INTERNATIONAL AIR TRANSPORT:

The Challenges Ahead

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ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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Foreword

As the internationalisation of production and marketing activities advances further in a growing number of industries and tourism continues to expand, international air transport is playing an increasingly important role in the world economy. There is considerable concern, however, about the ability of the airline industry to provide efficient air transport services in the future and to meet the expanding needs of actual and potential users.

It was in this context that the OECD organised, in June 1992, a Forum for the Future conference on international air transport in order to provide an opportunity for key players both inside and outside the industry to consider some of these issues, and to reflect on the industry's performance and longer-term outlook. During the discussions, particular attention was paid not only to the scope for the liberalisation of the existing regime governing international air transport, but also to the major challenges the industry will face in the years ahead. The ultimate objective of the meeting was to formulate an agenda for action, including the identification of issues that need to be investigated further at the OECD or elsewhere.

The conference, which was attended by a group of thirty high-ranking government officials and top executives from airlines, airports and trade associations, was chaired by the Secretary-General of the OECD. It consisted of four sessions. The first considered the performance of the airline industry today and its prospects for the future, taking into account the main driving forces and constraints likely to affect the industry. The second session focused on the bilateral regime and its ability to evolve so as to meet future challenges. The third considered the scope and limits of multilateral approaches, and assessed the relative merits and implications of various options for the transition from the current regime towards one with a stronger multilateral dimension. In the fourth session an attempt was made to draw lessons from the discussions held in the previous sessions for the formulation of priorities for action and for the way such actions could be implemented.

This publication brings together the papers presented at the meeting, as well as an introductory contribution by the Secretariat. The book is made available to the public under the responsibility of the Secretary-General.

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New Policy Approaches to International Air Transport: Main Issues and Summary of the Discussion

by

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1. Introduction

The strategic importance of efficient air transport services for national competitiveness – and the economy as a whole – has grown significantly over the years. More than a billion passengers go by air every year, as do over 20 million tonnes of freight. Air transport plays a central role in major industries and contributes significantly to regional development. It will occupy an even more important place in the future as tourism continues to grow, world production moves to higher-value-added output, and economic activities become increasingly integrated worldwide.

However, troubled times lie ahead for the international air transport industry. To begin with, it faces major difficulties in its more immediate operational environment in the 1990s. Serious problems are posed by the growing congestion of airport facilities and airspace. Traffic is often heavily concentrated on a limited number of gateway airports, while secondary airports are underutilised. Alleviating congestion in the air calls for substantial investments and close international co-operation, particularly in Europe. Moreover, infrastructure bottlenecks are increasingly exacerbated by environmental constraints.

Problems have also arisen within the industry itself. The competitive climate has become harsher. Recent losses have been severe and widespread, forcing carriers to undertake major restructuring and to seek international strategic alliances. Moreover, doubts hang over the industry's ability to finance the 5 000 or so new aircraft required over the next decade to replace obsolete fleets and meet new air travel demand.

Despite a number of important steps taken in the last few years towards liberalisation of the industry, international competition is still distorted so that carriers are unable to fully exploit potential network economies. These distortions result notably from the restrictions under bilateral agreements on certain traffic rights and national rules limiting the foreign ownership of airlines; but they also stem from differences among countries in the scope of private and public ownership, as well as in taxes, depreciation rules, subsidies and bankruptcy laws.

However, further liberalisation of international air transport appears likely as it gradually loses its status as an industry requiring special treatment and governments disengage themselves from direct involvement in the provision of air services. More weight will be given to broad economic considerations, including the interests of users, in the formulation of public policies. Questions arise, however, with regard to the route to be adopted for pursuing this liberalisation effort.

This paper is intended to provide an overview of some of the issues which will be confronting both the industry and governments in the years ahead, and to identify areas meriting further analysis. It draws on the contributions presented at the meeting and on the ensuing discussion.

2. Historical perspective and current status of the industry

Over the last few decades, international air transport has played a key role in the development of the world economy, stimulating exchanges between countries and facilitating international economic relations. It has allowed a number of industries to expand their geographical markets and to introduce innovative just-in-time distribution techniques. The globalisation of production and sales structures has contributed to an improved use of resources worldwide. Moreover, the expansion of tourism, apart from widening cultural opportunities for millions of people, has also lead to greater economic prosperity in many previously underdeveloped regions.

Today, the supply of international air transport is provided by some 300 airlines which directly employ more than 3 million people and serve 14 000 airports with a total fleet of about 15 000 aircraft. In 1990, the total number of passengers (on both scheduled and charter flights) amounted to more than 1.25 billion, while the 22 million tonnes of freight transported by air accounted for almost a quarter of the value of the world's manufactured exports.

The industry's current situation in fact reflects decades of rapid expansion. Since the advent of commercial jet transportation, the world air travel market has grown significantly faster than the world economy, although it has gradually matured over the last three decades. Following particularly rapid growth in the 60s and early 70s (14.4 per cent per annum on average), world air travel grew significantly more slowly after the first oil crisis, but reached nevertheless an average growth rate of 6-7 per cent per annum in the 80s.

The increase in total air traffic (domestic and international) is mirrored in the overall growth performance of its two main components: passenger traffic and freight traffic. Over the last decade, these increased on average by 5.7 and 7.3 per cent per annum, respectively. The most dynamic element in this development was the international component, which recorded annual average growth rates roughly 1 to 1.5 percentage points higher than those for overall traffic.

While US carriers have the biggest share of overall traffic – mainly because the US domestic market is by far the largest single air market – European airlines still retain the lion's share of both international passenger and freight traffic. This is partly due, of course, to the relatively large number of countries on the European continent and the restrictions which the existing international regulatory

regime imposes on the operations of carriers outside their national borders. However, European carriers have been losing ground over the last decade to US carriers with regard to international passenger traffic, and to Asia-Pacific carriers in respect of both international passenger and freight traffic.

Despite years of unbroken traffic growth, the industry has not produced healthy profit margins. Over the 80s, operating results amounted to only 2.7 per cent of aggregate operating revenues, while aggregate net results (which also take into account non-operating items and income tax) were even less impressive, at only 0.9 per cent of operating revenues. The main reason is that yields (measured in revenue per passenger-kilometre and per tonne-kilometre received by airlines) have not been high enough to cover costs. During the 1960-90 period, yields declined by 2.2 per cent per annum for passengers and by 3.4 per cent per annum for freight. During the same period, unit costs (operating cost per available kilometre) declined in real terms at an average rate of only 1.9 per cent per annum.

The evolution of the industry over the past few decades has been greatly influenced by the failure of participating states to reach agreement on a multilateral international air transport charter at the 1944 Chicago Convention. The bilateral regime which emerged in the aftermath has resulted in the establishment of a system of compartmentalised sub-markets involving national flag-carriers. In this regulatory environment, competition has been stifled not only by restricting entry in each bilateral market to a limited number of designated carriers, but also by constraining pricing freedom through the frequent imposition of market- and revenue-sharing arrangements. While the regime has been very stable, the resulting market fragmentation has acted as an increasingly binding constraint on the ability of airlines to take full advantage of network economies.

However, some degree of flexibility has been introduced into the regulatory regime over the last fifteen years or so. On the passenger front, charters have taken advantage of loopholes in the regulation to offer cheap leisure travel fares, notably in Europe. Moreover, cargo pricing in major markets has been substantially deregulated, reflecting the availability of ample bellyhold cargo capacity, the scope for routing competition, and the small number and sophistication of international air cargo shippers. In addition, several bilateral agreements have been liberalised and a number of regional plurilateral agreements have been signed in recent years.

The move taken by many governments towards less economic control of airlines and greater reliance on market forces has resulted in the privatisation of government-owned airlines and the emergence of new airlines. At the same time, the traditional distinction between domestic and international carriers has become increasingly blurred as a growing number of the former have begun international service and some international airlines have started domestic operations. Liberalisation of international air traffic has also been reflected in changes in ownership structure, as a growing number of carriers have acquired equity participation in foreign airlines.

Liberalisation has also brought about significant changes in the operation of carriers. Particularly interesting in this regard is the development of hub-and-spoke networks. This allows carriers to combine passengers for various destina-

tions on flights bound for the hub, and to combine passengers from various points of origin on flights outbound from the hub. By adopting this network configuration, US carriers have been able to compete more effectively by offering more frequent flights to more destinations, using larger and more economical aircraft. Hubbing also allows for a more cost-effective use of ground facilities.

Hubbing has also proved attractive to carriers on the revenue side. First, it offers greater scope for price discrimination, permitting airlines to capture a greater share of the consumer surplus. Secondly, hub dominance combined with the sophisticated use of computerised reservation systems (CRS) and various marketing schemes such as frequent flyer programmes (FFPs) provides a way for established carriers to erect barriers to entry, enabling them effectively to fend off potential new entrants. The net result has been the emergence in the liberalised US market of a relatively stable industry structure characterised by the dominance of a few mega-carriers.

3. Demand prospects

Most experts agree that over the next two decades world air travel demand should increase by 5 to 6 per cent per year on average, although its geographical spread will be very uneven. Growth forecasts are relatively high (8-9 per cent per annum) for traffic within Asia and on routes linking Asia with North America and Europe, and fairly low (around 4 per cent per annum) in the more mature North American, transatlantic and European markets. However, despite the apparent consensus of experts, such estimates should be considered with caution since they are largely based on the extrapolation of past trends. In fact, many factors can be expected to have a bearing on future demand.

While at the aggregate level future increases in air travel demand are highly dependent on growth prospects for the world economy, its major components (business, leisure and cargo) respond to somewhat different causal factors. For instance, growth in the demand for business-related air travel will be particularly sensitive to the growth of those activities which rely most on face-to-face personal contact (i.e. managerial, administrative, professional, technical and sales occupations). Growth in leisure and personal business travel will depend by and large on increases in per capita incomes and increases in leisure time. The demand for air cargo meanwhile will depend largely on the growth in international exchanges. For instance, the International Civil Aviation Organization (ICAO) estimates that a 1 per cent increase in real world exports should cause a 1.5 per cent increase in the demand for air cargo expressed in freight tonne-kilometre (FTK).

Given the high sensitivity of air travel demand to the level of economic activity, relatively small differences in overall economic growth could have considerable impact not only on the level and composition of demand, but also on its price sensitivity. Slower growth resulting in stagnating disposable income would adversely affect the demand for leisure travel primarily, while business travellers faced with tighter budgets would try to take advantage of the cheaper fares generally offered to the leisure traveller. By contrast, if the world economy grows faster than expected, the greatest effect should be on leisure travel, while both leisure and business travel would become less price-sensitive.

Another factor which may have an important impact on the future demand for air transport in some markets is their relative degree of saturation. On the basis of per capita travel measured in RPMs (revenue per passenger miles), North America appears to be the most mature market, with 1 740 RPMs per capita in 1990 compared to 475 in Europe and only 75 in the Asia-Pacific region. Consequently, the US market may be closer to saturation. By contrast, the Asia-Pacific market still appears to have a potential for rapid growth.

However, what actually constitutes saturation may change over time in response to economic, social and demographic developments, resulting in an increase in the absorptive capacity of particular markets and a postponement of the saturation process, even in the most advanced industrialised countries. For instance, the growing proportion of relatively well-to-do and healthy retired workers in these countries should contribute to the increased demand for leisure-related air travel. Moreover, a decline in the average family size should foster the demand for air travel since intercity trips made by smaller travelling parties are more likely to be made by air than by alternative modes of transportation. Finally, growing economic integration in North America and Europe should have a positive effect on regional air travel.

Trend forecasts implicitly assume that the liberalisation of international air transport will continue in the future at the same rate as in the past. However, the process could in fact accelerate in the future, causing sizeable reductions in fares (notably for leisure travellers) and increases in the frequency of flights in some markets (particularly in Europe). As suggested by the US experience, the traffic response to rapid liberalisation could be quite strong, assuming that congestion problems both in the air and on the ground could be overcome without significant increases in costs.

Increased inter-modal competition resulting from improved highways and – more importantly – from the continuing development of high-speed trains (not only in Europe and Japan, but also in the United States) could also have a bearing on the future demand for air transport. Diversion of traffic from congested facilities may occur when the total air trip time (from actual origin to actual destination) is equal to total travel time by train or by road. For instance, on distances up to 400 kilometres, high-speed trains offer as high or higher door-to-door speed than air transport. The impact of the Channel Tunnel on the Paris-London route – one of the busiest air routes in the world – could be particularly significant in this regard. Even in the United States, where air travel is the most developed, high-speed trains could take 40 million travellers out of the skies and off the highways annually. In addition to the "Texas Triangle" TGV line currently under development between Houston, Dallas and San Antonio, prospects for high-speed trains appear particularly good for the San Francisco-Los Angeles route and the north-east corridor from Boston to Washington.

Apart from the high energy efficiency of trains, a major advantage of rail over air travel – and one which is likely to achieve even greater prominence in the future – is the fact that rail terminals can handle a much larger number of passengers over a smaller space than airports, while at the same time generating much less noise pollution. For instance, the Gare Saint-Lazare in Paris handles 150 million passengers per year on a fraction of the space used by the busiest airport in the world, O'Hare in Chicago, with "only" 60 million passengers a year. This is

leading a number of experts, including those in air transport, to advocate the building of high-speed rail links for short distances instead of new airports. The diversion of traffic from air to land transport may in fact benefit airlines by allowing jet operation to be reduced on some loss-generating short-haul feeder routes and to concentrate instead on longer, more profitable routes.

4. The operational environment

Over and above the uncertainty of demand prospects, the industry faces major difficulties in its more immediate economic and operational environment. First, there is growing congestion on the ground: the existing capacity of many airports is overstretched and airport access facilities are frequently inadequate. Secondly, there is increasing congestion in the air: existing air traffic control systems are reaching their operational limits. Thirdly, growing concerns about the environmental impact of air transport (notably noise pollution around airports, excessive use of valuable land and aircraft engine emissions) are fuelling opposition to the expansion of existing facilities and the development of new ones. The situation is likely to get worse over the next two decades, since 50 to 60 per cent of the growth in world air traffic will need to be accommodated through an increased number of flights.

