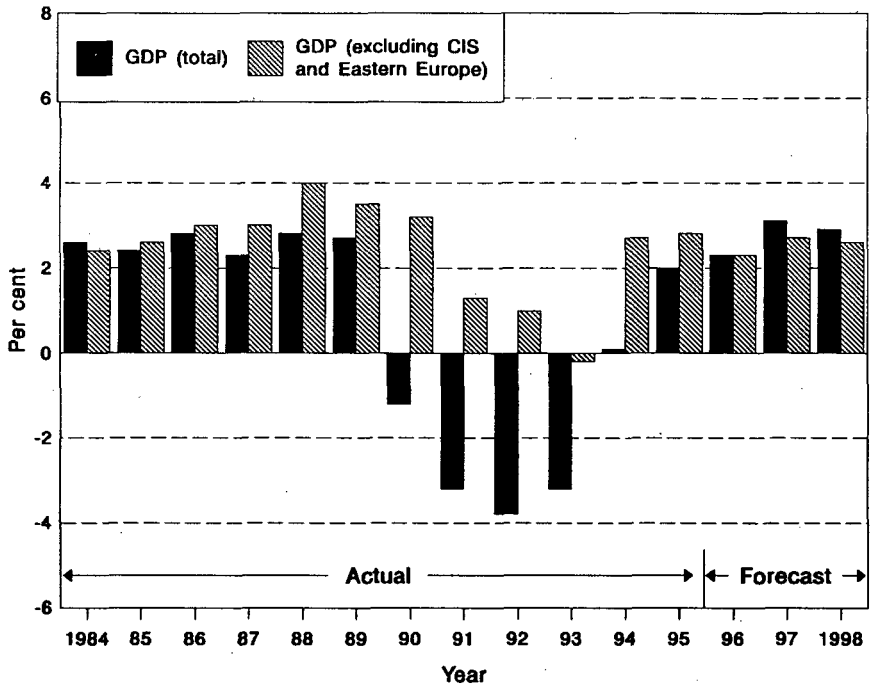
	INTERNATIONAL			TOTAL		
	1995	Increase over 1994 (%)	Share of world traffic (%)	1995	Increase over 1994 (%)	Share of world traffic (%)
Passengers carried (thousands)	160 340	7.2	43.3	303 770	4.3	23.6
Passenger-kilometres performed (millions)	427 130	7.7	34.4	550 810	4.8	24.7
Freight and mail tonne-kms performed (millions)	24 570	8.1	33.6	25 590	7.8	28.6

Source: ICAO Air Transport Reporting Form A-1.

6.20 The European Civil Aviation Conference (ECAC) continued its close co-operation with the European Commission in a number of fields. Thus, as a contribution to work under way in the European Community, principles were finalized regarding the provision of ground-handling services. ECAC also continued work with regard to airline code sharing, where it concentrated particularly on the protection of consumer interests. Also jointly with the European Commission (which, in June 1995, produced a consultation paper on the introduction of a common framework for airport charging systems in the Community), ECAC began work on a detailed examination of airport charges.

6.21 A considerable number of initiatives have been taken to optimize the European Air Traffic Management System. Efficient use of available airspace, increased capacity, cost-effectiveness and a co-ordinated approach in selecting future technology are among the objectives of its Air Traffic Control Strategy for the 1990s. Within this framework related work was started in 1995 by ECAC, in close co-operation with the EU, when a study group was established to look into institutional arrangements best suited to implement the future European Air Traffic Management system. A fact base was provided in 1995 and further work began with a view to a comprehensive assessment of a limited range of institutional options for European Air Traffic Management, taking account, *inter alia,* of national sovereignty considerations.

6.22 In the technical field, ECAC finalized an environmental policy statement, aimed at promoting co-operation between States on environmental issues, identifying potential areas for research activities and reducing the level of the various pollutants at source or limiting their detrimental effects.



Source: IMF, Wharton Econometrics Services.

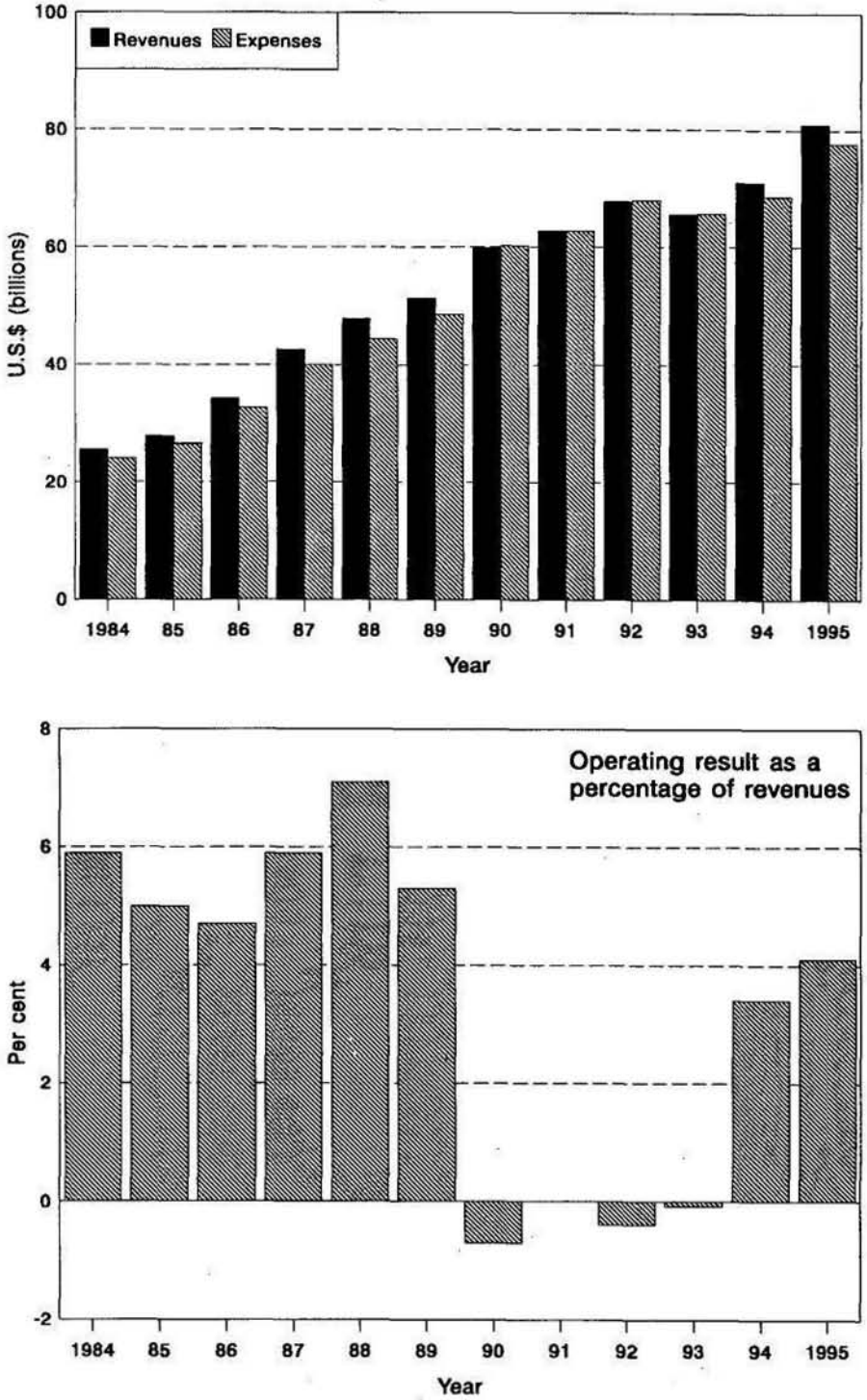
Figure 6-9. Annual change in real GDP — Europe

6.23 The continued objective in the field of civil aviation security in 1995 was the implementation of a common set of security provisions, based on ICAO's Annex 17 and ECAC's Doc 30. To this end work was developed on human factors activities, the latest advances in technology were studied and work was undertaken on security of cargo.

Economic trends

6.24 The aggregate European economy (GDP) grew steadily between 1994 and 1989 after which it went into decline. By 1994, total output was back to where it had been in 1984, the primary reason being the serious decline in the economies of eastern Europe and the CIS beginning in 1990. The impact of this is illustrated in Figure 6-9, which shows the annual European GDP growth including and excluding the CIS and eastern Europe. Western Europe achieved a positive average annual growth in GDP of 2.4 per cent per annum over the past decade.

6.25 Europe has a relatively low population growth rate. The European population grew at 0.5 per cent per annum between 1984 and 1994, which means that aggregate GDP per capita for the whole region declined by about 5 per cent between these years.