The problem is particularly serious with regard to airport facilities, since few airports were built during the past decade or are under construction in the most congested areas. Moreover, the limits to terminal and runway extension are being reached at some major airports. In the United States, the Federal Aviation Administration (FAA) estimates that delays at airports currently represent the effective use of 500 planes for a full year. Today, 21 airports experience capacity constraints, notably New York (JFK), Boston, Atlanta, Chicago, Denver, San Francisco and Los Angeles. By 1997 the situation could get worse, with 33 airports experiencing serious flight delays. Taking a longer time perspective, it is estimated that by 2010 US domestic traffic will increase by 240 per cent, while the flight capacity of the top 50 airports will increase by only 20 per cent.

In Europe, prospects are even worse. Of the three major airports (London, Frankfurt and Paris), only Paris has excess capacity. No solution is seen for Frankfurt's capacity shortfall. In London, passenger growth will exceed terminal capacity by the mid-1990s and aircraft movement growth will exceed runway capacity by 2004. By 2010, 13 of the 27 airports that represent the major traffic centres of Europe will have run into capacity constraints, even with potential enhancement. In Asia, airport congestion could also be critical in five cities. Tokyo's Narita airport is operating near full capacity and its extension is likely to face severe political opposition, particularly on environmental grounds. Osaka operates at its limit during peak hours, and the new airport is not scheduled to open before 1994. Hong Kong's new airport, to be inaugurated in 1997, faces serious funding problems. Sydney and Bangkok also need new facilities, especially increased aircraft parking capacity.

The land-intensive character of airports is a serious barrier to the provision of extra runway capacity and, to a lesser extent, terminal capacity. In addition to efforts designed to extend the capacity of airport facilities, measures to assure a

more efficient use of existing capacity could also contribute to alleviating congestion. These could include in particular a pricing structure which encourages the use of larger planes and a more even slotting of flights during the day. In air terminals, the progressive introduction of machine-readable travel documents and the general streamlining of procedures should contribute to improve throughput.

Bilateral restrictions may also have contributed to the congestion problem by concentrating traffic in a limited number of gateway airports (e.g. Heathrow) while secondary airports (e.g. Manchester) are under-utilised. However, liberalisation is likely to result in a significant increase in traffic, which is bound to tax all airports as carriers seek to compete not only on price but on flight frequency and as the use of hub-and-spoke networks becomes more widespread.

Attention also needs to be devoted to improving airport access and to reducing travel time to and from airports. Access-egress time amounts to 60 per cent of the total door-to-door trip time on short flights (e.g. London-Paris), and may still represent as much as one-third of total travel time on distances of 1 000 kilometres (e.g. London-Copenhagen). To the extent that road access to airports is becoming increasingly congested, higher priority will need to be accorded the development of rail links from city centres to airports. Also, improved intercity rail connections to airports can make a major contribution to shortening travel time and alleviating airport and airspace congestion.

Air traffic increase will require costly expansion of airport capacity and access facilities, as well as major improvements in air control operations. For instance, the ICAO estimates that $250-350 billion will have to be spent on airports and *en route* facilities over the next twenty years. Europe, North America and the Asia-Pacific region are expected to account for between 75 and 80 per cent of these requirements. It is to be noted, however, that these estimates may be conservative to the extent that they do not take into account either a more dynamic growth of air transport demand – due for instance to faster liberalisation of international air transport regulation – or possible future action aimed at reducing or eliminating adverse environmental consequences of air transport.

The financing of facility expansion represents a major challenge to governments and the industry alike. While part of this financing may come from the public purse, it is likely that the larger share will have to be financed by carriers and the travelling public through higher airport taxes and user fees. Financial pressures could accelerate the trend towards the creation of autonomous authorities for the management of airports. Effectively managed authorities (whether privatised or not) with their own accounts and budget would provide for greater financial transparency. This, together with the closer control they exercise on costs and revenues, should inspire greater confidence in prospective lenders and facilitate financing.

Congestion problems will also arise in the air. Many air traffic control systems are ageing and large investment expenditures are needed to bring new technology into the system. Alleviating air congestion is particularly challenging in Europe, where sovereignty concerns have been a major obstacle to the development of efficient Europe-wide air traffic control. Currently, 42 control centres and 22 different control systems operate independently. The problem is further compli-

cated by the desire of newly independent countries in central and eastern Europe to create their own national air traffic control (ATC) systems.

However, there has been progress recently. Most EC member countries now recognise the need to move toward a single European control architecture. This should accelerate progress towards a harmonization of procedures and equipment, and a rerouting and resectorisation of airspace designed to minimise crossing traffic. Such co-operative efforts could eventually lead to the operation of a single agency responsible for air traffic control in Europe. In the United States, the FAA hopes to improve ATC and reduce costs thanks to the implementation of a $25 billion automation plan which, within ten to fifteen years, will allow air controllers to handle simultaneously up to 50 aircraft, compared to only 20 in 1990. In addition, a shift to larger aircraft and a displacement of general aviation (GA) and military flights are considered imperative to accommodate future increases in commercial demand.

Technological developments which will contribute to alleviate congestion in the air include the use of a network of navigation and communications satellites to replace existing line-of-sight systems and provide more accurate navigation, more comprehensive surveillance and greatly improved communications. Aircraft will have to rely more on satellite and inboard facilities (e.g. GPS) than on ground control. Other technical procedures such as revisions to separation criteria can improve the flow of air traffic and reduce congestion delays. The development of sophisticated expert systems to compute cruise and descent profile could also greatly contribute to the improvement of airport throughput capacity.

The problems of infrastructure bottlenecks will be compounded by environmental constraints, notably with regard to engine noise and gas emissions. Concerns about noise will create growing pressures for the imposition and strict enforcement of flight curfews. It will also fuel community opposition to airport development. The gradual introduction of quieter aircraft, as states phase in operating restrictions on older, noisier aircraft between 1995 and 2002, should contribute to reduce noise levels. However, this will be offset by the growing number of aircraft movements required to meet increased traffic demand. On balance, the overall noise level could decline in general terms over the next decade but may eventually rise again afterwards.

Aircraft engine emissions are now becoming of greater concern than in the past as a result of new information that they may contribute to the greenhouse effect and the depletion of the ozone layer. In particular, the emission of nitrogen oxides (NOx) could cause ozone depletion in the upper atmosphere, and has been linked to acid rain and smog in the lower atmosphere. While aviation accounts for only a minute fraction of NOx emissions (less than 1 per cent in Europe), environmental concerns arise from the fact that it is the only human cause of pollution in the upper atmosphere.

5. The financial viability of the industry

Concerns have been raised about the future financial viability of the industry: notwithstanding the expected increase in demand for air travel services and the

considerable opportunities for cost-saving in a number of areas, significant increases in capital costs are anticipated from substantial aircraft acquisitions over the next two decades, which could easily offset any improvements in carriers' revenue situation.

On the cost side, progress will continue to be made on many fronts. First, significant technology-related efficiency gains from improvements in the area of aerodynamics, airframe structure, engines and electronics are expected. As a result, the global world fleet should be 40 per cent more fuel-efficient in 2009 than in 1989. This would contribute to reducing not only fuel costs but also the vulnerability of airlines to large variations in the price of fuel. Moreover, improvement in load factors and aeroplane utilisation, and an increase in the average size of planes, should also boost efficiency. This should enable airlines to operate with 37 per cent fewer aeroplanes in 2005 than if they had maintained 1990 load factors, utilisation and aircraft size.

Cost-savings will also be achieved in other areas. This includes maintenance costs, as newer aircraft will require less attention than older ones. Cuts in labour costs will result from the more widespread use of information technology, notably in such areas as customer services, operational controls and yield management. Crew costs should also decline as the use of two-person cockpit crews becomes more frequent in the 90s.

While substantial, these gains are expected to be less important than in the past and could very well be offset by cost increases in other areas. In particular, most experts foresee significant increases in capital costs if carriers actually proceed with the substantial aircraft acquisitions expected over the next two decades. For instance, taking into account both the retirement of older aircraft and the capacity expansion required to meet air travel demand growth, Boeing estimates that nearly 12 000 planes will need to be delivered over the next two decades, at a total cost of $857 billion (1992 dollars). Similar figures have been advanced by the ICAO ($800 billion), which estimates that 11 000 commercial jet aircraft will be delivered to airlines and leasing companies over the 1991-2010 period. Some 40 per cent of the aircraft will be for operation by North American carriers, 25 per cent for European carriers and another 25 per cent for Asia-Pacific airlines. The ICAO further anticipates that 70 per cent of the acquisition will be to meet traffic growth and 30 per cent for replacement purposes.

Such an unprecedented financial effort is bound to raise capital costs and could have a detrimental effect on the financial position of some carriers. For example, the investment-related costs of US carriers (i.e. depreciation and amortization, leases, insurance) could grow by well over 4 per cent per annum in the 90s and beyond. In order to be able to absorb this increased cost while maintaining their debt/equity ratio at its current level (about 1.5), US carriers would need to achieve an operating margin profit (OMP) of 6 per cent after 1994. With a 4 per cent OMP – a high figure by historical standards – the debt/equity ratio could double to a record level of 3, which may not be financially sustainable.

In addition, the leasing company GPA has some doubts about the ability of carriers to finance the projected acquisitions of aircraft. It estimates that of the $380 billion investment requirement over the 1992-2000 period, carriers will be able to finance only $150 billion out of cash flow and new equity. Hence $230 bil-

lion will have to be found from outside. While about $25 billion could be financed out of new debt and $90 billion by leasing companies, the $115 billion balance will need to be covered by other forms of financing yet to be determined.

This has led some observers to consider the acquisition forecast above to be overly optimistic. Not only do carriers have insufficient financial capacity to acquire new aircraft on such a scale, they argue, but they will have strong incentives to slow the pace of capacity expansion in order to maintain load factors above the break-even point. Moreover, it appears most likely that a number of financially vulnerable carriers will be forced to leave the industry. The resulting slow-down in capacity expansion should translate not only into higher load factors but also into lower future debt levels, contributing to an improved overall financial situation for surviving carriers.

Assuming that demand continues to expand as expected, slower capacity growth should also have a favourable effect on yields, and hence on the overall revenue position of surviving carriers. Over the next decade, such yields may indeed remain constant in real terms or even increase slightly. This is in contrast with the experience of the last twenty years, when yields actually declined by 2-2.5 per cent per annum on the average. Moreover, the disappearance of their weaker competitors should provide surviving carriers with more room to restructure their operations, expand their activities and seek the network economies required to operate effectively in a more competitive environment. As this restructuration process evolves further, mega-carrier development through merger, co-operation and consolidation could enable airlines better to control their fares, and hence their overall profitability.

Thus, on balance, whether the industry as a whole will be in a better financial position ten years from now than it is today remains an open question. It will very much depend on the way the constraints facing the industry are dealt with, how the regulatory regime evolves, how quickly carriers adjust to this new environment and what structural characteristics eventually emerge for the industry. While some carriers which have already adjusted to a more competitive environment may be able to reap handsome profits over the period, others are unlikely to show good returns, given their poor financial situation today and the painful adjustment they will have to undergo, while still others will have to leave the industry altogether.

It is likely that the larger American carriers that have survived the US deregulation process and benefit from a large domestic market, as well as some of the most efficient Asian carriers, will be in a good position to expand their share of international air traffic. On the other hand, European carriers, who currently hold the largest share of the international air travel market, could face substantial market share losses and will have to undergo painful restructuring. Once the adjustment process is completed, the financial situation of surviving carriers should be reasonably healthy.

6. Industry structure and regulation

While the progressive liberalisation of international air transport has already brought some changes in the structure of the industry, questions remain as to its

future evolution if liberalisation were to proceed further. In this regard, it appears likely that the hub-and-spoke network configuration adopted by US carriers in the aftermath of deregulation in the US market could be increasingly extended at the international level.

While hubbing may not become widespread in markets where distances are relatively short (e.g. Europe), it appears particularly well suited for intercontinental travel (the fastest-growing segment of the international market), since it is on longer distances – where the time cost of a stopover at the hub is relatively small compared to the total travel time – that hubbing is most effective. However, the creation of hub-and-spoke networks at the international level will require significant restructuring of the international air transport industry, notably through expansion, consolidation, mergers, corporate alliances and code-sharing agreements, which in turn will lead eventually to the emergence of a relatively small number of dominant global carriers. This is likely to require the creation of transnational corporations, and to accelerate the privatisation of a growing number of carriers. It could also raise serious competition policy issues at the international level if international air transport markets indeed prove to be imperfectly contestable.

However, this evolution is likely to take some time, as several factors continue to distort competition and to prevent carriers from fully exploiting potential network economies. These include notably bilateral restrictions on 5th freedom rights, on cabotage and multinational ownership of airlines. Distortions also result from ownership differences across countries (private versus public), national differences in taxes, charges and depreciation rules, different approaches to bankruptcy laws (e.g. Chapter 11 in the United States) and the subsidisation of some carriers (e.g. in Europe). Moreover, different degrees of liberalisaton in domestic markets result in significant imbalances between carriers at the international level, as illustrated by the relative competitive position of European *vis-à-vis* US carriers.

Further liberalisation appears to be likely nevertheless, as international air transport gradually loses its distinct status. In the past, the special regulatory treatment of the industry was largely predicated on the desire of governments to maintain national flag-carriers to meet prestige, military and security-of-supply objectives and to have a protected source of invisible earnings. As the strategic importance of efficient international air services for overall national competitiveness becomes increasingly recognised, and as governments disengage themselves from direct involvement in the provision of air services, broad economic considerations – including the interests of users – favouring liberalisation are given increasing weight in the fomulation of public policies. This evolution is illustrated by the growing interest given to air transport by government agencies other than those having direct responsibility for air transport. Particularly noteworthy in this regard is the growing scrutiny of carriers by competition authorities and the discussions on air transport services conducted in the context of the General Agreement on Trade in Services (GATS).

Further liberalisation need not necessarily involve a total overhaul of the regulatory framework but could perhaps be pursued, in the early stages at least, within the context of the existing regime. Indeed, bilaterals have a number of advantages for liberalisation. First, they represent a universally accepted method

of negotiating air service agreements. Secondly, by restricting the benefits to specific partners, bilaterals permit negotiators to experiment with liberalisation on a limited basis, hence reducing the risks involved. Moreover, the bilateral route enables a country to develop a package of economic rights tailored to overcome the specific barriers to trade that impede its airlines' access to the foreign markets under consideration.