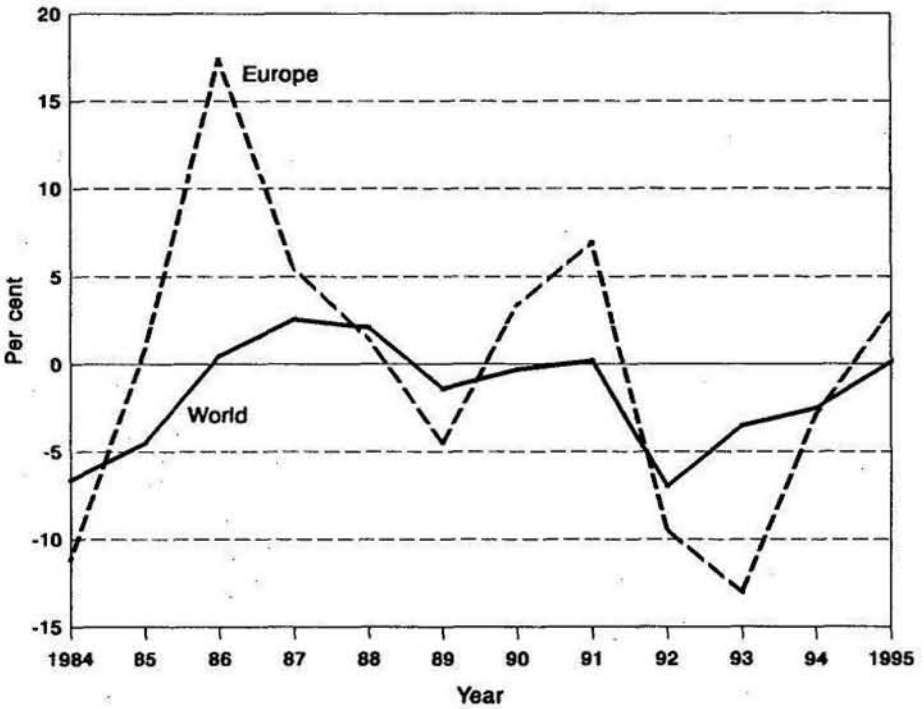
Note.— 1995 figures are from estimated data. CIS excluded.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-10. Scheduled airline operating revenues and expenses — Europe

6.26 Recovery from recession commenced in western Europe and in the formerly centrally-planned economies of eastern Europe in 1994, and is expected to commence in the CIS in 1996. The outlook for western Europe is for moderate growth despite short-term difficulties in Germany and France. It is assumed that market-oriented reforms will bear fruit in eastern Europe and the CIS over the next three years. GDP growth rates for the whole of Europe are forecast to be 2.3 per cent, 2.7 per cent and 2.6 per cent for 1996, 1997 and 1998, respectively. However, because of the structural changes that are occurring, there is an unusually large element of uncertainty associated with the economic outlook for the region.

Airline financial trends

6.27 Over the 1984-1994 period, operating revenues of the scheduled airlines of the European region (excluding CIS) increased at an average annual rate of 10.8 per cent (compared to the world annual average of 8.9 per cent). Operating expenses for the same period increased



Notes: — *1995 figures are from estimated data.*
— *Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.*

Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 6-11. Annual change in real scheduled passenger yield — Europe and World

by 11.1 per cent per annum. As illustrated in Figure 6-10, positive operating results were achieved in the years 1984 to 1989, negative results incurred in 1990, 1992 and 1993, followed by a return to operating profits in 1994 and 1995. A net profit was also earned in 1995, the first since 1989.

6.28 Annual changes in average scheduled passenger yields for airlines of the region (excluding CIS), are shown for the 1984-1995 period in Figure 6-11. The yields are measured in terms of U.S. cents per PKP and deflated by the U.S. Consumer Price Index. The increase of over 17 per cent in European airline yields in 1986 can be largely attributed to the appreciation of European currencies with respect to the U.S. dollar in that year. There were sharp declines in yield in 1992 and 1993, when the presence of excess capacity heightened competitive pressures in airline markets.

Airline passenger traffic trends and forecast

6.29 Over the 1984-1994 period, scheduled passenger traffic (PKP) of the airlines of the European region increased at an average annual rate of only 2.6 per cent (compared to the world annual average of 5.1 per cent) despite a generally impressive performance in western Europe (except in 1991). If airlines of the CIS are excluded, European traffic grew at 7 per cent

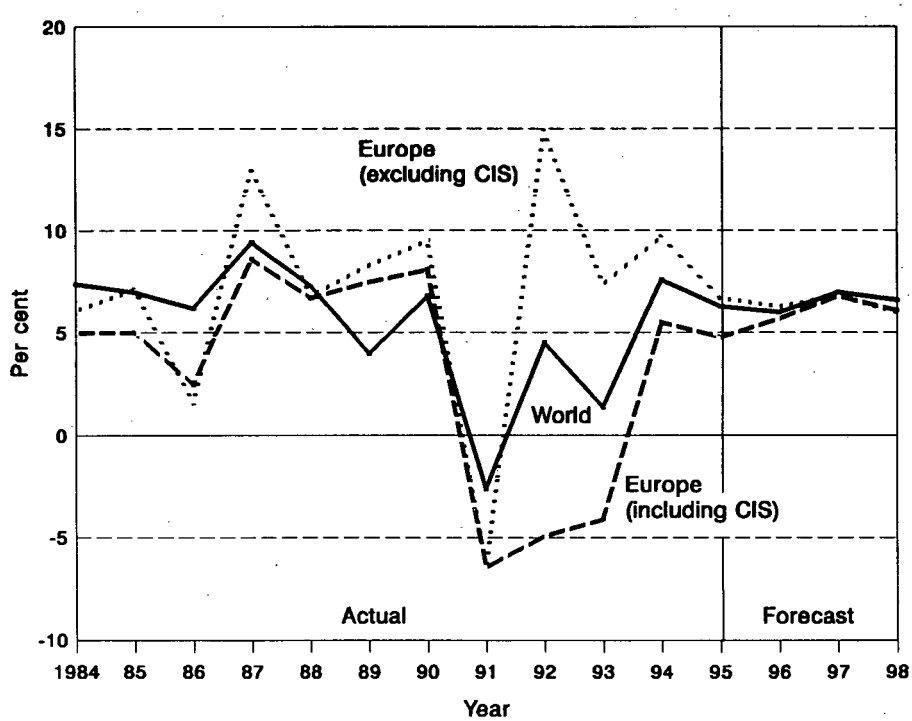


Figure 6-12. Scheduled passenger traffic growth (PKPs) — Europe and World

per annum over the period. After a period of severe decline, CIS traffic volumes began to level out in 1994 and 1995 and total European traffic grew at about 5 per cent in each of these years. The year-to-year traffic growth comparison of the world's and the European airlines is shown in Figure 6-12.

6.30 As shown in Table 5-6 of Chapter 5 and illustrated in Figure 6-12, scheduled passenger traffic of the airlines of the western European region is expected to grow quite vigorously over the forecast period, and recovery is expected to begin in the CIS in 1996. For the region as a whole, growth rates of 5.7 per cent, 6.8 per cent and 6.1 per cent for the years 1996, 1997 and 1998, respectively, are expected (compared to world airline growth of 6, 7 and 6.6 per cent).

MIDDLE EAST

The Region in 1995

Table 6-4. Scheduled traffic — airlines of the Middle East

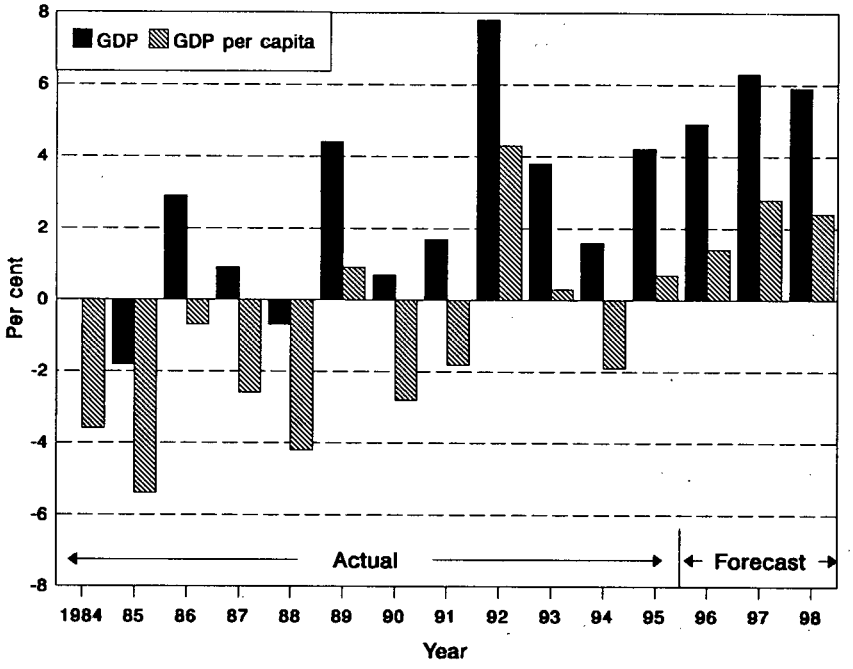
	INTERNATIONAL			TOTAL		
	1995	Increase over 1994 (%)	Share of world traffic (%)	1995	Increase over 1994 (%)	Share of world traffic (%)
Passengers carried (thousands)	20 540	12.4	5.5	36 530	10.4	2.8
Passenger-kilometres performed (millions)	58 790	13.1	4.7	69 610	12.3	3.1
Freight and mail tonne-kms performed (millions)	3 840	15.3	5.3	3 930	15.0	4.4

Source: ICAO Air Transport Reporting Form A-1.