However, the regime also has a number of disadvantages. First, it limits the options open to negotiators, since the benefits and costs of liberalisation cannot be balanced over a range of markets and sectors. Moreover, since carrier designation plays a key role in the agreement, it is not clear how the system can cope with multinational ownership of airlines at the world level, although some progress has been made in this regard at the regional level. Another obstacle to liberalisation is the sheer number of bilaterals which would need to be amended in a co-ordinated manner, and the time and effort involved in the negotiation of each one.

On this latter score, the multilateral/plurilateral route to liberalisation may appear to represent a more attractive option. While a "big bang" approach involving a multilateral negotiation as ambitious as the Chicago Conference or the GATS is seen by many as unrealistic, it is nevertheless conceivable that progress towards multilateralism could be made on the basis of a more gradual approach. This could be achieved notably through the negotiation of plurilateral agreements either open to like-minded countries or restricted to a particular set of geographically contiguous states. However, problems could arise with regard to relations between those countries within and those outside the agreements. For example, countries within the agreements may be at odds with one another on the conditions under which other states can join the agreement, and may not accept to delegate their negotiation authority to the plurilateral entity (e.g. to the European Commission for the EC).

In practice, a combination of both the bilateral and multilateral approaches is likely. For instance, it is possible to envisage a scenario in which the pursuit of regional negotiations is successful both in North America and Europe, and leads eventually to a liberal North America/Europe arrangement governing air transport both between and within the two regions. The gradual disengagement of governments from the provision of air transport services in other parts of the world could facilitate the internationalisation of carriers and lead governments to consider negotiation of air service agreements in a broader economic context. This might encourage phased multilateralism in which the North America/Europe agreement could become the nucleus to which other countries gradually adhere. For this purpose, the North America/Europe agreement would need to be an open agreement so as to allow others to join. This may call for the definition of standard multilateral terms to be inserted in bilaterals. Whatever approach is adopted, special arrangements would need to be made to reflect the particular situation of LDCs.

7. Concluding remarks

The air transport industry is going through a period of severe upheaval. Many airline companies are facing serious financial difficulties; deregulation has intensi-

fied competition; privatisation and the forging of international alliances between carriers are generating important changes in ownership structures; and expansion of the supply of air services is hampered by congestion on the ground and in the air. Given the complex interaction of the airline industry with so many other economic activities, and its strategic importance for international competitiveness, policy-makers need to understand better the wider economic implications of the changes sweeping the industry and to focus attention on the problems confronting it, so that policy responses provide a constructive basis from which the industry can tackle the difficult issues of the coming years.

At the national level, it is the industry itself and its operational environment that require more immediate attention. In dealing with the difficult financial situation of many national carriers, governments must reconsider how best to provide an economic and regulatory environment that is conducive to a restructuring of the industry – which may involve consolidation, privatisation, the forging of corporate links with foreign carriers and the acceptance of larger shares of foreign capital in carriers' equity. Coping with the congestion on the ground may require first of all a critical examination and perhaps a modification of regulatory arrangements, so as to promote more effective use of existing facilities. If expansion of airport capacity nonetheless appears inevitable, decisions are required *inter alia* with regard to the financing of this expansion – notably the institutional and legal status to be given to airports, the role to be played by public and private financial sources, and whether carriers themselves should participate in the development of new facilities. These reflections need to be set within a broader transportation policy framework which also takes into account complementarity and substitutability between air transport and other modes of travel such as high-speed trains, as well as the constraints imposed by environmental concerns.

The nature of air transport requires that the formulation of domestic measures take into account their international implications, and that they be complemented by new policy approaches at the international level. This includes harmonization of equipment and procedures with regard to the management of airspace and the further development of the international rules of the game in which the industry operates. As any "big bang" solution to further liberalisation appears illusory, progress towards a more competitive international regulatory framework may be sought in practice through a combination of bilateral and multilateral agreements, probably with a strong element of bilateralism at the initial stage. However, multilateral elements would need to become more prominent as the process evolves. In any case, it will be necessary to deal with such problems as restrictions on 5th freedom rights, ownership and cabotage.

Given the overall economic importance of the air transport industry, its poor financial situation, the wide range of the problems it faces and the far-reaching implications which alternative policy approaches may have – not only for the air transport industry itself but also for the rest of the economy – participants at this OECD Forum for the Future conference have called for a broad policy-oriented analysis of the industry. In their view, such an analysis could help to provide policy-makers with a sound economic foundation for addressing the challenges that lie ahead.

Airline Industry Performance: Past, Present and Future

by

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1. Historical perspective

Air transport is a difficult business. Its development is determined to an important extent by world economic growth; in turn, developing a safer and more efficient air transport system promotes economic growth. That is why the sector has been treated by national governments as a strategic issue, only slightly behind defence in importance. Its structure, and the international agreements under which it operates, still reflect that fact today. The current trend towards business globalisation is leading to a new, more liberal approach. It may be the last step before air transport becomes just one industry among others governed by the rules of the market.

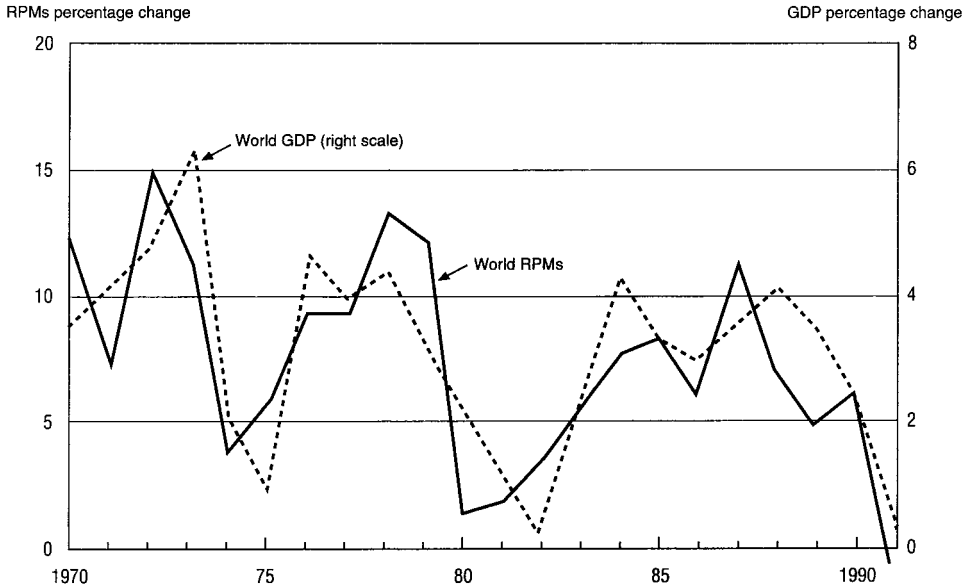
Despite – or in some cases, because of – strict government control of the air transport industry, the sector's development has been a success story since the Second World War. Very few industries, if any, have enjoyed such growth for such a long period. The first-ever decline in world air traffic did not happen until 1991. Every year prior to that decline, air traffic grew at a faster rate than world GDP, while closely following the same cycles (Figure 1).

Today, over 1.25 billion passengers per year rely on the world's airlines for business or leisure travel. Almost a quarter of the value of the world's manufactured exports are transported by air. It is estimated that the industry generates $700 billion in annual gross output and provides jobs for 21 million people.

Driving forces

Air transport development has been driven by a combination of external and internal forces. Business activity and the amount of disposable income that is allocated to vacation or cultural travel are examples of external drivers, a category which also includes "dispersion of the working population": companies expanding into international markets send out staff to run overseas operations, and these

Figure 1. **Direct effect of economic activity on travel growth**
World RPMs versus world economic growth



Note: RPM = "revenue per passenger mile".
Source: Boeing, *1992 Current Market Outlook.*

people need to travel home from time to time for business or personal reasons. In addition, locally hired staff may be required to travel to the head office, or to other company locations. Rising business activity generally translates into higher personal incomes and more dispersion of the working population – which means more air travel demand. However, people choose to fly only if safe, reliable and convenient air services are offered at a reasonable price. Accidents, threats of terrorism, delays due to technical problems, weather or congestion, inadequate frequencies and high fares are restraints on air transport demand. Improved technology can boost demand if it leads to safer and more efficient aircraft, to congestion-free air space and airports, and to customer-friendly distribution systems. All these technological benefits can be seen as internal drivers of demand, as are successful marketing strategies and regulations that do not inhibit growth (see Table 1).

Over the years, the two sets of factors have combined in different patterns that have proved more or less favourable to air transport development. The resulting fluctuations around an ongoing positive growth trend are referred to as cycles. However, these so-called cycles have been highly irregular in terms of length and frequency.

Table 1. **Air traffic growth: driving forces**

		Traffic growth					
		Low		Medium		High	
External factors	Low economic growth						High economic growth
	Businesses focus on local/ national markets						Businesses seek international markets
	Low disposable personal income						High disposable personal income
	Collocated family cell						Widely dispersed families
		Low		Medium		High	
Internal factors	Safety/security concerns						No perceived safety/security problems
	Low service reliability (delays)						High service reliability
	High fares						Low real fares
	Thin route networks						High-density route networks
	Unfriendly, inefficient distribution system						User-friendly distribution system
	Ineffective marketing						Effective marketing

Cyclical growth

During the 1950s, air transport grew very rapidly (especially in the United States), boosted by a booming US economy and the reconstruction of Europe after the war.

The 1960s were also good years for the industry, stimulated by the continuing expansion of the US economy and the recovery in Europe. The development of inclusive-tour charters, offering relatively low cost options in European markets, contributed to traffic growth. The progressive replacement of propeller-powered aircraft by faster and more productive jets permitted the airlines to improve their offer in terms of both quality and quantity. The introduction of the first wide-body jets at the end of the decade saw the industry enter the era of mass transportation.

The early 1970s started with a recession. The first oil shock in 1973 slowed down world economic growth to almost zero in 1975, from 6 per cent in 1972. However, recovery was strong and rapid, and passenger traffic grew 38 per cent in three years (1977-79) – an average annual rate of 11.5 per cent. During this period, the mass market demand started to emerge and charter airlines, operating in a less stringent regulatory framework than the traditional scheduled carriers, developed strongly to satisfy this demand for cheap air travel. According to the International Air Transport Association (IATA), the charter airlines had a 35 per cent market share of international traffic (in revenue per passenger mile, or RPM) in 1976. This new market stimulated the imagination of entrepreneurs and airline managements, and led in the late seventies and early eighties to innovative offers such as the Laker Skytrain, standby fares and wide availability of advance-purchase fares.

American analysts tend to consider that 1978 – the year that the US deregulation process began – was a watershed in the industry's history. For them this marks the beginning of the modern era, in which political freedom and trade liberalisation allow the exploitation of new market opportunities around the world. In fact, the regulatory framework is just one of the factors affecting air transport demand and supply, and this view may thus appear too simplistic.

US deregulation occurred on the eve of a world economic recession which was reinforced by the second oil shock. The year 1982 was a zero-growth year for the world economy. In the early 1980s, growth in global demand for air transport slowed down; the United States experienced its first-ever decline in domestic traffic in 1980.

The world economy had recovered by 1985, and traffic grew at a fair rate for most of the eighties. The most important event in that decade was the emergence of fast-growing Asian carriers. Singapore, Korea, Taiwan, Hong Kong, Thailand and Malaysia developed new markets at a very rapid pace. Japan became a major economic power. Attention started to focus on the Asia-Pacific zone as a key source of growth for the years to come. Intra-European traffic also developed, within its very regulated framework and despite the competition of improved surface transportation means such as high-speed trains.

Again the cycle ended in a recession, compounded by a strong if short-lived rise in the price of jet fuel. Contrary to public perception, however, the 1991 traffic

decline did not occur without warning. After averaging 8.5 per cent annual growth in 1984-87, traffic grew by 5.1 per cent annually in 1988-90.

A worrying historical trend

The most recent cycle is more interesting than previous ones because it took place in a period when no great technological leap came along to help the airlines stimulate demand. The air transport industry had to rely on its management and marketing skills, as well as on economic, political and regulatory factors, to continue growing. At best, the industry has achieved only modest success.

The fact is that since 1960, the upswings have been progressively less positive, and the downswings have been getting deeper. From 1960 to the first oil shock, air traffic grew an average 14.4 per cent per year; between the first and second oil shocks, it grew at an average yearly rate of 10.8 per cent; from 1983 to the end of the decade, the annual growth rate was down to 6.7 per cent.

During the 1970s recession, traffic still grew at a 4.1 per cent annual rate. The average yearly growth rate was 2.5 per cent during the 1980-83 recession. In 1991, traffic actually fell by 2.3 per cent.

Airline economic performance

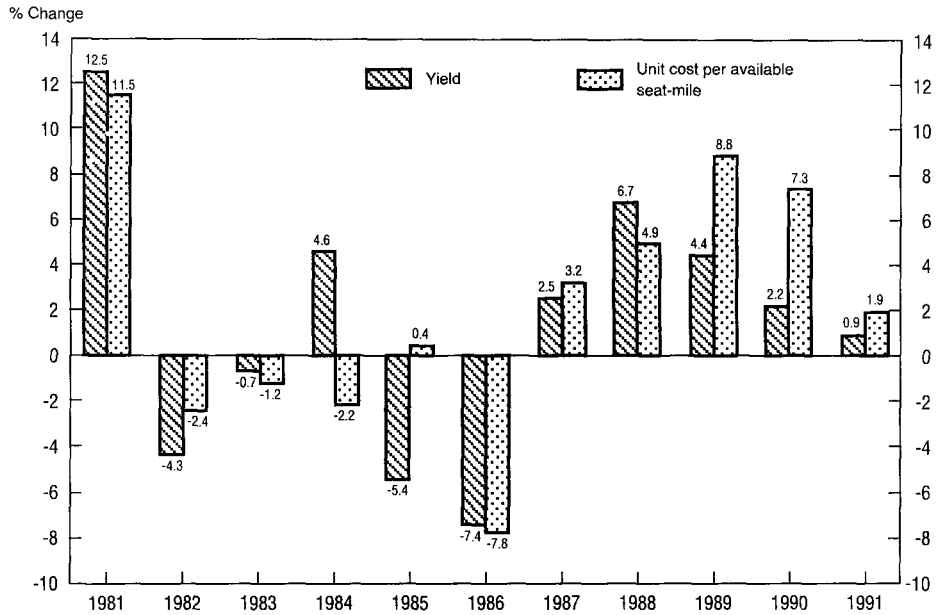
It is possible to argue endlessly about the historical economic performance of the global air transport industry, as it is almost impossible to establish reliable and consistent statistics covering the last four decades. Not only are the existing sources – such as IATA, the International Civil Aviation Organization (ICAO), the Federal Aviation Administration (FAA) and other organisations – incomplete or unreliable, but they do not take into account the many direct and indirect subsidies received by most of the world's airlines at one time or another.

Nevertheless, all indications are that globally the air transport industry has not produced healthy operating margins despite years of unbroken traffic growth. According to a study conducted last year by Boeing, the airline industry achieved a 5 per cent operating margin only once – in 1988 – during the last twenty years, while it experienced losses for five years during the same period. (Of course, some airlines have managed to perform very well and achieve margins well in excess of the industry average.)

There are many reasons for this rather poor profitability. One of the more basic is that the airline industry has not been very good at setting prices that consistently cover costs; in more technical terms, yields have not been high enough compared to unit costs. A recent study by analyst Edmund Greenslet, covering the US airline industry over the last ten years, bears eloquent witness (Figure 2). It shows very clearly the roots of the 1991 crisis. For three years in a row, costs have increased faster than yields, leading to massive losses in 1991.

Historically, reduced real yield has been the airlines' main lever to stimulate traffic growth, since people obviously travel more when it is cheaper to do so (Figure 3). This could be achieved easily without compromising profitability in the days when technological advances were cutting unit costs. With maturing technol-

Figure 2. **US airline industry**
Annual change in yield & unit cost 1981-91



Source: Edmund Greenslet in *The Airline Monitor,* ESG Aviation Services, May 1992, p. 4.

ogy, however, that reduction has become more difficult. Airlines are having to find ways to cut costs and improve productivity without relying on technological breakthroughs.

Airline management behaviour

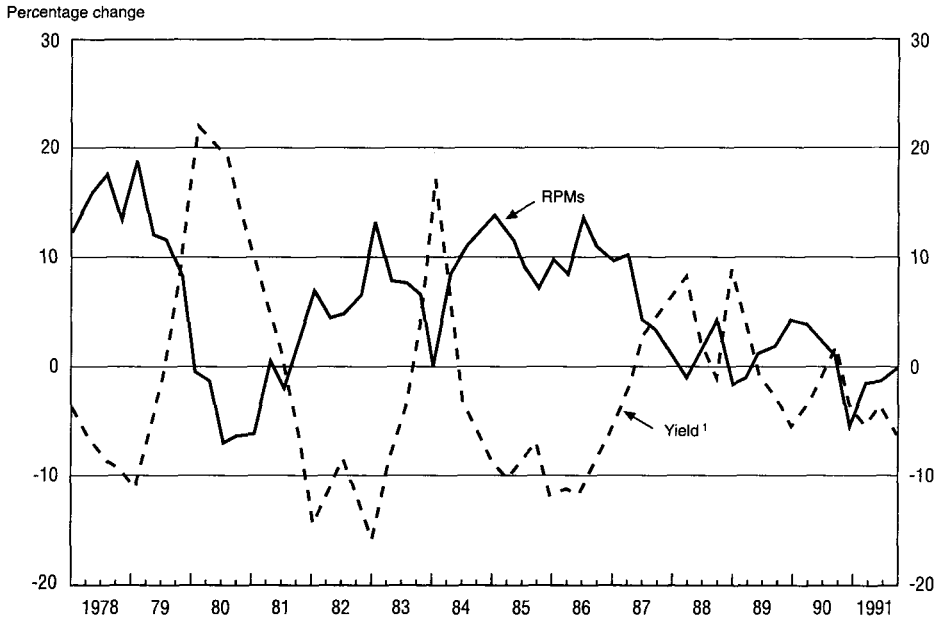
In the past, air transport industry management has been more reactive than proactive. During periods of rapid growth, it assumes that growth will go on for ever and cost controls are relaxed in a relentless pursuit of market share. During difficult times, belts are tightened and industry analysts start wondering if air transport has indeed become a mature industry.

Another recurring feature of airline management behaviour is to blame external factors when things go wrong. A traditional scapegoat has been the price of oil.

When traffic is booming, airlines put market share at the top of their priorities, initiating fare wars which push yields down; in downturns, they are more interested in reducing their costs to protect profitability. These trends are most evident in a deregulated environment.

Figure 3. **Inverse effect of changing costs on travel growth**

US domestic RPMs versus yield
Quarterly growth



1. Constant dollars.
Source: Boeing, *1992 Current Market Outlook.*

When state-owned carriers and regulated markets are the rule, competition does not threaten to drive losers out of the business or force them to merge. In a free-market environment, the strong players can force the weaker ones out of the game and thus improve the winners' market position for longer periods, if not permanently. That is what happened in the United States in recent years, and has led to the emergence of three mega-carriers: American, United and Delta.

An uneven pattern

Before addressing the future, it is worth stressing a fact hidden in the preceding historical summary: the situation varies greatly from place to place around the world. History does not move at the same speed everywhere and does not always follow the same road.

Because governments have different approaches to air transport and treat airlines accordingly, the overall picture does not reflect the diverse regulatory and business environments around the globe. In particular, the countries which once

formed the Communist bloc have been ignored for historical reasons, but future policy-making decisions will need to take them into account. The developing countries' role in world air transport has also been neglected.

Arguments about aviation policy have tended to focus on air transport in the developed capitalist world. Even in these countries, however, the situation is not as clear-cut as statistics and commonly held views indicate. For instance, it is thought that the industry is deregulated in the United States and still heavily regulated in Europe, but this is an oversimplification. The United States never pushed free-market logic to the extent of opening the domestic market to foreign entrants, or airline stock to foreign ownership. At the same time, the Europeans have allowed the growth of a very large, loosely regulated charter sector alongside the regulated scheduled airline sector. Almost two-thirds of all European passenger traffic is accounted for by inclusive-tour packages.

These are facts to remember when looking at scenarios for the future.

2. Air transport growth prospects

The long cycles which characterise the aircraft manufacturing industry have forced the commercial builders to develop sophisticated forecasting methods to anticipate air travel growth and to meet the airlines' equipment needs. Generally, these forecasts have proved reasonably reliable in the past.

Several air transport organisations also produce forecasts, but most of these cover only a given country or group of countries, or else relate to a segment of the market. The US FAA forecasts, for example, take only US airlines into account, while IATA only covers international traffic. These partial forecasts are often used by manufacturers as inputs or to cross-check their own results.

Forecasting methods and results

As experience has clearly confirmed the correlation between world economic growth and air traffic growth, all forecasts are based on econometric models. These mathematical models integrate assumptions about world GDP growth, the evolution of travel market costs (including fuel prices), capital costs, yields, and so forth. The results are generally compared with those obtained through direct enquiries made to a number of airlines.

The quality of the forecasts depends very much on the accuracy of the economic assumptions made, especially as far as world and regional GDPs are concerned. In practice, as all manufacturers' forecasters use the same sources, their assumptions – and, generally, their results – are very much the same.

For the next ten years, world GDP in real terms is expected to grow at about 3.4 per cent per year on average, practically unchanged from the two previous decades. Taking into account a gradual increase in fuel prices and a slight decline in yields, the Boeing forecasters anticipate a 5.2 per cent annual growth in air travel, in terms of RPMs, for the 1990s and the first decade of the next century. Airbus Industrie is slightly on the pessimistic side with 5.1 per cent, while McDonnell Douglas is bullish and predicts annual growth of 6.5 per cent.

The latter estimate stems from a view of Asian and Pacific economic growth that is far more optimistic than the ones held by McDonnell Douglas' rivals. At a time when the corporation is about to complete a vital commercial aircraft collaboration deal with Taiwan and other Asian partners, this optimism can be interpreted in two ways: either the forecast has given birth to the manufacturer's Asian strategy, or its optimism justifies an already decided strategy.

Boeing, which has close relations with a larger number of airlines than its rivals, has come up with relatively reliable results in the past; it therefore seems reasonable to assume 5.2 per cent traffic growth as a baseline for the future, although that growth will not be evenly spread around the world.

If one assumes that a mature market is one which grows at the same pace as GDP, the US market is obviously closer to maturity than any other. US domestic air travel growth for the rest of the century is expected to be between 4.1 and 4.4 per cent per year, while the economy will progress at a rate of 2.5 per cent. Access to international markets is clearly a vital issue for the US airlines.

In other parts of the world, the forecasts are slightly better: 5 per cent in Europe, 6.5 per cent in Latin America, 5-9 per cent in the different Asia-Pacific areas. The bulk of the growth is expected to come from the development of international long-haul markets linking the Western world to the Asia-Pacific zone. On many of these routes, annual growth rates of around 10 per cent are anticipated; today, however, they are still at a low level compared with traditional markets such as transatlantic, intra-European or domestic US traffic. Growth in the rising markets will not be sufficient to sustain world traffic growth at rates experienced in the 1980s.

The decline in the growth rate should be put into proper perspective, as the relatively small percentages that are forecast apply to a far larger traffic base than in previous decades. Boeing notes that the difference in traffic volume between 1990 and 2000 will be 20 per cent greater than the total world market in 1960. That gives an idea of world air transport needs for the decade in terms of new aircraft and infrastructure.

The uncertainties

Despite their sophistication, the forecasting methods used by the manufacturers and air transport organisations are no more than complex extrapolations of past history. Apart from depending heavily on the soundness of economic forecasts, they have difficulties in integrating the impact of factors such as increasing dispersion of the population, environmental constraints, market liberalisation and airport congestion. Even when these are mentioned, the assumption is generally that problems will be solved in time and that the market will develop as it has done in the past.

These factors may be second-order variables in the traffic development equations, and it is true that the air transport industry as a whole has managed over the years to adapt to new situations, but there is still a risk that an unfortunate combination of all these secondary factors will have a serious effect in the future.

For example, European airport congestion, in combination with environmental constraints, could drive European governments to accelerate the implementation of high-speed train networks, and promote rail transport to the detriment of intra-European air transport. This could lead to a unique inter-modal transport system for which no one has any proven model.

All forecasters acknowledge the importance of the evolution of disposable income and the portion people are ready to spend for travelling. However, the difficulty of anticipating how these factors will affect demand is also recognised.

The demographics of air travel have changed drastically from the days when air transport was reserved for wealthy people and businessmen paying full fares. There are no consistent databases available to extrapolate the future. Scenarios can be built in which the high-yield passengers almost disappear while the overall demand grows – thus affecting, in the long term, the airlines' capacity to invest.

Today, the probability of such an outcome seems remote, but there is clearly a need for closer systematic observation of all these secondary factors in order to improve the quality and credibility of the forecasts. Data collection on a worldwide basis may be difficult, but it is vital if airline managements and civil aviation authorities are to take action on time.

3. Existing framework for the future

Due to the long lead times of some air transport system components, part of the future some ten to fifteen years hence is already fixed. For example, it takes about four years to train a pilot. The development and certification of a new aircraft necessitates five to six years, and seven years are needed for an engine. Finally, the planning and building of a new airport spans more than a decade.

In other words, what has or has not been decided today will affect air transport development for the next two decades.

No technological leap on the horizon

Since the introduction of the first wide-body aeroplanes powered by turbofan engines, aircraft technology has regularly improved but no major advance has occurred, and none is on the horizon. The air transport industry cannot count on dramatic improvements in aircraft efficiency to restrain costs while improving profitability.

Aerodynamics development is currently focused on airflow control to reduce drag significantly. Various systems, tested with some success, involve drilling thousands of tiny holes in the wing skin to suck away the boundary layer. These are relatively complex systems, and the size of the holes is such that it appears difficult to prevent them being obstructed by dust or insects while the aircraft is on the ground. These developments may finally result in a practical solution, but that will take years and even then apply only to new aircraft designs.

As far as airframe structures are concerned, there is room for increased use of advanced composite materials that are stiffer and lighter than the present

metallic structures. The empty weight of an airliner could be reduced by as much as 30 per cent. That, in turn, would allow reduced wing size and fuel consumption. The problem is that to build a primary structure in composites requires a better knowledge of the way the materials behave when ageing. Many more years will be needed to collect the necessary data. Introduction of composite materials will undoubtedly be incremental, as it has been up to now. Again, a new design is needed to take full advantage of the new materials.

On the engine front, the manufacturers attempted in the 1980s to promote unducted fan engines, which offer significantly better efficiency than the present turbofans. However, the complexity of variable-pitch fans and their large size (which made them difficult to install on aircraft), as well as safety problems, seem to have prevented their use even on regional aircraft. Nevertheless, higher bypass ratios, the use of improved materials and a better understanding of engines' internal aerodynamics will result in better performance.

The development of new highly integrated electronic components and systems integration has made it possible to improve flight management techniques, but the use of these emerging possibilities is restricted by their compatibility with air traffic control (ATC) systems. Modifying ATC infrastructure is a long and difficult process, so it will be many years before advanced flight management systems are fully utilised.

In the best case, then, if one new aircraft programme is launched this year, the delivery of the new technology aircraft will start in 1997, and a few hundred will be in service in fifteen years' time. That means that the air transport industry knows already what can be expected, in terms of productivity, from the fleet which will be flying in the year 2005. Almost all aircraft in service at that time will have been built using current technology.

Procurement cycles

Over 3 000 new aircraft are on order. The manufacturers plan to deliver 600 to 700 units per year. In other words, they have a backlog of four to five years. It is very likely that the flow of new orders will by then dry up to the point where delivery lead times become more reasonable. The manufacturers' order books will then stand at about 1 500 aircraft.

All these planes, which will be manufactured using current technology, will stay in service for a quarter of a century or more. Some, mainly the wide-bodies, will be needed to cope with traffic growth. Many, particularly in the single-aisle category, will replace outdated aircraft retired from active duty because of their age or because they do not conform to noise regulations.

Aircraft service life has tended to increase over the years, and the only real uncertainty concerns the pace at which old aircraft will be retired. The manufacturers' views range from 4 000 to 7 000 over the next twenty years. Airline decisions are difficult to anticipate as they will largely depend on the ability to finance new and more productive but costly aircraft.

Financing fleet acquisitions

Acquiring the aircraft needed for traffic growth and fleet replacement will depend crucially on the airlines' ability to raise external financing.