6.31 During 1995, the Middle East peace process initiated positive effects on the air transport operations in the region. Direct routings made possible by the peace accords have enabled savings in flying times and aircraft fuel. Additionally, the peace accords facilitated the conclusion of various co-operative arrangements and agreements. These included arrangements or agreements between Jordan/Egypt/Qatar and the Palestinian National Authority, between Syria/Kuwait and Lebanon, and between Qatar and Israel. In addition, with the encouragement of the European Union, the governments of Egypt, Jordan, Israel and the Palestinian National Authority have formed a special committee to develop tourism and transport, especially air transport, in the area. At the airline level, co-operative agreements were concluded between *Royal Jordanian Airlines and El-Al (Israel), between Middle East Airlines (Lebanon)* and Kuwait Airways which *inter alia* started a joint operation to São Paulo in Brazil, between Syrian Air and Middle East Airlines.

6.32 Establishing a liberal regulatory environment within the region and formulating common positions vis-a-vis other regional regulatory regimes, in particular Europe and North America, continued to be pursued at the level of the Arab Air Carriers Organization (AACO).

6.33 Efforts by the League of Arab States and the national civil aviation administrations in the region to establish a renewed and better focused Arab Civil Aviation Commission were successful and the new Commission is to be launched in Morocco in May 1996.



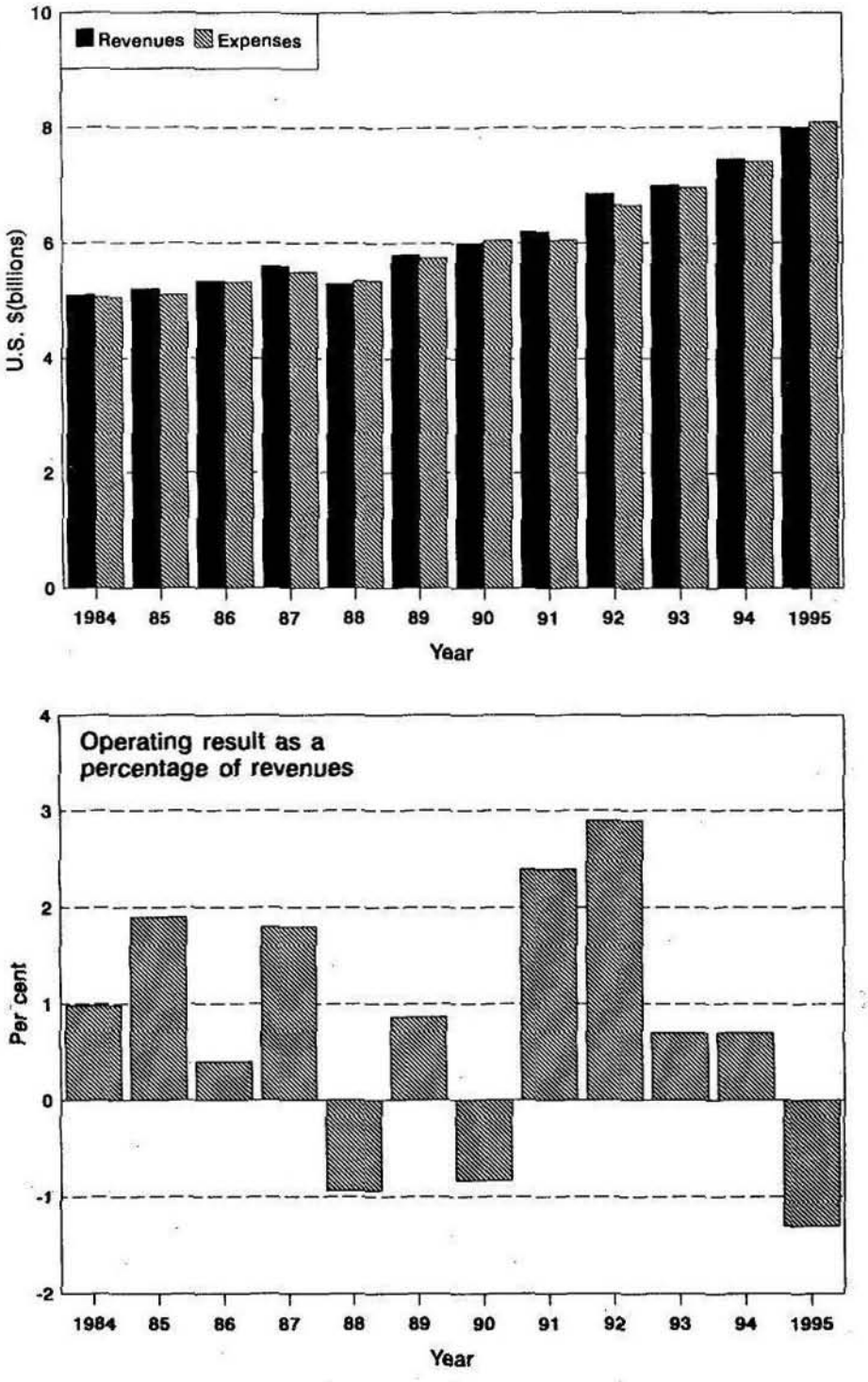
Source: IMF, Wharton Econometrics Services.

Figure 6-13. Annual change in real GDP and GDP per capita — Middle East

Economic trends

6.34 The Middle East economy has been characterized by several pronounced cycles over the past decade, as illustrated in Figure 6-13 which presents the year-to-year changes in the region's GDP and GDP per capita. The oil-producing countries in the region suffered from declines in crude oil prices during the 1980s and from the effects of the Gulf War in 1990-1991. With a return to political and economic stability in the region, GDP growth recovered quite strongly in 1992 and moderate growth was achieved in the following three years. Over the 1984-1994 period, the aggregate GDP for the Middle East grew at an average annual rate of 2.1 per cent in real terms, although GDP per capita fell at 1.4 per cent per annum.

6.35 Prospects for this region are particularly dependent on oil market developments and fiscal consolidation policies. A generally improved economic outlook is expected, with forecast GDP growth rates of 4.9 per cent, 6.3 per cent and 5.9 per cent for 1996, 1997 and 1998, respectively.



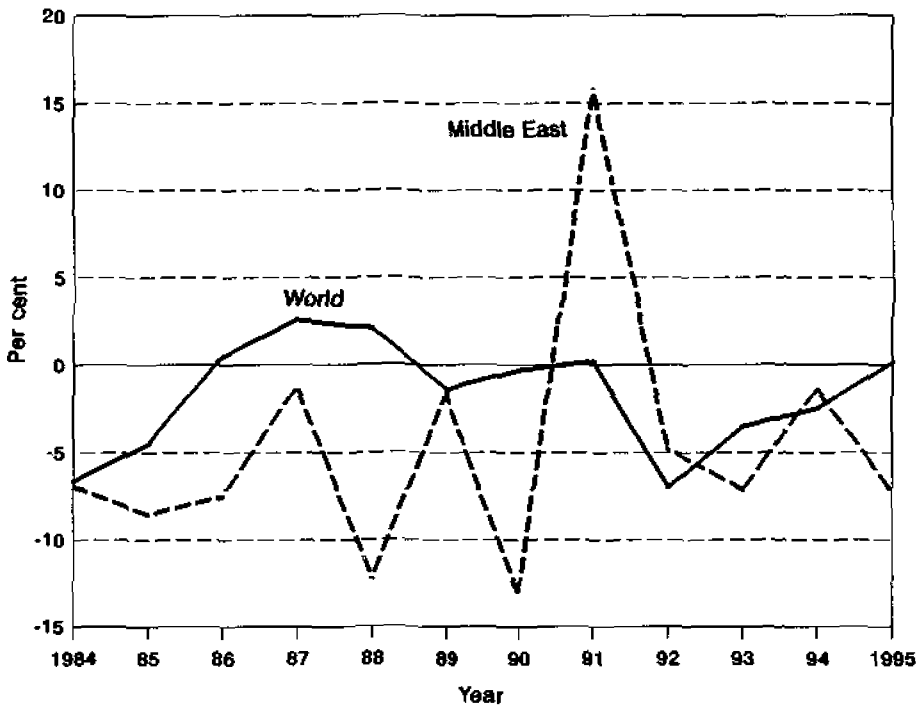
Note.— 1995 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-14. Scheduled airline operating revenues and expenses — Middle East

Airline financial trends

6.36 Over the 1984-1994 period, operating revenues of the scheduled airlines of the Middle East region increased at an average annual rate of 3.9 per cent (compared to the world annual average of 8.9 per cent). Operating expenses for the same period also increased by 3.9 per cent per annum. As shown in Figure 6-14, the region experienced three years of operating losses over the period; the loss in 1995 contrasts with the positive results of all other regions and occurred in the context of a sharp increase in traffic and an even greater increase in capacity.

6.37 For the 1984-1994 period, average scheduled passenger yields for airlines of the region, measured in terms of U.S. cents per PKP, declined at an average annual rate of 4.5 per cent in real terms (compared to a 1.4 per cent decline for the world). It is estimated that the real yield declined by about 7 per cent in 1995. The year-to-year comparisons of the changes in real passenger yields of Middle East and world airlines are illustrated in Figure 6-15.



Notes: — *1995 figures are from estimated data.*
— *Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.*

Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 6-15. Annual change in real scheduled passenger yield — Middle East and World

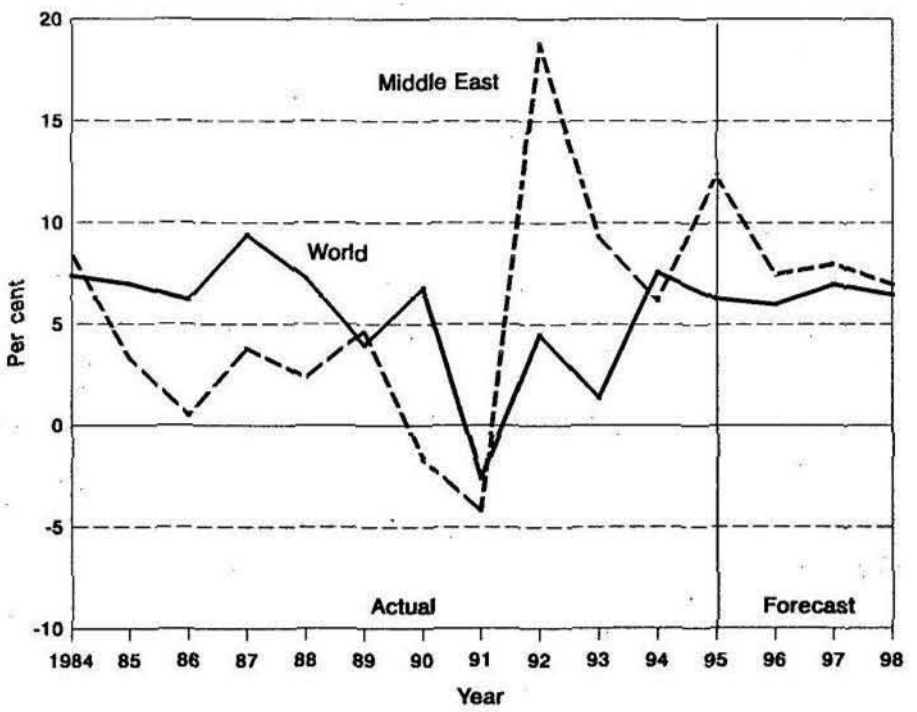


Figure 6-16. Scheduled passenger traffic growth (PKPs) — Middle East and World

Airline passenger traffic trends and forecast

6.38 Over the 1984-1994 period, scheduled passenger traffic (PKP) of the airlines of the Middle East region increased at an average annual rate of 4.1 per cent (compared to the world annual average of 5.1 per cent). Traffic growth has been reasonably buoyant since the declines in 1990 and 1991 associated primarily with the Gulf War. The year-to-year traffic growth comparison between world and Middle East airlines is shown in Figure 6-16.

6.39 As shown in Table 5-6 of Chapter 5 and illustrated in Figure 6-16, scheduled passenger traffic for the airlines of the Middle East region is expected to increase by 7.5 per cent per annum over the forecast period to 1998. This rate reflects an expected good economic performance.

NORTH AMERICA

The Region in 1995

Table 6-5. Scheduled traffic — airlines of North America

	INTERNATIONAL			TOTAL		
	1995	Increase over 1994 (%)	Share of world traffic (%)	1995	Increase over 1994 (%)	Share of world traffic (%)
Passengers carried (thousands)	62 070	4.0	16.7	541 150	1.5	42.0
Passenger-kilometres performed (millions)	269 260	5.1	21.7	897 510	3.5	40.3
Freight and mail tonne-kms performed (millions)	13 270	5.9	18.1	25 110	4.8	28.0

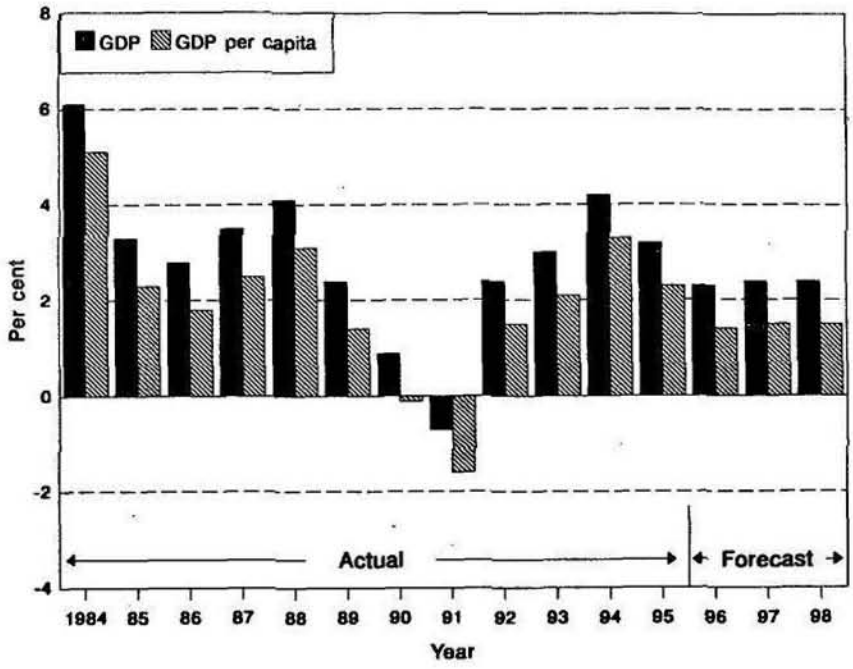
Source: ICAO Air Transport Reporting Form A-1.

6.40 Canada and the United States completed the details of a framework agreement which provides full market access for the air carriers of both nations to transborder services, with such access phased in at three major Canadian cities over three years. Transnational co-operative alliances with carriers from other regions remained an important feature in this region in 1995.

Economic trends

6.41 Over the 1984-1994 period, the aggregate North American economy (GDP) grew at an average annual rate of 2.6 per cent in real terms, and GDP per capita increased at 1.6 per cent per annum. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-17.

6.42 Recovery from the recession in the United States economy began in 1992 and gained momentum in the following years. Canadian recovery lagged behind that of the United States but was under way by 1993. Real growth in the North American economy was estimated to be about 3.2 per cent in 1995. North American GDP is expected to grow at 2.3 per cent, 2.4 per cent and 2.4 per cent in 1996, 1997 and 1998, respectively.



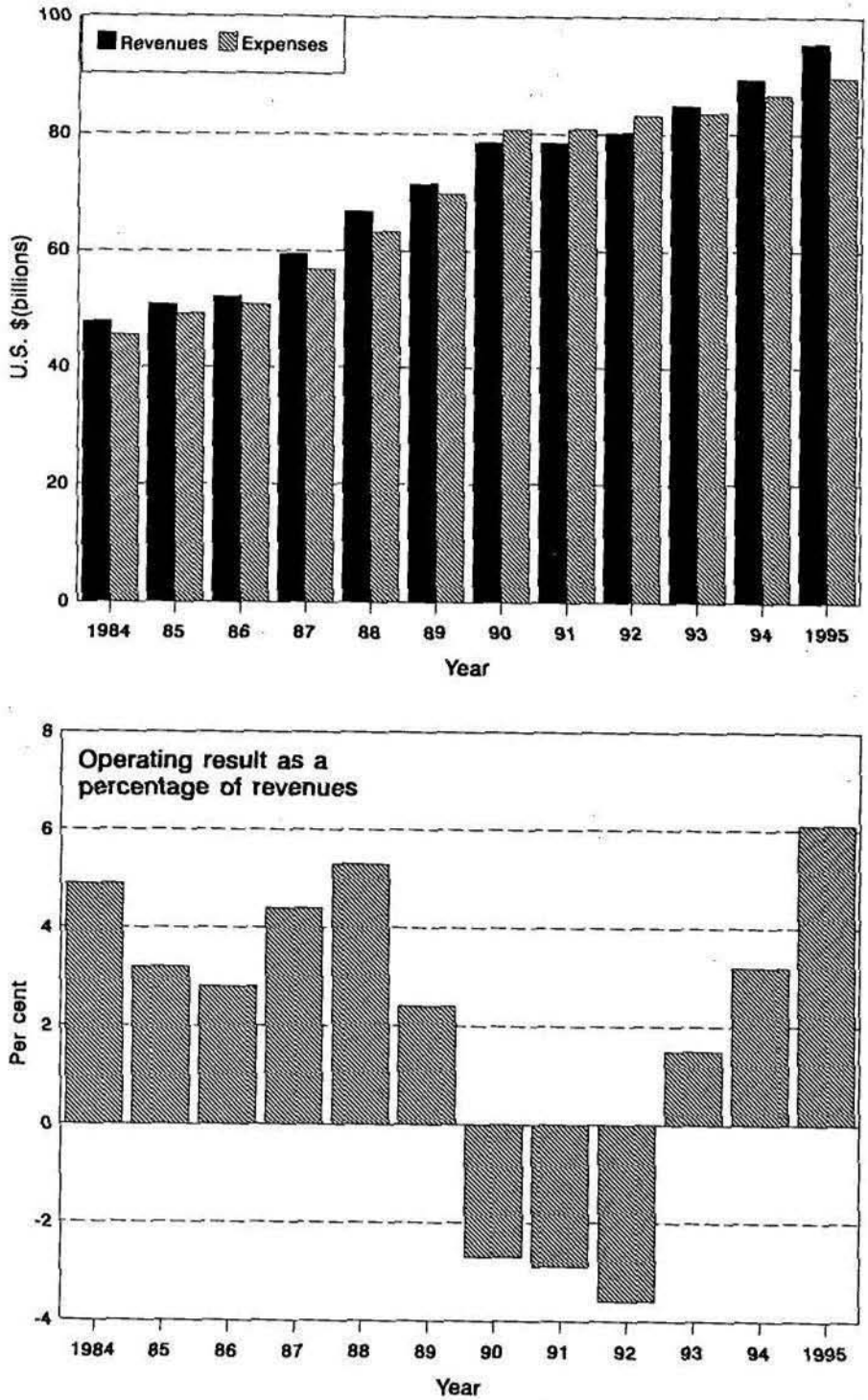
Source: IMF, Wharton Econometrics Services.