Leasing company GPA estimates that new aircraft worth $380 billion will be acquired by the world's airlines in the 1992-2000 period. Only $150 billion will be found from the airlines' internal resources, in the form of cash flow and new equity. The remaining $230 billion will have to be found from outside sources and GPA expects $25 billion to be raised in the form of new debt, while another $90 billion will be covered by leasing companies acquiring aircraft for supply to airlines on short-term (seven years on average) operating leases.

This leaves a "gap" of $115 billion to be covered by other forms of financing, such as leases, investment partnerships, etc. In the second half of the 1980s, commercial aircraft were a popular investment since they were seen as mobile assets that maintained or increased in value over the years, and could almost always be sold at a book profit. Investors and lenders provided asset-based finance, where the main collateral was the aircraft itself and the financial performance of the operator was of secondary importance. Also, the financial community was able to come up with innovative schemes that took advantage of tax concessions in several countries.

The mood has changed. Recession and excess capacity have caused aircraft values to fall – particularly those of older, noisier Stage 2 types, whose market value fell an average 46 per cent between 1989 and 1991. Modern Stage 3 aircraft have fared better, with falls of just 7 per cent for narrow bodies and 6 per cent for wide-bodies, but the financial community has become much more wary about aircraft assets. Moreover, several sources of investment finance, notably in Japan, have shrunk or dried up altogether as a result of changes in tax law and investor sentiment.

Financing new aircraft over the next few years will not be as easy as it was in the late 1980s, when a rising market attracted many investors with no previous aviation experience. Some of these have probably withdrawn from the market for good; those that remain will pay closer attention to the financial condition of operators.

Airports and ATC congestion

Today, congestion is a major issue in Europe. SRI has estimated the annual cost of congestion at $5 billion and predicts that it will rise to $10 billion by the year 2000 unless action is taken immediately. According to the SRI forecast, up to 200 000 flights per year could be lost by the end of the century.

That kind of catastrophe is unlikely to occur, as some major investments have been or will be decided and the present traffic downturn is providing some breathing room. Munich II Airport is now operational, there are expansion plans for Athens, Oslo and Berlin, and Paris Charles de Gaulle is far from being saturated. Still, planned developments will probably not be enough to solve the problem completely. All indications are that congestion will be a major restraint on European traffic growth. It translates into delays which improve the competitive-

ness of surface transportation, and the resulting loss of aircraft productivity has to be compensated by higher travel prices – which, historically, have proved to be damaging to demand.

As the lead times needed to expand airports and ATC capacities are long, there is little doubt that European airlines will face a bottleneck for the next decade at least.

The situation in the United States is far less serious than the one in Europe. According to FAA figures, present operations at the top fifty airports are running at 70 per cent capacity. However, in 1989 the FAA stated that the average delay of scheduled flights was 16.6 minutes. The Air Transport Action Group (ATAG) calculated that the loss due to delays represented an amount equivalent to using nearly 500 aircraft for an entire year.

Only one new airport is being built in the United States (in Denver), but runway expansion and new terminals are under way at several major airports. These developments, added to the transfer of general aviation activity to less congested airports and the reduction of military operations, lead experts to think that the system will continue to muddle through as it did in the past.

In Asia, signs of increased congestion are evident at Tokyo Narita, Hong Kong and Bangkok, but a number of new airports are being built in Japan (Osaka), Hong Kong (Chek Lap Kok), Taiwan and Korea.

The European Single Market

The opening of the European Single Market, apart from the specific impact of air transport liberalisation, should stimulate intra-European traffic growth. The ease of circulation of people and goods, the recognition throughout Europe of national diplomas, and the use of common standards for industrial products will increase business activity and favour dispersion of the population within European boundaries. Both are factors which have historically boosted demand for transport. This is a unique opportunity for European airlines, but it is also a factor threatening increased congestion.

No one yet has a clear idea of the future pattern of economic relations within unified Europe. It is not unreasonable to think that companies will tend to set up shop where land is cheap and labour available, thus boosting the economy of less-developed regions. If such a scenario materialises, favoured by regional development subsidies distributed by the EC authorities, existing congestion at major airports could be alleviated, and regional hubs could emerge in uncongested areas.

Environmental constraints

Environmental issues are increasingly affecting the air transport system in general and commercial jet operations in particular. Although commercial aviation's contribution to global pollution is negligible, it remains a constant target for pressure groups. As an example, the extension of the main terminal of

Geneva's airport has necessitated a cantonal vote triggered by the environmentalists and people living next to the airport.

Aviation has been fortunate in the past, since introduction of more efficient aircraft coincided with noise reduction as a bonus. In the future, operators will have to pay for improvements. Further noise reductions mean early aircraft retirement. Limitation of exhaust emissions will translate into increased costs.

Airbus Industrie has developed a forecasting methodology to assess the impact of a possible gaseous emission tax on the economics of airline operations. The conclusion is that a fuel tax resulting in a 50 per cent increase in the price of aviation fuel between 1994 and 1995 would increase the airlines' costs by 7 per cent, preventing the fare reductions necessary to attract more customers. By 1999, such a tax would lower annual demand by 117 billion revenue per passenger kilometres (RPKs) and considerably reduce the airlines' operating margins – which would in turn preclude the further addition of more environmentally friendly aircraft to their fleets.

Although theoretical, this study shows the seriousness of the problem. Airlines and the aerospace industry have started to take action to avoid such an extreme situation. Several international organisations are sponsoring programmes to remove the emotional aspect and to convince the public and the authorities to take a more rational approach.

The manufacturing industry is working intensively in both basic and applied technology to improve fuel efficiency. Environmental issues are now a prime design objective of aircraft builders and have become a competitive factor. As noted previously, however, improvements will be progressive and current-technology aircraft will remain in service for many years to come.

The ability to control costs

Historically, air travel growth has been substantially influenced by air fares. The ability of airlines to control their costs is a fundamental factor. Unfortunately, they have little influence on several of the major factors affecting the cost of providing seats. Some, such as the fuel price, are fixed externally; others, such as labour costs, are largely determined by the history of each carrier. At the end of the day, little flexibility remains.

Despite the increased fuel efficiency of modern aircraft, fuel still accounts for about 15 per cent of airline operating costs. According to present forecasts, the price of fuel should increase very slowly during the next two decades, but its sensitivity to political events has created large swings since 1973. Fuel-hedging contracts are now available from oil companies or banks. They can offer some protection against sudden price increases, but at a cost. They reduce fluctuations, but in the end they do not change market prices. In Europe, charter airlines which sell their seats well in advance and need to know what their costs will be are the main users of fuel-hedging instruments.

Labour costs are strongly influenced by the history of the airline and the competitive environment of the past. A study made by Lehman Brothers has shown that prior to deregulation in the United States, the combined effect of government intervention in all its forms permitted labour costs to increase at a

rate which, within the productivity gains made possible by technological advances, was far in excess of the market for comparable skills. And Lehman Brothers noted that adjustment to the changed circumstances under deregulation proved particularly difficult for all parties since the airline industry was encrusted with some die-hard traditions.

Even investment policies offer less margin than may at first appear. Old equipment is more expensive to operate and less efficient. New aircraft are expensive to buy, and as most airlines are not cash-rich, their acquisition increases the debt burden.

Since the airlines operate on very small profit margins, their room for manœuvre is about as small as it can be – but it should be used when necessary. Although it may not be evident now, some carriers with too many built-in rigidities are already dead. They will not be part of the future because they will not be able to adapt to changed circumstances as well as their competitors.

4. Scenarios for the future

In recent years, there has been strong pressure for more liberal access to international markets. The reasons are quite simple. As domestic markets mature and offer fewer possibilities to grow and to generate a good return on investments, airlines tend to turn their sights on the more quickly expanding but still regulated international markets. This entry of new players hunting for market share has created a demand for more freedom of access to international markets.

In parallel, there is a trend toward total or partial privatisation of state-owned airlines, mainly because governments struggling to reduce budgets are no longer keen to invest in their flag-carriers.

The trend towards air transport globalisation is clear; nevertheless, the liberalisation of international markets is still an issue. Strong resistance remains in many countries. The future outcome is uncertain.

Domestic market conditions and national airline performance will strongly influence the pace of change in the regulatory framework. Stated in the simplest terms, the situation can be summed up as follows.

In the United States, the domestic market is large but mature. The air transport industry has nearly reached the stage of final consolidation, with only three or four major players that need a larger share of international markets if they are to keep growing. The major players have high costs but they are very efficient.

In the European Community, the domestic market is in transition and the liberalised regulatory environment is not yet in place. There is more room for expansion than in the United States, but the merger and acquisition game has only just started. There are still medium-sized and small players who have survived as a result of regulation. On average, European airlines have high costs but are often, though not always, less efficient than their US counterparts.

In Asia, the situation is more difficult to assess. Domestic markets, apart from those in Japan, are small and generally far from being mature. There is still a

rather large number of players, as each country has its flag-carrier. They do have low costs (again excepting Japan), and they are efficient.

From these facts, it is clear that the strongest drive towards liberalising international markets should come from the United States and Asia. Europe can be expected to be more reluctant, until its domestic liberalisation has been achieved and restructuring of the industry completed. Third World countries' airlines should prove to be even more reluctant, since their governments set objectives that are not commercial – tourism development, employment creation, earning foreign currency and, last but not least, maintaining a national status symbol.

This section examines four scenarios; each combines one of two contrasting outcomes of the regulatory issue with one of two possibilities for the evolution of the main driver of traffic demand: world economic growth.

Status quo regulation in low economic growth

Assumptions employed in this first scenario are simply extrapolated from the current situation.

- International markets will continue to operate under the present, dominant bilateral regime.
- European air transport liberalisation will continue, following the timetable for the third package of EC measures.
- Slow economic growth: world GDP will rise at an annual rate of 1-1.5 per cent, but Asian countries will continue to develop faster than the rest of the world.
- No catastrophic events will seriously affect air transport, such as an upsurge in fuel price or terrorist threats.

Impact on demand

Growth in world travel demand will slow down, as it has done in the past. World air traffic (in RPMs) will grow at a 3-4 per cent annual rate. This is still 2-3 per cent above the world GDP growth rate, because the air transport market is far from being mature in many world regions.

As personal disposable income stagnates or decreases, the tendency is for leisure travel to be affected more than business travel. The balance will tend to shift to the latter.

The overall market, including the business segment, becomes more price-sensitive. As demonstrated during the recent crisis, companies tend to limit travel budgets and businessmen try to take advantage of discounted coach fares and tariffs originally designed for the leisure market.

Airline reactions

In the past, downturns (or rather, falling growth rates) were short – two or three years – and were followed by fast, strong recoveries. The situation is now different. If the world economy does not rapidly resume a healthy rate of growth, the airlines will face an unprecedented situation, and are likely to brace for

survival much more than they did in past recessions. Capacity will be closely tailored to demand. Some orders for new aircraft will be cancelled; some deliveries will be delayed; older, less productive aircraft will be removed from service, some permanently. Cost-cutting will become the order of the day. In particular, high-cost scheduled carriers will use the downturn to try and cut labour costs through reduced basic wage rates and fringe benefits, and less restrictive work practices. Cost-cutting will probably prove difficult as, historically, labour has greater bargaining power under a regulated regime.

Regulation will also restrain price wars. Despite the price sensitivity of the market, yields are likely to improve as they did during previous downturns. Airlines will tighten up on discounts and set more restrictive terms on low-fare tickets. This will ease pressure on weaker airlines. Not only will better yields improve their financial position, but slower growth in demand will reduce the investment burden for new equipment.

The stronger airlines, concentrating on cost-cutting and improving their financial ratios, will relax their hunt for market share. This, in turn, should slow down the pace of airline mergers. The industry's structure should stay relatively stable for the duration of the cycle.

Regional differences

No scenario can assume a recession that is evenly distributed around the world. Some countries will enjoy growth rates that are above the world average.

It is likely that Europe will benefit from the opening of the Single Market and will grow faster than the world average, though probably not by much. Asian countries such as Singapore, Taiwan, Korea, Hong Kong and Thailand are likely to continue their rapid development, mainly because of their lower labour costs and high productivity.

In the regions that are less affected by economic downturn, traffic will grow faster and airlines will organise themselves to capture larger market shares. Special attention will have to be paid to regional variations, as these will contribute greatly to setting the scene for the next upturn.

Europe

Whatever else happens, Europe will be a special case because of the economic and regulatory changes triggered by completion of the Single Market. Market unification will boost intra-European travel demand, but the relatively slow-growing economy will keep the market very price-sensitive. As a result, slower but cheaper surface transport alternatives to air travel will become attractive to many, especially in the leisure segment. The European air transport industry will not benefit fully from the relatively healthy local economy.

Airline strategies will continue to be influenced predominantly by preparations for the final stage of European air transport liberalisation.

The largest scheduled carriers will continue to fight for market share and for dominance at new hubs. The present trend toward the formation of very large airlines, or airline alliances, should continue. The pressure on weaker carriers with insufficient feeder networks will force them to join the stronger players.

In parallel, the trend toward privatisation of state-owned carriers should continue, as governments try to keep down budget deficits and find themselves less able to provide direct funding and loan guarantees for the capital needed by their flag-carriers to adapt to a deregulated European market. The pace and extent of privatisation will depend greatly on the condition of stock markets; rising markets would certainly help to speed up the flotation of the remaining state-owned airlines.

The combination of a slow-growing economy and liberalisation normally favours low-cost carriers, at least temporarily, as shown by the US experience. However, the slow pace of European liberalisation and the particular features of the European air transport structure could protect the existing high-cost scheduled carriers from competition from new entrants. Gradual liberalisation will constrain any plans that new entrants have for rapid growth, and give the existing major players time to reduce their costs and become more competitive.

Poor profitability prospects will inhibit financiers from investing in the formation of new entrants. Competition will very likely be limited to existing players.

In Europe, the low-cost segment of the air transport industry is made up of charter airlines – some owned by scheduled carriers – which already operate in a loosely regulated environment. These carriers will have great difficulty competing in the scheduled market, as they may not be able to gain proper access to computerised reservation systems (CRS) controlled by scheduled airlines (although they may be legally entitled to such access). Also, they do not have the strong, hub-based route structure that would allow them to concentrate traffic.

It remains to be seen whether charter airlines will be tempted into scheduled service, which relaxed regulation will allow. Those that are will find the transition very difficult, as did Air Europe.