Figure 6-17. Annual change in real GDP and GDP per capita — North America

Airline financial trends

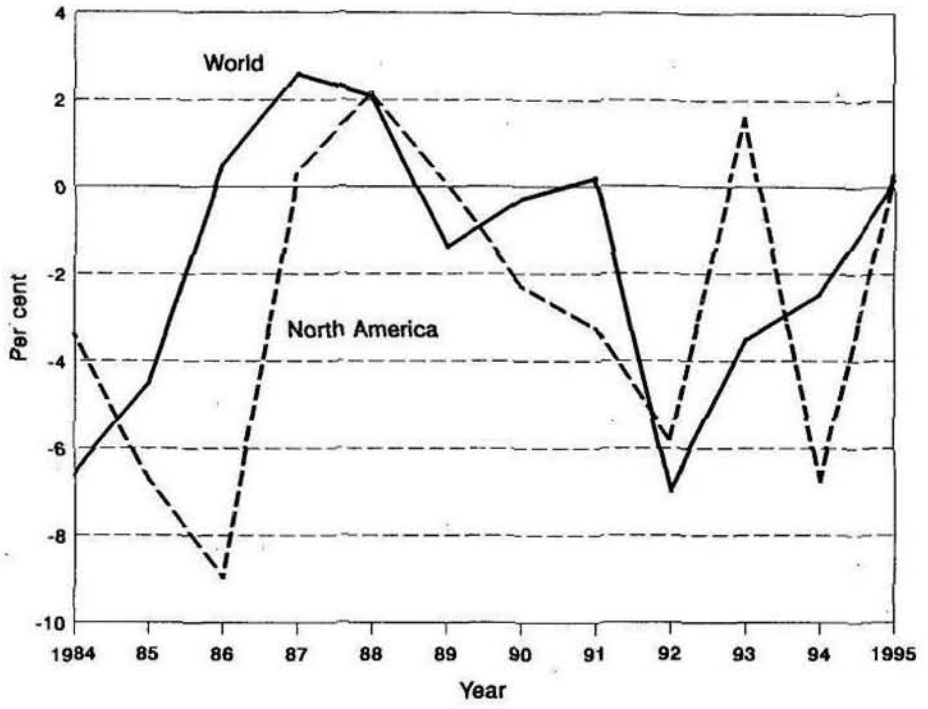
6.43 Over the 1984-1994 period, operating revenues of the scheduled airlines of the North American region increased at an average annual rate of 6.5 per cent (compared to the world annual average of 8.9 per cent). Operating expenses for the same period increased by 6.7 per cent per annum. The string of operating surpluses in the 1984 to 1989 period gave way to serious deficits in 1990, 1991 and 1992 as illustrated in Figure 6-18. Operating surpluses have been earned since 1992, including an especially good result in 1995.

6.44 For the 1984-1994 period, average scheduled passenger yields for airlines of the region, measured in terms of U.S. cents per PKP, declined at an average annual rate of 3 per cent in real terms (compared to a 1.4 per cent decline for the world). It is estimated that the real yield did not change in 1995. The year-to-year comparisons of the changes in the real passenger yields of North American and world airlines are illustrated in Figure 6-19. In general, the passenger yields achieved by the region's airlines were lower than the world average.



Note.— 1995 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-18. Scheduled airline operating revenues and expenses — North America



Notes: — *1995 figures are from estimated data.*
— *Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.*

Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 6-19. Annual change in real scheduled passenger yield — North America and World

Airline passenger traffic trends and forecast

6.45 Over the 1984-1994 period, scheduled passenger traffic (PKP) of the airlines of the North American region increased at an average annual rate of 5.4 per cent (compared to the world average of 5.1 per cent). Traffic growth of about 3.5 per cent has been estimated for 1995. The year-to-year traffic growth comparison between world and North American airlines is shown in Figure 6-20.

6.46 As shown in Table 5-6 of Chapter 5 and illustrated in Figure 6-20, scheduled passenger traffic for the airlines of the North American region is expected to increase by 3.8 per cent in 1996, 4.3 per cent in 1997, and 4 per cent in 1998. These rates are below the expected growth pattern for the world as a whole (i.e. 6, 7 and 6.6 per cent for the same three years).

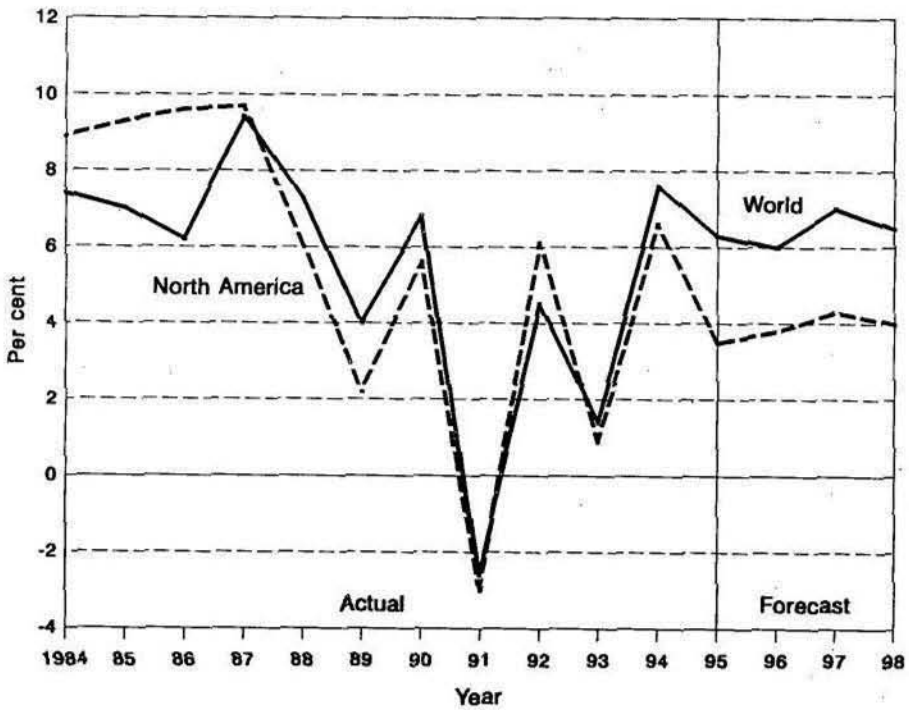


Figure 6-20. Scheduled passenger traffic growth (PKPs) — North America and World

LATIN AMERICA AND THE CARIBBEAN

The Region in 1995

Table 6-6. Scheduled traffic — airlines of Latin America and the Caribbean

	INTERNATIONAL			TOTAL		
	1995	Increase over 1994 (%)	Share of world traffic (%)	1995	Increase over 1994 (%)	Share of world traffic (%)
Passengers carried (thousands)	24 500	5.5	6.6	71 950	-3.3	5.6
Passenger-kilometres performed (millions)	71 700	10.8	5.8	112 290	6.2	5.0
Freight and mail tonne-kms performed (millions)	3 320	9.7	4.5	4 110	9.0	4.6

Source: ICAO Air Transport Reporting Form A-1.

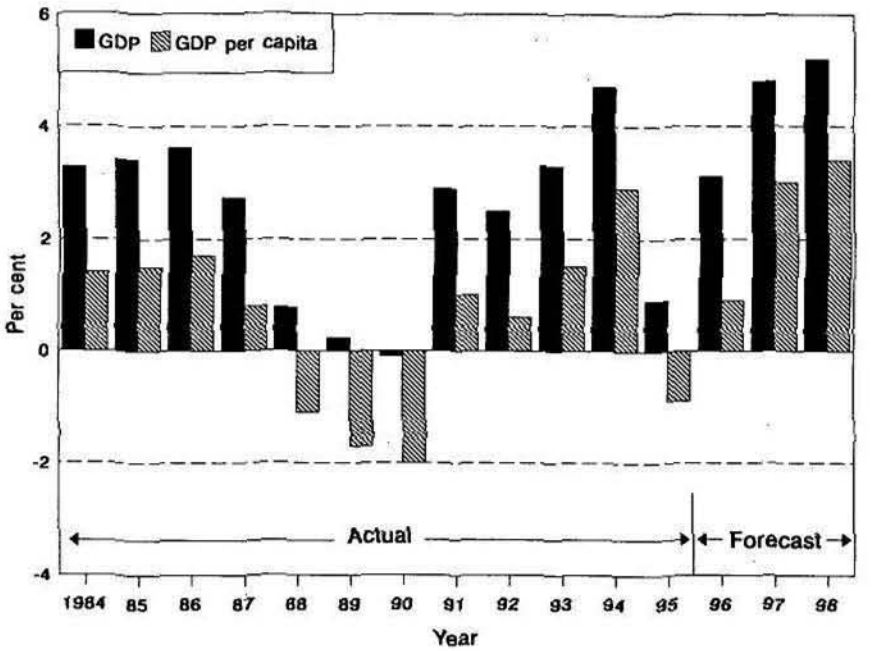
6.47 As indicated in Chapters 2 and 3, partial or full privatization of airlines and airports was an important feature in this region during 1995.

6.48 In August, a summit meeting of the Association of Caribbean States added impetus to the idea of a regional international air transport agreement to be negotiated under the auspices of the Caribbean Community and Common Market (CARICOM).

Economic trends

6.49 Over the 1984-1994 period, the aggregate Latin America/Caribbean economy (GDP) grew at an average annual rate of 2.4 per cent in real terms, although GDP per capita grew only at 0.5 per cent. The economy in this region was severely affected by recession in the late 1980s. The year-to-year changes in the region's GDP and GDP per capita are illustrated in Figure 6-21.

6.50 Trade liberalization and fiscal and structural reforms in the region have contributed to improved economic growth since 1990. In 1995, the economy of important parts of the region suffered from the effects of a financial crisis in Mexico and regional growth was estimated to be 0.9 per cent. The outlook is encouraging, according to the assessments of the IMF and Wharton Econometrics. GDP for the region is forecast to grow at 3.1 per cent, 4.8 per cent and 5.2 per cent in 1996, 1997 and 1998, respectively.



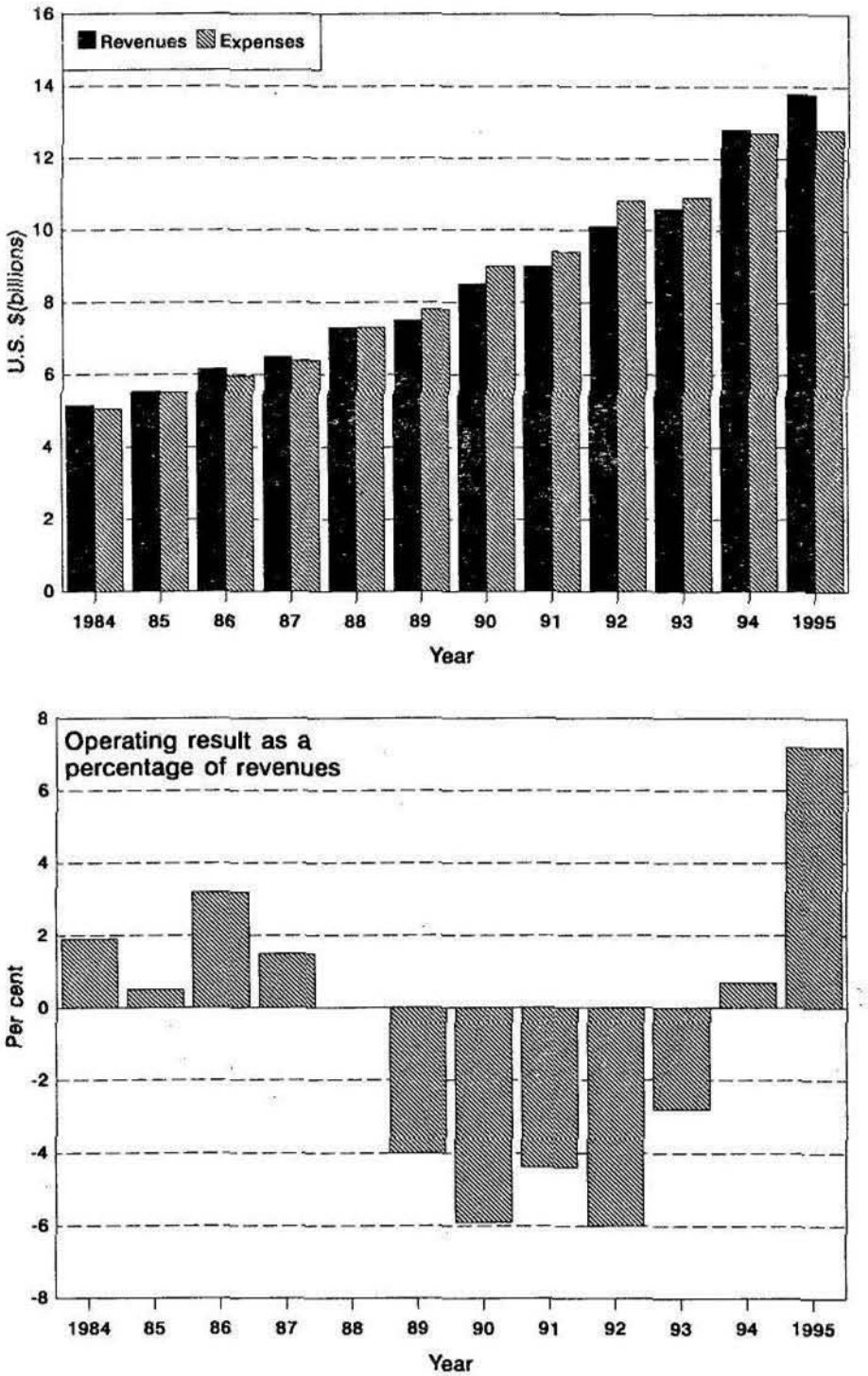
Source: IMF, Wharton Econometrics Services.

Figure 6-21. Annual change in real GDP and GDP per capita — Latin America/Caribbean

Airline financial trends

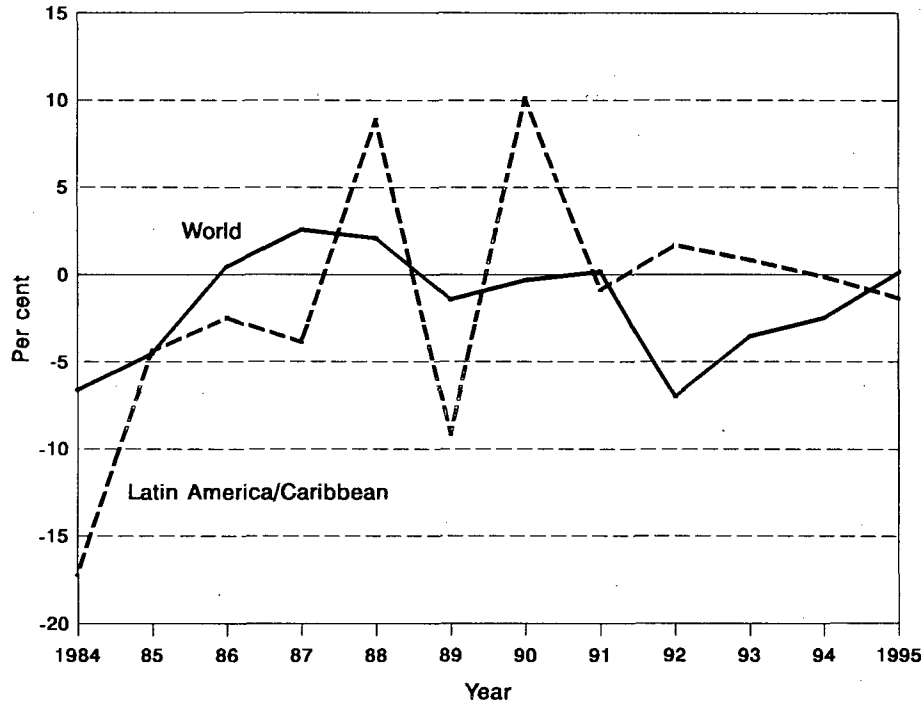
6.51 Over the 1984-1994 period, operating revenues of the scheduled airlines of the Latin America/Caribbean region increased at an average annual rate of 9.5 per cent (compared to the world annual average of 8.9 per cent). Operating expenses for the same period increased by 9.7 per cent per annum. The over-all financial performance of the airlines has been poor over the whole period with five consecutive years (1989 to 1993) of serious operating losses, as illustrated in Figure 6-22. In a significant turnaround, the best operating result for many years was achieved in 1995, although the *net* result remained negative.