There is a question mark over the long-term future of Europe's charter airlines in a liberalised environment. If the result mirrors the US experience, charter operations may shrink to a small fraction of the present level. However, there are differences. First of all, European charter airlines' direct customers are tour operators, not individual travellers. Europe has produced very large tour companies specialising in cross-border travel, which has not happened in the United States. Apart from low prices, European tour operators offer the convenience of making all the hotel and associated arrangements in the tourist's destination country, obviating the language and cultural difficulties that would be encountered if the individual traveller tried to make his own arrangements. For the vast majority of Europeans, the convenience of "one-stop shopping" for foreign holiday travel has been a powerful factor in choosing package tours from catalogues that offer a wide variety of destinations at a wide choice of prices. Another difference is that traffic to many holiday destinations in Europe is highly seasonal, because little business travel is involved; there is no real justification for maintaining year-round schedules.

The tour operators' basic need is for the lowest-cost air travel element in the overall holiday package, even if the holiday itself is in the upper price bracket. One charter carrier, Air 2000 in the United Kingdom, was set up by a tour operator specialising in time-sharing holiday homes – a market that generally involves better-off members of society.

The future of the European charter airlines will partly depend on whether scheduled costs can ever be driven as low as costs for charter flights. For the time being, tour operators that own charter airlines do not seem keen to embark on scheduled services, and the same can be said of independent charter carriers; meanwhile, scheduled flag-carriers that own charter subsidiaries are content to keep their low-cost operations insulated from scheduled services.

Asia-Pacific

These countries will continue to enjoy comparatively strong growth in demand for air travel. Their airlines will maintain a cost advantage, which will boost their growth in a price-sensitive market. However, the development of long-haul traffic will be restrained by the regulatory environment. Most countries outside the region will try to protect their market shares through regulation if their national companies cannot compete on price.

Liberalisation in low economic growth

This second scenario retains the economic assumptions used in the first: slow world GDP growth, but unevenly distributed recession.

The pace of change towards liberalisation of international air transport is an important variable. Bearing in mind present trends and the complexity of a process involving government-to-government negotiations, it is assumed that liberalisation will be relatively slow, spreading faster in markets where the industry is ready to face the new situation: Asia-Pacific, North America and (thirdly) Europe.

Many Third World countries are not ready at all, and it is difficult to think that they will join the process. China will not join for both political and economic reasons. A question mark hangs over the CIS countries, but their international market is still negligible.

Impact on demand

As the financial resources of the market and its motivation remain unchanged from the previous scenario, there is no real reason for people to increase their travel. Liberalisation has only an indirect impact on demand. Freedom to compete, provided there is a sufficient number of players, puts more pressure on prices. As a result, the market can acquire more mileage for the same amount of money.

Liberalisation may boost traffic growth in terms of RPMs, but the total revenue generated will remain fundamentally the same. It can be argued that low prices will attract new customers but experience shows that in recessions, people tend to limit their consumption because of uncertainty about the future. In any case, the impact is marginal and difficult to assess. What liberalisation does do is change the distribution of total air transport revenue among the different players.

Airline reactions

Low prices and global offer are the two winning features. It is also obvious that airlines operating in mature domestic markets will go more aggressively for the international deregulated market.

In theory, the situation favours low-cost carriers and creates opportunities for new entrants. However, a global offer can only be made by existing well-established carriers with worldwide operations and distribution networks, capable of adapting to different market conditions. As a consequence, the existing players will struggle to reduce their costs even more sharply than in the previous scenario. It is likely that liberal regimes will develop in a more liberal social environment. This will provide scope for deeper cuts in labour costs, as the balance of power will shift to management.

As already mentioned, the pace of change will have a strong influence on the final outcome. For this reason, the various players will try to accelerate or slow down the process, according to their immediate interests:

- New entrants (if any) and some charter airlines faced with falling demand from tour operators will try to gain access to distribution networks as fast as possible to capitalise on their cost advantage at a time when recession has increased the market's price sensitivity. They need to grow very rapidly in order to reach critical mass, allowing them to compete on the global market before the next economic cycle occurs.
- Low-cost, high-efficiency international scheduled carriers – mainly the Asian airlines – will also push for rapid transition, and increase their offer as fast as financially possible.
- High-cost, high-efficiency international players with mature domestic markets – essentially the US majors – will also attempt to speed up liberalisation as their development depends on their ability to penetrate international markets. However, they will lobby to get access first and foremost to niches where weaker competitors operate under regulatory protection.

The need to make global offers will lead to multinational alliances and mergers. The formation of very large multinational carriers depends greatly on the extent of liberalisation. In particular, it supposes the relaxation of all rules on foreign ownership.

In this scenario, emergence of multinational mega-carriers is unlikely. The present financial conditions are not favourable and mergers between large international airlines are necessarily the conclusion of a long process extending over more than one economic cycle.

Regional differences

The pattern of development proposed in the previous scenario also holds here, but international liberalisation should accelerate some of the trends mentioned.

Europe will have to organise faster in order to compete efficiently in deregulated international markets. This will drive the weaker carriers out more quickly than in a regulated environment. The impact on the pace of privatisation of

European airlines is uncertain. On the one hand, budget limitations and European competition rules would lead to less government intervention. On the other, European governments are unlikely to stand idly by and watch their carriers lose large chunks of market share so soon after international liberalisation. This is definitely contrary to the tradition of most European governments.

In Asia, all the conditions will be present for accelerating the growth of the local international airlines (low cost, large offer). They will try very hard to gain access to large distribution networks in the United States and Europe. This could be a driving factor in the creation of global airline alliances. At a time of recession, the Asian carriers – which will not need to go through the painful process of heavy cost-cutting – will be able to devote more effort to capturing larger market shares. At the end of the economic cycle, they will emerge stronger than ever.

Regulation in high economic growth

The economic assumptions used in this scenario are very close to those used by industry forecasters: world GDP growing at 3.5-4 per cent annually, with marked regional variations. The North American and European economies are expected to grow at a noticeably slower pace than their Asian counterparts.

As far as the regulatory framework is concerned, the assumptions of the first scenario are again employed. International markets will continue to operate under the existing bilateral regime, while Europe will pursue liberalisation of its internal market.

Impact on demand

As this scenario reproduces the conditions assumed by most industry forecasts, there is no reason to depart from conclusions arrived at earlier (see Section 2, "Forecasting Methods and Results"). World traffic will grow at approximately 5 per cent a year; the North American growth rate will be below the world average; Europe should follow the world trend; the Asia-Pacific region will exhibit above-average growth.

Disposable income will grow, so people will tend to travel more. The leisure segment of the market will grow more rapidly than business travel. As a whole, the market will be less price-sensitive than in previous scenarios. Nevertheless, pricing will be a key factor in attracting first-time flyers and stimulating demand.

Airline reactions

Airlines will continue to seek increased market share and their costs will drift up again. In particular, labour costs will increase as employees, especially when unionised, will want their share of the increased prosperity. In an environment where competition from lower-cost new entrants is non-existent or negligible, airline managements will tend to accede to labour demands rather than risk strikes that would hand market share to existing competitors.

Yields will tend to grow more slowly than costs as a result of competition for market share, which will affect airline profit margins. It is likely that real yields will continue to decrease, as they have done historically during upturns.

Traffic growth will increase pressure on infrastructure, and infrastructure's capacity growth will lag behind traffic growth – again, repeating past history.

Demand for more capacity and higher productivity, combined with generally high business optimism, will drive up the price of used aircraft and accelerate the acquisition of new aircraft. However, competition will be restrained by regulation; yields will not erode as much as they would under a competitive regime and weaker players will be able to survive.

There will be little room for new entrants; regulation will hinder their formation, as will the struggle between existing airlines to achieve the maximum market share allowed by the regulations. Another negative factor is that in a less price-sensitive market, low-cost new entrants enjoy less of a competitive advantage than during a recession.

The increase in leisure travel will benefit charter operators, assuming that the charter segment continues to be loosely regulated. This will favour the formation of new charter airlines, and scheduled carriers will want to expand into this segment because their scheduled growth prospects are limited by regulation. Existing charter subsidiaries of scheduled carriers will expand, and new ones are likely to be formed by those carriers that do not have them. It will be important to keep low-cost charter subsidiaries insulated from high-cost scheduled operations.

Mergers and acquisitions will be limited to domestic markets (counting the EC as such a market) because foreign ownership regulations will prevent cross-border takeovers.

These trends result from a heterogeneous world regulatory framework which can be characterised as consisting of liberalised zones linked by tightly regulated junctions. The final outcome, as far as the industry's structure is concerned, will be the formation of a small number of large carriers in each regional free-market zone. These mega-carriers will form alliances – possibly with minority stock swaps – in order to increase their marketing power, reduce their costs, and improve feed to their individual route networks.

This will still leave room for niche carriers, provided they do not venture outside their small, tightly defined markets.

At the end of the growth phase of the economic cycle, there will have emerged small groups of large scheduled airlines domiciled in regional trading blocs, complemented by a few niche carriers and, perhaps, a small number of specialist IT-type organisations selling a full travel service, including the air segment, to business travellers.

Liberalisation in high economic growth

In this scenario, the same economic assumptions apply as in previous ones. It is assumed, however, that all regulatory barriers have been removed, giving free access to international markets. No assumption has been made about the pace of change or potential regional differences. Liberalisation is considered as having reached cruise speed worldwide.

Impact on demand

Globally, demand should grow along the same lines as in the previous scenario, as it is mainly influenced by economic growth. Nevertheless, total liberalisation would allow the air transport industry to stimulate demand through a better offer in terms of lower fares and more convenient schedules.

Although important, this stimulation of demand through internal factors is likely to remain small compared to the impact of external factors, especially when measured in revenue terms. It is nevertheless reasonable to associate international air transport liberalisation with a more liberal economic environment than exists at present. This economic liberalisation would in turn have a very positive effect on business travel demand.

Under these conditions, it seems equally reasonable to assume that traffic growth could be boosted from an annual figure of 5 per cent to something like 6-7 per cent. It should be noted that each extra percentage point increase in growth adds more than 10 billion RPMs each year, and a cumulative 180 billion RPMs over ten years.

Airline reactions

As market forces will no longer be restrained by the regulatory framework, airlines will fight to the death to increase market share, especially in the fastest-growing markets.

Market globalisation will favour airlines with global operations that can distribute their products worldwide, can offset the costs of local fare wars with profits generated in markets with less competition, and can restrain costs thanks to economies of scale.

Global international competition will also affect domestic markets. In order to feed their international networks, the major players will take over domestic carriers (including commuter airlines), thus forming international groups with national subsidiaries. The extent to which this trend develops will depend on the extent to which national foreign ownership rules are relaxed.

Costs will probably grow because of the capital investment needed to implement aggressive competitive strategies, but at a slower pace than in the previous scenario. Better aircraft utilisation permitted by free market access and greater management strength *vis-à-vis* labour should allow for more successful cost control.

Globalisation will also affect the inclusive-tour charter segment. It will be even more vital than in other scenarios for charter operators to secure access to large distribution systems. This will drive the formation of large tour operators in parallel with the emergence of international scheduled mega-carriers. Many experts forecast the end of specialised charter airlines in a liberalised market, mainly because of the formidable marketing strengths of the major scheduled carriers. The author does not fully share this view because the leisure travel market is served by an industry providing progressively more integrated services. People do not buy airline tickets; they buy holidays, including hotel rooms, rented cars, access to sports facilities, etc. Of course, using their computer reservation systems, scheduled airlines could offer this inclusive service; they would, however, have to adapt

to the requirements of this market, while the existing tour operators and charter airlines have already tailored their organisation to it.

Yields will definitely decline, at least during the early part of the growth period. Competition will force air fares down as long as a new, stable air transport industry structure has not emerged. There are limits, however. In a free-market, free-enterprise environment, companies must remain profitable to survive. The downward trend in yield will depend very much on the ability of the industry to reduce its costs and protect profitability.

More air travel demand will boost deliveries of new aircraft, a trend which has historically led to overcapacity when the economic downturn comes.

This scenario features all the ingredients that favour those airlines with the deepest pockets. Competition will drive the weaker players out of the market and, in turn, economies of scale will give more competitive power to the winners.

The question is where this process will end. Air transport history gives no answer, but it is possible to extrapolate from other long-deregulated industries. The logical outcome would be the formation of truly global companies, as is happening in the telecommunications equipment business. Will growth last long enough for the industry to reach this stage, and – most importantly – will governments really allow the formation of such formidable air transport powers? If the answer is yes, it is likely that a new set of international rules, perhaps within the framework of the General Agreement on Tariffs and Trade, will be agreed to provide some guarantee of fair competition. Antitrust law will also be demanded to protect consumer interests.

In this type of environment, there will be difficulties in keeping airlines under state ownership. Nevertheless, other industries offer examples of successful state companies, although most of them are on the road to privatisation.

While new players will be free to enter the scheduled airline business, their prospects of success are not very great. The big players can prevent them from achieving critical mass early on in their lives. As in the previous scenario, only niche-market airlines have a serious chance of survival, squeezed as they are between charters and the large scheduled airlines.

The Bilateral Regime for Air Transport: Current Position and Future Prospects

by

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1. Introduction

In examining the impact of the current bilateral regime on the international airline industry, it is necessary to investigate the degree to which it constrains airline pricing freedom, airline output and market access, as well as the effect of any such constraints on interested parties other than airlines – namely, governments and consumers.

The level of controls on price, output and market access determines the degree to which any market is competitive rather than oligopolistic. The international airline industry is no exception. While the application of tariff regulation in air transport is fairly straightforward, the issues of output or capacity controls and market access are intertwined and more complex.

Market access in international air transport can be constrained in a number of ways:

- Through controlling the points in each country that can be served by the airlines of other states.
- By limiting the commercial traffic rights granted by one state to foreign airlines operating international air services. For example, are only 3rd and 4th Freedom rights available, or have 5th Freedom rights been granted as well – and for how many sectors?
- By controlling the number of airlines designated by each country to operate any agreed international routes. Single designation restricts operations to one airline to be designated by each state, resulting in two airlines overall. There is also the possibility of multiple designation.
- Market access is also controlled by specifying ownership or other requirements for airlines before they are eligible to be chosen by a government as that country's designated carrier.

The question of capacity or output controls is clearly linked with the above restrictions on market access. If an airline cannot enter a specific market, then *ipso facto* that is an output constraint. There are in addition direct controls on the output of airlines that have been designated to operate in particular markets. Such controls either directly limit the capacity offered in terms of the number of seats or aircraft frequencies, or they require an airline not to exceed a particular percentage share of the total capacity in the market (in terms of seats or seat-kilometres).