6.52 Average scheduled passenger yields for airlines of the region, measured in terms of U.S. cents per PKP and expressed in constant price terms, fluctuated substantially between 1984 and 1994, but there was no trend either up or down over the whole period. The year-to-year comparisons of the changes in real passenger yield of Latin America/Caribbean and world airlines are illustrated in Figure 6-23.



Note.— 1995 figures are from estimated data.
Source: ICAO Air Transport Reporting Form EF-1.

Figure 6-22. Scheduled airline operating revenues and expenses — Latin America/Caribbean



Notes: — *1995 figures are from estimated data.*
— *Real yield for scheduled airlines measured in U.S. cents per PKP deflated by U.S. Consumer Price Index.*

Source: ICAO Air Transport Reporting Forms A-1 and EF-1.

Figure 6-23. Annual change in real scheduled passenger yield — Latin America/Caribbean and World

Airline passenger traffic trends and forecast

6.53 Over the 1984-1994 period, the scheduled passenger traffic (passenger-kilometres performed) of airlines of the Latin America/Caribbean region increased at an average annual rate of 5.1 per cent (equal to the world average growth rate). Traffic grew by a healthy 6.2 per cent in 1995 (estimated). The year-to-year traffic growth comparison between world and Latin America/Caribbean airlines is shown in Figure 6-24.

6.54 As shown in Table 5-6 of Chapter 5 and illustrated in Figure 6-24, and in response to expectations regarding economic performance, scheduled passenger traffic of the airlines of the Latin America and Caribbean region is forecast to increase at 6.5 per cent, 8 per cent and 7 per cent in 1996, 1997 and 1998, respectively, which is slightly above the expected growth pattern over this period for the world as a whole (6.3, 7 and 6.6 per cent).

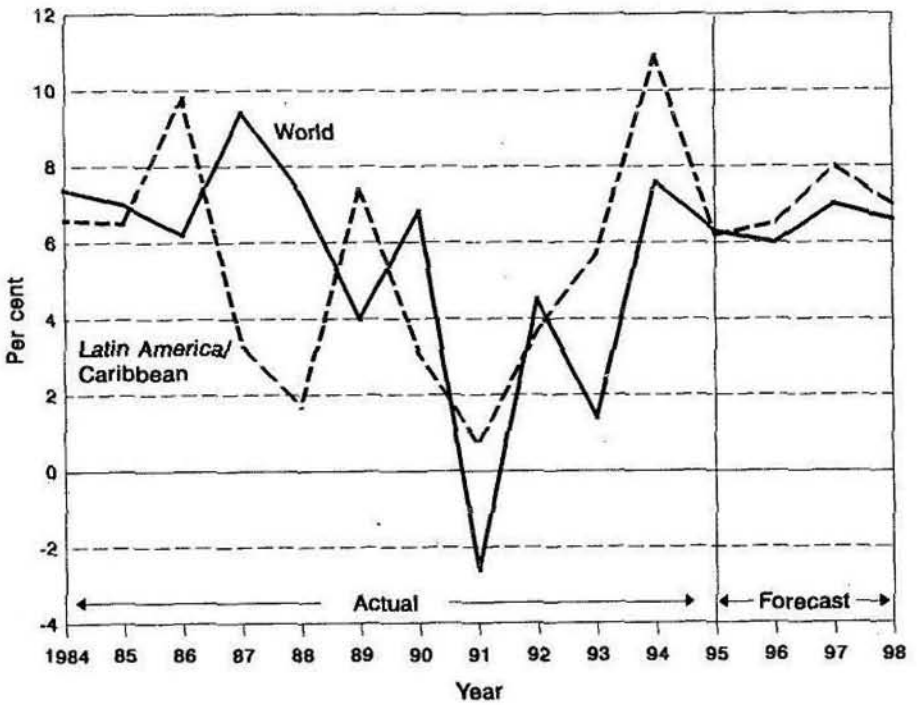


Figure 6-24. Scheduled passenger traffic growth (PKPs) — Latin America/Caribbean and World

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APPENDICES

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Appendix 1
Statistical Tables

Table A1-1. Regional distribution of scheduled traffic — 1995

By ICAO statistical region of airline registration	Aircraft kilometres (millions)	Aircraft departures (thousands)	Passengers carried (thousands)	Passenger-kilometres performed (millions)	Passenger load factor (%)	Tonne-kilometres performed		Tonne-kilometres available (millions)	Weight load factor (%)
						Freight (millions)	Total (millions)		
Total (international and domestic) services of airlines of ICAO Contracting States									
Europe	4 751	4 743	303 770	550 813	67	24 631	77 442	119 134	65
Percentage of world traffic	25.0	27.0	23.6	24.7		29.3	26.5	24.4	
Africa	484	481	28 227	53 004	63	1 534	6 348	12 060	53
Percentage of world traffic	2.6	2.7	2.2	2.4		1.8	2.2	2.5	
Middle East	512	372	36 532	69 613	67	3 861	10 283	17 653	58
Percentage of world traffic	2.7	2.1	2.8	3.1		4.6	3.5	3.6	
Asia and Pacific	3 579	2 918	305 886	546 822	67	28 353	77 212	124 721	62
Percentage of world traffic	18.9	16.6	23.8	24.5		33.8	26.4	25.5	
North America	8 468	7 647	541 150	897 510	67	21 610	106 543	191 019	56
Percentage of world traffic	44.6	43.5	42.0	40.3		25.8	36.4	39.1	
Latin America and Caribbean	1 178	1 434	71 955	112 288	65	3 951	14 511	23 831	61
Percentage of world traffic	6.2	8.1	5.6	5.0		4.7	5.0	4.9	
Total	18 972	17 595	1 287 520	2 230 050	67	83 940	292 339	488 418	60
International services of airlines of ICAO Contracting States									
Europe	3 309	2 312	160 343	427 132	68	23 792	65 242	98 111	66
Percentage of world traffic	39.7	53.5	43.3	34.4		33.6	34.6	32.8	
Africa	347	196	13 976	43 467	62	1 424	5 395	10 287	52
Percentage of world traffic	4.2	4.5	3.8	3.5		2.0	2.9	3.5	
Middle East	423	209	20 540	58 788	66	3 775	9 222	15 619	59
Percentage of world traffic	5.1	4.9	5.5	4.7		5.4	4.9	5.2	
Asia and Pacific	1 937	592	89 481	371 228	68	26 025	60 848	93 546	65
Percentage of world traffic	23.2	13.7	24.1	29.9		36.8	32.2	31.3	
North America	1 704	597	62 074	269 255	71	12 473	37 696	64 900	58
Percentage of world traffic	20.5	13.8	16.7	21.7		17.6	20.0	21.7	
Latin America and Caribbean	610	413	24 499	71 700	67	3 261	10 207	16 549	62
Percentage of world traffic	7.3	9.6	6.6	5.8		4.6	5.4	5.5	
Total	8 330	4 319	370 913	1 241 570	68	70 750	188 610	299 012	63

Source.— ICAO Air Transport Reporting Form A-1.

Table A1-2. Number of turbo-jet and turbo-prop aircraft delivered, ordered and remaining to be delivered up to 31 December 1995[1]

(commercial operators of ICAO Contracting States)

Type of aircraft	Before 1995	Delivered during 1995	Total as of 31/12/95	Ordered during 1995[2]	Remaining to be delivered as of 31/12/95[3]
TURBO-JETS					
Airbus Industrie A-300	429	17	446	2	26
Airbus Industrie A-310	245	2	247	4	11
Airbus Industrie A-319	—	—	—	30	81
Airbus Industrie A-320	481	34	515	29	172
Airbus Industrie A-321	16	22	38	11	120
Airbus Industrie A-330	10	30	40	3	81
Airbus Industrie A-340	45	18	63	7	86
Boeing 737	2 659	89	2 748	176	491
Boeing 747	1 031	25	1 056	39	121
Boeing 757	650	43	693	13	132
Boeing 767	559	36	595	26	118
Boeing 777	—	13	13	92	217
British Aerospace — 146/RJ 85/100	242	21	263	50	43
Canadair Regional Jet	51	40	91	38	43
Embraer EMB-145	—	—	—	10	18
Fokker 100	259	15	274	16	16
Fokker 70	1	26	27	31	44
McDonnell-Douglas MD-80/90	1 111	32	1 143	51	141
McDonnell-Douglas MD-95	—	—	—	50	50
McDonnell-Douglas MD-11	129	18	147	—	21
Total of aircraft in production	7 918	481	8 399	678	2 032
Total of aircraft not in production[4]	5 963	—	5 963	—	—
Total turbo-jets	13 881	481	14 362	678	2 032
TURBO-PROPS					
Aerospatiale/Aeritalia ATR-42/72	410	39	449	50	36
British Aerospace ATP	53	2	55	—	—
British Aerospace Jet Stream 41	32	38	70	11	30
DeHavilland Canada DHC-8	389	20	409	34	38
Dornier DO-328	21	29	50	9	35
Embraer EMB-120 Brasilia	285	17	302	14	29
Fokker 50	187	11	198	16	18
SAAB SF-340	361	15	376	29	43
SAAB 2000	5	20	25	5	16
Total of aircraft in production	1 743	191	1 934	168	245
Total of aircraft not in production[4]	2 560	—	2 560	—	—
Total turbo-props	4 303	191	4 494	168	245

1. The numbers given are estimated on the basis of information supplied by aircraft manufacturers; in many instances, numbers for past years have been revised; owing to lack of information, the aircraft manufactured in the CIS are not included in this table.
2. The numbers do not include options by commercial operators for transport aircraft.
3. The numbers in this column take into account cancellations during the year.
4. These figures are the cumulative totals of deliveries for aircraft types no longer in production after 1994.

Table A1-3. Aircraft accidents involving passenger fatalities on scheduled air services, 1976-1995

Year	Aircraft accidents	Passengers killed	Passenger fatalities per 100 million passenger-km	Passenger fatalities per 100 million passenger-miles	Fatal accidents per 100 million km flown	Fatal accidents per 100 million miles flown	Fatal accidents per 100 000 aircraft hours	Fatal accidents per 100 000 aircraft landings
Excluding the Commonwealth of Independent States								
1976	20[1]	734	0.12	0.19	0.26	0.41	0.15	0.20
1977	24	516	0.07	0.12	0.30	0.48	0.18	0.24
1978	25	754	0.09	0.15	0.29	0.47	0.18	0.24
1979	31	877	0.10	0.16	0.34	0.55	0.21	0.29
1980	22	814	0.09	0.14	0.24	0.38	0.15	0.21
1981	21	362	0.04	0.06	0.23	0.37	0.14	0.20
1982	26	764	0.08	0.13	0.28	0.46	0.18	0.25
1983	20[2]	809	0.08	0.13	0.21	0.34	0.13	0.18
1984	16	223	0.02	0.03	0.16	0.26	0.10	0.14
1985	22	1 066	0.09	0.15	0.21	0.34	0.13	0.19
1986	17	331	0.03	0.04	0.15	0.24	0.09	0.14
1987	24	890	0.06	0.10	0.20	0.32	0.12	0.18
1988	25	699	0.05	0.08	0.19	0.31	0.12	0.18
1989	27	817	0.05	0.08	0.20	0.32	0.12	0.19
1990	22	440	0.03	0.04	0.15	0.25	0.09	0.15
1991	25[3]	510	0.03	0.05	0.18	0.28	0.11	0.18
1992	25	990	0.06	0.09	0.16	0.26	0.10	0.17
1993	31	801	0.04	0.07	0.19	0.31	0.12	0.21
1994	24	732	0.04	0.06	0.14	0.22	0.09	0.15
1995	22	557	0.03	0.04	0.12	0.20	0.08	0.13
Including the Commonwealth of Independent States								
1986	22	546	0.04	0.06	na	na	na	na
1987	26	901	0.06	0.09	na	na	na	na
1988	28	729	0.04	0.07	na	na	na	na
1989	27	817	0.05	0.07	na	na	na	na
1990	25	495	0.03	0.04	na	na	na	na
1991	30[3]	653	0.04	0.06	na	na	na	na
1992	29	1 097	0.06	0.09	na	na	na	na
1993	34	936	0.05	0.08	na	na	na	na
1994	28	941	0.04	0.07	na	na	na	na
1995	26	710	0.03	0.05	na	na	na	na

1. Includes one mid-air collision shown here as one accident.
2. Includes one collision on the ground shown here as one accident.
3. Includes one collision on the ground shown here as two accidents.

na not available

Source.— ICAO Air Transport Reporting Form G and other reports.

Table A1-4. Aviation security

Year	Number of acts of unlawful interference	Number of acts of unlawful seizure		Number of acts of sabotage	Other acts*	Number of persons injured or killed during acts of unlawful interference	
		Attempted seizures	Actual seizures			Injured	Killed
1976	54	13	13	28	—	215	218
1977	65	16	18	31	—	71	133
1978	37	13	13	11	—	22	59
1979	37	10	16	11	—	194	64
1980	54	17	29	8	—	39	72
1981	53	14	24	15	—	39	8
1982	36	11	19	6	—	119	14
1983	45	17	21	7	—	70	15
1984	41	7	21	13	—	249	68
1985	40	7	20	13	—	243	473
1986	14	6	5	3	—	235	112
1987	13	6	4	3	—	121	166
1988	12	3	7	2	—	21	300
1989	14	4	8	2	—	38	278
1990	36	12	20	1	3	145	137
1991	15	5	7	0	3	2	0
1992	10	2	6	0	2	123	10
1993	30	4	21	0	5	2	28
1994	37	5	20	2	10	53	36
1995	14	2	9	0	3	3	0

* Includes missile and facility attacks.

Appendix 2
Methodology for Traffic Forecasts

1. Short- or medium-term air transport forecasting methods depend heavily on careful analysis of recent trends in the aviation industry and of the operating environment as well as economic and demographic factors affecting air travel and the cost of air travel itself.

2. As a basis for the development of traffic forecasts, econometric analyses were carried out which established a relationship between passenger traffic demand, GDP, GDP/capita and airline yields. Several econometric models were developed at global and regional levels. While at a global level these models appear to provide reasonably robust results, they have been less adequate at the regional level.

3. Based on forecasts of economic developments and expectations of yield, traffic forecasts for the years 1996, 1997 and 1998 were estimated using the econometric models. The forecast traffic growth rates were then reviewed in the light of recent trends in the airline operating environment and prospective changes in other factors which could not be accommodated in the econometric analyses.

4. The basic model form used for the global analysis is described below:

$$y = a \cdot x_1^{b_1} \cdot x_2^{b_2}$$

where:

y = passenger-kilometres performed (PKP)

x_1 = gross domestic product in real terms (GDP)

x_2 = passenger revenue per passenger-kilometre in real terms (PYIELD)

5. The a, b_1 and b_2 are constant coefficients whose values were obtained by statistical estimation procedures using econometric analysis; b_1 and b_2 are equal to the elasticities of demand with respect to corresponding x_1 (GDP) and x_2 (PYIELD), i.e. elasticities of income and price.

6. Using logarithmics, the above relationship was transformed into the equivalent linear relationship $ln\ y = a + b_1 lnx_1 + b_2 lnx_2$. Annual data covering a period of 34 years were used in the subsequent econometric (least squares regression) analysis, with the following results at the global level.

$$ln\ PKP = 0.89 + 2.13\ ln\ GDP - 0.59\ ln\ PYIELD \qquad R^2 = 0.999$$
$$(31.5) \qquad (7.5) \qquad S.E. = .024$$

R = coefficient of correlation

S.E. = standard error of the estimate

( ) = "t" values of the corresponding coefficient estimates

— END —

ICAO PUBLICATIONS
IN THE AIR TRANSPORT FIELD

The following summary gives the status and also describes in general terms the contents of the various series of publications in the air transport field issued by the International Civil Aviation Organization:

International Standards and Recommended Practices on Facilitation *(designated as Annex 9 to the Convention)* which are adopted by the Council in accordance with Articles 37, 54 and 90 of the Convention on International Civil Aviation. The uniform observance of the specifications contained in the International Standards on Facilitation is recognized as practicable and as necessary to facilitate and improve some aspect of international air navigation, while the observance of any specification contained in the Recommended Practices is recognized as generally practicable and as highly desirable to facilitate and improve some aspect of international air navigation. Any differences between the national regulations and practices of a State and those established by an International Standard must be notified to the Council in accordance with Article 38 of the Convention. The Council has also invited Contracting States to notify differences from the provisions of the Recommended Practices;

Council Statements on policy relating to air transport questions, such as charges for airports and air navigation services, taxation and aims in the field of facilitation;

Digests of Statistics which are issued on a regular basis, presenting the statistical information received from Contracting States on their civil aviation activities;

Circulars providing specialized information of interest to Contracting States. They include regional studies on the development of international air passenger, freight and mail traffic and specialized studies of a world-wide nature;

Manuals providing information or guidance to Contracting States on such questions as airport and air navigation facility tariffs, air traffic forecasting techniques and air transport statistics.

Also of interest to Contracting States are reports of meetings in the air transport field, such as sessions of the Facilitation Division and the Statistics Division and conferences on the economics of airports and air navigation facilities. Supplements to these reports are issued, indicating the action taken by the Council on the meeting recommendations, many of which are addressed to Contracting States.

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