2. Origins and key elements of the bilateral system

Once the Paris Convention accepted that states have sovereign rights in the airspace above their territory (in 1919), direct government intervention in air transport became inevitable. A country's airspace became one of its valuable natural resources. As a result, the free trade laissez-faire approach during the early years of aviation was gradually replaced by an incomplete pattern of bilateral agreements between countries having airlines and the countries to or through which those airlines wished to fly. The restrictive character of "bilateralism" was soon apparent. Even before the Second World War was over, fifty-two member states met in Chicago in 1944 to consider some form of multinational agreement on three critical aspects of international transport:

a) the exchange of air traffic rights, or "freedoms of the air";
b) the control of fares and freight tariffs;
c) the control of frequencies and capacity.

At Chicago there were two conflicting approaches. The United States, whose civil aviation industry was to emerge from the Second World War largely unscathed and much larger and better equipped than anyone else's, wanted no control on tariffs or capacity and the maximum exchange of traffic rights, including 5th Freedom rights. This "open skies" policy was supported by states such as the Netherlands and Sweden, whose airlines would have to depend on 5th Freedom traffic because their home bases were so small. On the other hand, the United Kingdom and most European countries were more protectionist – understandably, since their civil airlines were largely destroyed in the war. They supported tight controls on tariffs and capacity, and the limitation of 5th Freedom rights. These two conflicting views could not be reconciled, and no multilateral agreement was reached on the three key issues of traffic rights, tariff control and capacity.

The participants at Chicago did manage to agree on the mutual exchange of the first two Freedoms: the right to overfly while on an agreed service and the right to land in each other's country. This was done through the International Air Services Transit Agreement, signed in December 1944; many more states have subsequently adhered. No agreement, however, was reached on the mutual exchange of commercial traffic rights (the 3rd and 4th Freedoms; the 5th is the right to carry traffic between two countries neither of which is the country of the airline operating the service).

A further attempt at a multilateral agreement on traffic rights, pricing and capacity was made at the Geneva Conference of 1947, but this also failed.

The most significant result of the Chicago Conference was the signing of the Convention on International Civil Aviation, known subsequently as the Chicago Convention. This provided the framework for the orderly and safe development of international air transport through its various articles and the annexes to the Convention, which provide recommended standards and practices for every aspect of the operation of aircraft and air services, both in the air and on the ground. Most countries incorporate the annexes into their own aviation legislation, thereby giving them the force of law. The Convention also set up the International Civil Aviation Organization (ICAO), an intergovernmental agency which has provided the forum for further discussion of key aviation issues and the basis for the worldwide co-ordination of technical and operational standards and practices.

The bilateral system was a response to the failure of states represented at the 1944 Chicago Conference and at Geneva in 1947 to agree on a multilateral system. While the Chicago Convention established a technical and legal framework for the operation of international services, governments and airlines alike needed to find a way of dealing with the economic regulation of the industry. Three separate but interlinked elements of international regulation rapidly emerged:

a) Bilateral air services agreements – between pairs of countries, the prime purpose of which was to control market access (points served and traffic rights) and entry (designation of airlines), though in many cases they also controlled capacity and frequencies.

b) Inter-airline pooling agreements – although they involve revenue-sharing, they are primarily concerned with control of capacity on a bilateral or trilateral basis. Many airlines espousing deregulation and multilateralism have nevertheless entered bilateral revenue-pooling agreements. However, such agreements have never been signed on routes to the United States, as they breach antitrust legislation. While they sometimes involve more than two airlines, such revenue-sharing agreements are essentially bilateral in nature and can only be effective when entry of 3rd and 4th Freedom airlines is controlled by the bilateral air services agreement. Where airlines have not been granted 5th Freedom rights under existing bilateral agreements, they have sometimes been able to purchase such rights by paying royalties to the other countries' airlines. Such royalty or "revenue compensation" agreements are a further feature of bilateralism.

c) IATA tariff agreements – which concern international passenger fares and cargo tariffs reached under the auspices of the International Air Transport Association – have been multilateral in nature. However, the tariffs agreed have been subject to government approval under the terms of the bilateral agreements, and it is the latter that have given IATA tariffs the force and legitimacy to become acceptable worldwide.

While the current regime for the regulation of international air transport has many elements which hinge on the bilateral air services agreements, there are several features that are multilateral in scope; the Chicago Convention and the IATA tariffs machinery are two. In addition, there are several regional agreements which are limited in terms of the number of countries concerned, but multilateral in nature nevertheless. Key examples are the European Civil Aviation Conference

(ECAC) agreement on charters, the 1982 ECAC/US Memorandum of Understanding on North Atlantic air services and fare zones, the Cartegena Agreement, the various liberalisation packages of the European Community, and the aviation treaty between the European Community and Norway and Sweden. Thus the current regime is not purely bilateral; multilateral agreements, usually regional in scope, are possible within the bilateral framework. However, it is also evident that while some of the multilateral agreements complement and reinforce bilateralism, others are aimed at overcoming or circumventing its shortcomings. The EC liberalisation packages and the Andean Committee of Aeronautical Authorities, set up under the Cartagena Agreement, fall into this latter category.

3. The nature of bilateral air services agreements (ASAs)

Structure of ASAs

There are three distinct parts to such agreements.

First, there is the bilateral itself. This consists mostly of a number of articles dealing with the regulation of the "soft rights" – arrangements for selling air services, taxation, exemption from customs duties on imports of aircraft parts, airport charges, transfer abroad of airline funds and so on. The two key articles are those dealing with "hard rights", namely the regulation of tariffs and capacity. Most traditional bilaterals specify that passenger fares and cargo tariffs should be agreed by the designated airlines, "due regard being paid to all relevant factors, including cost of operation, reasonable profit, and the tariffs of other airlines"; however, both governments must approve such fares and tariffs. This is the so-called "double approval" regime. In other words, ultimate control on tariffs rests with individual governments. On capacity, some bilaterals require very strict control and sharing of capacity by the airlines of the two countries; others have minimal control.

Underlying the traditional bilateral agreements is the concept of reciprocity, an equal and fair exchange of rights between countries very different in size and with airlines of varied strengths. This is usually enshrined in an article containing the words, "There shall be fair and equal opportunity for the airlines of both Contracting Parties to operate the agreed service on the specified routes between their respective territories."

The second part of the bilateral is the annex containing the "Schedule of Routes". It is here that the remaining "hard rights" – the actual traffic rights granted to each of the two states – are made explicit. The schedule specifies the routes to be operated by the designated airline(s) of each state. Airlines are never mentioned by name. It is up to each state to designate its airline or airlines subsequently. The points (towns) to be served by each designated airline are listed, or (less often) a general right is granted, e.g. from "any point in the United States". The routes or points granted to the designated airline of one state are not necessarily the reverse image of those granted to the airline of the other state signing the bilateral. If a town or country is not specifically listed in the route

schedule, a designated airline cannot operate services to it unless the bilateral is amended.

The schedule will also indicate whether the designated airlines have been granted rights to pick up traffic in other countries or from points lying between or beyond the two signatory states. These are the 5th Freedom rights. They cannot be used, however, unless the third countries involved also agree.

The third and final part of the air services agreement may consist of one or more "memoranda of understanding", "exchange of notes", or "agreed minutes". These are agreements, often confidential, that amplify or subsequently modify particular aspects of the basic agreement.

Until 1978, all air services agreements were more or less restrictive in terms of market access and capacity and price controls. They were broadly of two kinds, the rather restrictive predetermination type of agreements and the more liberal Bermuda type.

Predetermination bilaterals

All bilaterals are broadly similar as far as soft rights are concerned; it is on the exchange of hard rights that key differences exist.

Many bilateral agreements reflect protectionist attitudes. They insist on prior agreement by the countries (or airlines) concerned on the capacity to be provided on the route (i.e. predetermination) and also specify that the agreed capacity should be shared equally by the designated carriers of the two states. Some go further and specify that services must be operated in a revenue-sharing "pool" by the designated airlines. At the same time, few if any 5th Freedom rights are granted. Their approach to tariffs has been similar to that of the more liberal ASAs.

Bermuda/liberal bilaterals

More liberal bilaterals are frequently referred to as the Bermuda type, after the agreement signed in 1946 between the United Kingdom and the United States in Bermuda. This agreement was significant because it represented a compromise between the extreme positions taken at the 1944 Chicago Conference, and because it became a model for many subsequent agreements. As a result, Bermuda-type agreements have become widespread. They differ from the predetermination type of agreements in two respects. First, 5th Freedom rights are more widely available, provided that the total capacity offered by the airline concerned on 5th Freedom sectors is related to the end-to-end traffic potential of the routes. Secondly, there is no control of frequency or capacity on the routes between the two countries concerned. However, there is one safeguard on capacity: if one airline feels that its interests are too adversely affected by the frequencies offered by the other, there may be an *ex post facto* review of capacity.

The other significant clause of the Bermuda agreement dealt with tariffs. While both governments maintained their ultimate right to approve or disapprove the tariffs proposed by the airlines, they agreed that such tariffs should where

Table 1. **Key features of traditional air services agreements**

<table>
<tr><th></th><th>Bermuda/liberal type</th><th>Predetermination type</th></tr>
<tr><td rowspan="3">Market access</td><td colspan="2">Limited number of points/routes to be operated by each airline listed in annex (Schedule of Routes)</td></tr>
<tr><td>Several 5th freedoms granted — but total capacity related to end-to-end (i.e. 3rd/4th freedom) demand on route</td><td>Few 5th freedoms granted</td></tr>
<tr><td colspan="2">Charter traffic rights not included</td></tr>
<tr><td rowspan="2">Designation</td><td>Generally single but some double or multiple</td><td>Single designation</td></tr>
<tr><td colspan="2">Airlines must be under substantial ownership and effective control of nationals of designating state</td></tr>
<tr><td rowspan="3">Capacity</td><td>No frequency or capacity control</td><td>Capacity to be agreed or fifty-fifty split</td></tr>
<tr><td>Safeguard — capacity review if one airline adversely affected</td><td></td></tr>
<tr><td></td><td>Inter-airline revenue pool required (by some bilaterals)</td></tr>
<tr><td>Tariffs</td><td colspan="2">Tariffs related to cost plus profit

Approval of both governments needed (i.e. double approval)

If possible, airlines should use IATA procedures</td></tr>
</table>

possible be calculated using the procedures of the International Air Transport Association. For the United States, this was a major compromise. It agreed to approve tariffs fixed by an association of producers, i.e. the international airlines, even though such price-fixing was illegal under United States domestic antitrust legislation. In essence, IATA tariff decisions were exempted from the provisions of such legislation. Subsequently, the tariffs article of most early bilaterals, including the predetermination types, included wording to the effect that tariff agreements should "where possible be reached by the use of the procedures of the International Air Transport Association for the working out of tariffs". It was only in the 1980s that this wording began to be dropped when ASAs were renegotiated. Even states such as Singapore or Malaysia, whose national airlines were not members of IATA, agreed in their early bilaterals to approve where possible IATA tariffs procedures. Thus approval for the IATA tariffs procedures was enshrined in the majority of bilateral agreements. This is what gave the IATA tariffs machinery such force until deregulation set in from 1978 onwards.

Bermuda-type agreements became widespread, but the effect is not as liberal as their terms might suggest. This is because they do not preclude airline pooling agreements (which effectively restrict capacity competition) or indeed subsequent capacity restrictions imposed arbitrarily by governments to prevent foreign carriers from introducing a new aircraft type or to limit increases in frequencies.

The key features and differences of the predetermination and Bermuda-type ASAs are shown in Table 1. Despite the post-1978 changes described below, the vast majority of existing bilaterals worldwide are still of these traditional types; moreover, they do not necessarily fall neatly into one of the two, since many have features from both.

Open market bilaterals – US type

In the period 1978-85 the United States renegotiated many of its key bilaterals, significantly reducing regulatory controls. From 1984 onwards some European countries began to do the same with bilaterals between themselves. All of these new ASAs can best be described as "open market" bilaterals since in contrast to the traditional bilaterals which they replaced, they created significantly more open markets for air transport. However, not all controls were removed. Two types of bilaterals emerged, the slightly more restrictive US type and the more open European type.

Since 1978, several like-minded states have renegotiated their air services agreements along lines that are significantly different from those of the more traditional bilaterals. The impetus for change was linked to the change in United States aviation policy following the inauguration of the Carter Administration in January 1977. Up to then, the United States had acquiesced in the three-pronged structure of economic regulation of air transport that had emerged following the failure of the Chicago Conference to reach a multilateral agreement. The Carter Administration set out to reduce regulatory controls to a minimum. It initially was supported in this by several other governments, especially those of the

Netherlands and Singapore, though later other governments (e.g. the United Kingdom) also adopted a deregulatory stance.

In the summer of 1978 a statement on "International Air Transport Negotiations" was signed by President Carter (Presidential Documents, 1978). This stated that the United States' aim was to provide "maximum consumer benefits...through the preservation and extension of competition between airlines in a fair market place". This was to be achieved through the negotiation or renegotiation of ASAs with the following objectives:

- creation of new and greater opportunities for innovative and competitive pricing;
- liberalisation of charter rules and the elimination of restrictions on charter operations;
- elimination of restrictions on capacity, frequency and route operating rights;
- elimination of discrimination and unfair competitive practices faced by US airlines in international transportation;
- flexibility for multiple designation of US airlines;
- authorisation of more US cities as international gateways;
- facilitation of competitive air cargo services.

In a series of negotiations, the United States offered a small number of new gateway points to foreign airlines in exchange for all or most of the above objectives. The new bilateral with the United Kingdom signed in July 1977 and known as the Bermuda 2 agreement was the first major break from the traditional pattern of bilateral agreements. However, it was the United States/Netherlands agreement, signed in March 1978, which was to become the trend-setter for subsequent US bilaterals. Since the Netherlands was starting from a viewpoint very similar to that of the United States, it was inevitable that their bilateral agreement would be a particularly liberal one. Both sides set out to reduce the role of the government in matters of capacity, frequency and tariffs, and in the setting of market conditions.

The protocol for the United States/Netherlands agreement was signed at a time when negotiations had already been opened between the United States and Belgium and Germany for a revision of their bilaterals. Because of the geographical proximity of these two countries to the Netherlands, they could not afford to be less liberal on either scheduled or charter rights than the Dutch had been; otherwise, considerable transatlantic air traffic would be diverted to Amsterdam and then voyagers would travel the rest of the short distances to Belgium or Germany overland. As a result, the United States/Germany and United States/Belgium bilaterals concluded at the end of 1978 were very similar to the earlier United States/Netherlands agreement. There were variations, but the pattern was set. Other countries in the European area were under pressure to follow suit in their own negotiations with the United States.

Deregulation through bilateral renegotiation was also being pursued by the United States in other international markets. The most important after the North Atlantic was perhaps the North and mid-Pacific market; the United States negotiated several key bilaterals between 1978 and 1980 with Singapore, Thailand, Korea and the Philippines (and with others later). These bilaterals follow the same

Table 2. **Typical features of US-type "open market" air services agreements**

	US airlines	Foreign airlines
Market access	Any point in United States to specified points in foreign country	Access only to limited number of US points
	Extensive 5th freedom rights granted, but generally more for US carriers	
	Unlimited charter rights included	
Designation	Multiple	
	Airlines must be under substantial ownership and effective control of nationals of designating state	
Capacity	No frequency or capacity control	
	Break of gauge permitted in some ASAs	
Tariffs	Double disapproval (i.e. filed tariffs become operative unless *both* governments disapprove) or Country of origin rules (less frequent)	

Note: Examples include United States/Netherlands; United States/Singapore; and United States/Germany.

pattern as those in Europe: the countries were offered a handful of gateway points in the United States, usually less than five, in exchange for most if not all of the US objectives previously outlined. (For more details on US air services agreements after 1977, see Doganis, 1991.)

The key features of the post-1977 US bilaterals are shown in Table 2, but it should be borne in mind that there is greater variation in the detail of these newer ASAs than in those they replaced. In particular, some of the newer bilaterals are not quite as open as Table 2 would suggest. However, the bilaterals between (e.g.) the United States and the Netherlands, Singapore and Germany do encompass virtually all the features outlined in the table. In some cases, traditional Bermuda-type bilaterals have been modified by subsequent memoranda of understanding or diplomatic exchanges of notes to such an extent, they resemble the newer open market agreements. This is the case with the United States/France bilateral.

It can be argued that the new features introduced into the post-1977 United States ASAs effectively change the previous bilateral philosophy of fair and equal opportunity for the airlines of both signatory states, and of an equal balance of rights, to a philosophy which strongly favours the larger aviation power. Multiple designation, break of gauge, country of origin rules for charters, and "double disapproval" for tariffs all favour the countries which have several large airlines and which are major traffic generators. They are concepts of limited value to countries which have only one airline – especially if it is not a large international carrier – and which are not themselves generators of substantial volumes of scheduled or charter traffic. In the case of the US bilaterals, this imbalance was heightened by the unequal exchange of traffic rights. Whereas the US designated airlines are generally given rights from "any point in the United States" to the major city or cities of the other country, the foreign designated carriers are given only very few gateway points in the United States. Thus a single foreign airline flying to a handful of US points may have to face the challenge of several US carriers able to operate from anywhere in the United States, and with any tariff structure so long as it is not predatory.

Open market bilaterals – European type

As support for liberalisation policies spread to Europe, the more liberal and free-market attitudes prevailing in the United Kingdom pushed that country to renegotiate most of its key European bilaterals in the period from 1984 onwards. The first major breakthrough was in June 1984, when a new air services agreement was negotiated with the Netherlands – another country set on liberalisation. This agreement, together with further modification in 1985, effectively deregulated air services between the two countries. Free entry of new carriers, open route access by designated airlines to any point in either country, no capacity controls and a double disapproval regime for fares were the key elements introduced. These features, similar to those in the revised United States bilaterals discussed earlier, represented a clear break with the traditional European bilaterals which had prevailed until then. However, the more liberal of the European bilaterals went a step further than those of the United States by allowing open route access – i.e. they removed any controls on the points that could be served in each

country by the other country's airlines. In this respect they offer a more equal balance of opportunities to the airlines of each country. On the other hand, as the European ASAs were generally between neighbouring states, they granted significantly fewer 5th Freedom rights, if any. However, under the first two liberalisation packages agreed by the European Community, more extensive 5th Freedom rights on intra-Community services became available.

The United Kingdom/Netherlands agreement set the pattern for the renegotiation of other European bilaterals. Later in 1984, the United Kingdom signed a new air services agreement with Germany; the following year, agreements were concluded with Luxembourg, France, Belgium, Switzerland and Ireland. Not all of these went as far as the United Kingdom/Netherlands agreement in removing constraints on competition, but all of them allowed for multiple designation of airlines by each state, and several also removed capacity restrictions and introduced double disapproval of tariffs.

Some UK bilaterals went through a two-stage process. An initial agreement brought partial liberalisation, and was followed by a more radical second agreement. This happened with the United Kingdom/Ireland bilateral. A revised agreement in 1985 was superseded by a further agreement in 1988 which allowed for multiple designation, open route access, no capacity restrictions and double disapproval of fares.

While the United Kingdom set the pace, other European states also began to renegotiate their bilaterals in this period. They did not usually adopt all the features of the United Kingdom/Netherlands agreement in one go; the aim of the negotiations was to introduce gradual liberalisation. These developments were paralleled by the two liberalisation packages of the European Community approved in December 1987 and June 1990 – not discussed here, as the aim is to see to what extent a bilateral regime can open up air transport to normal market forces.

The two agreements between the United Kingdom and the Netherlands, or that with Ireland, are good examples of the most open of the new-style bilaterals. Their key features are contrasted in Table 3 with those of the more traditional European bilaterals.

It is evident in comparing the two columns in Table 3 that the open market bilaterals have cleared away many of the earlier constraints on market access, capacity or frequency, and on tariffs. The degree to which the markets have in practice been opened up is discussed in Section 5 below.

However, it is apparent that the new open market bilaterals, whether of the US or European type, have failed to resolve three key market access issues which may impede the free working of aviation markets. The first is the requirement to designate airlines that are substantially owned and effectively controlled by nationals of the designating state. The second is the question of 5th Freedom rights. Even if granted within one bilateral, they cannot be used unless granted in their own bilaterals by the third countries involved. The third is the granting to foreign carriers of the right to operate domestic routes, i.e. domestic cabotage rights.

The European Community's third liberalisation package, agreed in June 1992, resolved these three issues as far as intra-Community air services were

Table 3. **Traditional and new "open market" European bilaterals**

	Traditional (pre-1984)	New "open market" bilaterals[1]
Market access	Only to points specified	Open route access—airlines can fly on any route between two states
	Very limited 5th freedoms sometimes granted	
	(Charter rights secured under 1956 ECAC agreement)	
Designation	Generally single — but double/multiple in some ASAs	Multiple
	Airlines must be under substantial ownership and control of nationals of designating state	
Capacity	Shared fifty-fifty	No capacity control
Tariffs	Double approval	Double disapproval

1. Examples include United Kingdom/Netherlands and United Kingdom/Ireland.

concerned, though some restrictions on domestic cabotage rights were to be maintained until 1997.

4. Benefits and costs of the bilateral regime

A workable worldwide system

The current bilateral regime for the economic regulation of international air services has developed over nearly fifty years into a worldwide system covering all nations; none is excluded. The thousands of bilateral air services agreements, together with multilateral agreements such as the Chicago Convention and the various IATA agreements, have enabled the orderly and safe development of a

complex web of international air services for both passengers and freight. It is argued that passengers, shippers and the airlines themselves have all benefited from this.

One way of appreciating such benefits is to contrast air transport with developments in international shipping, which has many similar features. In ocean tramp shipping and the bulk trades, the absence of an effective bilateral regime has led to the emergence of open registries, the so-called flags of convenience. Shipowners have been able to register their vessels under foreign flags, thereby escaping the fiscal obligations, safety standards and manning requirements of their own countries. This has resulted in lower costs and lower freight rates. However, a small "piratical" element has used open registries to operate old and substandard vessels, to pay excessively low wages and to underman and undermaintain their ships. The accident rate among open registry ships has been well above the average, resulting in very high social costs in terms of loss of life, injury and pollution. In air transport, the bilateral regime has ensured the absence of "flags of convenience" for airlines.

Most governments willingly accept the bilateral system, while a much smaller number grudgingly accept it even though they may wish to modify or radically change it. Such wide acceptance of the system despite apparent shortcomings suggests that most countries consider the perceived benefits to their own airlines and consumers to be greater than any disbenefits.

The counter-argument is that "the airline industry is no longer different from other industries" (Trent, 1991) and should not be treated any differently. This was the theme of the Think Tank Report on Multilateral Aviation Liberalisation (Global Aviation Associates, 1991) and it was echoed in different ways by some of the speakers at the April 1992 Air Transport Colloquium in Montreal. For instance, Mr Jeffrey Shane argued that the debate is not about liberalisation but "really about normalisation – applying the rules that normally govern trade to trade in international air services" (Shane, 1992) and that "nothing like the system of government imposed impediments to economic decision making exists in any other sector of international trade".

This is clearly an oversimplification. There are many industries where governments or producers, singly or in groups, distort the process of economic decision-making – by limiting output, by subsidising production or exports, or by controlling market access. Can it legitimately be claimed that the production of and international trade in oil, coffee, aircraft, or many agricultural products is "normalised"? Air transport is not unique. There are several global industries where the normal forces of supply and demand do not work freely, including service industries such as liner shipping.

The bilateral regime of controlling market access and production in air transport may be unique in the precise way that access, output and price are controlled – but the existence of such controls is not unique. To a greater or lesser extent they apply to several other industries and service sectors. Removing such barriers to trade is after all the purpose of the Uruguay Round and the Group on Negotiations Services (GNS) debate.

Thus the discussion of bilateralism in air transport should more profitably focus on its perceived benefits and disadvantages rather than any notion of uniqueness.

A stronger argument against bilateralism is that the system, though worldwide, is inherently restrictive. This is because even when countries have signed the more liberal open market bilaterals, the market opportunities opened up tend to be those considered acceptable by the more restrictive of the two countries. The frequent occurrence of disputes between countries over the application and interpretation of their bilateral agreements suggests that too often, one of the two countries feels disadvantaged in some way. Disputes in 1991-92 between Thailand and the United States, Canada and Singapore or between the United States and both France and Germany show that this happens with new liberal open market bilaterals as much as, if not more so than, with the more traditional and restrictive bilaterals.

The increasingly frequent disputes suggest that the bilateral system is not working well. This may be because the air transport industry has matured and in recent years has undergone structural changes which make it progressively more difficult to operate within the confines of a bilateral system. Structural changes have been brought on by the following trends:

- A loosening of government ties with national airlines as a result of partial or total privatisation.
- Growing pressure to achieve the marketing advantages of large-scale operations through airline mergers, share purchases and marketing alliances (the latter often involving cross-holdings of shares), all of which increasingly transcend national frontiers. The recent purchase of 37.5 per cent of Sabena by Air France is one of many such examples.
- Increased emphasis on airlines' financial self-sufficiency and independence from government financial support.

These tendencies, which are symptomatic of a more mature industry, will put growing pressures on the existing bilateral system. For instance, can the system deal with national flag-carriers that are not effectively owned and controlled by nationals of their own state? It seems likely that the bilateral regime will progressively become unworkable unless it is substantially modified to cope with the structural changes affecting the industry.

A flexible system?

A major advantage of the bilateral system is its inherent flexibility. It allows any two like-minded countries to change totally or modify the air services agreement between them better to reflect their own needs and stages of economic development. It was shown earlier how the United States set about liberalising its own bilaterals in a series of renegotiations with key European and East Asian countries in the period after 1978. Equally, the United Kingdom and the Netherlands used their own bilateral as an instrument for liberalisation. Conversely, states which favour a more protectionist approach can continue to maintain their traditional bilaterals.

The flexibility of the bilateral regime is enhanced by the loopholes that exist within it, notably with regard to non-scheduled services. Excepting some of the United States open market bilaterals, most bilaterals do not encompass traffic rights for charter services. These are subject purely to ad hoc decisions of the two countries concerned, although in Europe in 1956 the member states of ECAC agreed to waive the requirement for prior authorisation from the destination country for a wide range of non-scheduled flights (HMSO, 1956). Thus a tourist destination country can at the same time be quite liberal and open with regard to incoming charter flights but more protective and traditional with regard to scheduled air services – the position of Greece, Morocco and Tunisia in the past. This flexibility of approach enabled the rapid growth of charter services in Europe, so that by 1990 about two-thirds of international passenger-kilometres within ECAC Europe were generated by charters. Such operations are largely uncontrolled in terms of price or capacity, and have less strict ownership constraints than do scheduled services. Charters in Europe have produced large consumer benefits in reducing travel costs and thereby generating a large increase in holiday travel. At the same time, they have forced down fares on competing scheduled services. Charter flights to points outside the Europe-Mediterranean area such as Florida, the Maldives, Thailand and Australia have been expanding rapidly in recent years – further proof of the flexibility of the current regime.

Surprisingly, it is the US consumers who have benefited least from the development of charter services. US antitrust legislation prevents or limits the vertical integration between travel agents or tour operators and charter airlines. Such integration is a key feature of the European charter industry. As a result, US charter airlines have been much less successful when competing with scheduled airlines than their European counterparts, and provide for only a small proportion of the US travel market.

The apparent flexibility of the bilateral system is not always perceived in practice because of several drawbacks.

First, the system of bilateral negotiation and renegotiation is time-consuming and cumbersome. This is especially so when there are disagreements between the two delegations involved over matters of principle or even of detail. Negotiations can drag on, requiring several rounds of meetings in each country. Each round may last from a couple of days to several weeks. The costs in manpower and time are enormous. Even a small country such as Cyprus may have up to ten government and airline officials in its negotiating team. Negotiators spend many days on each negotiation, not only in the formal face-to-face meetings but in preparation as well. The whole process is so slow that the larger countries normally have a large backlog of bilateral negotiations, with many countries each waiting their turn. A two-year wait is not unusual. Currently about forty countries are waiting to negotiate new agreements with Japan. Thus, far from being flexible, the system militates against quick decisions and rapid innovation. New services and new market opportunities are delayed or may be lost altogether.

Secondly, once a bilateral has been negotiated, it takes on a certain rigidity because it creates so many vested interests. The government officials involved in bilateral negotiations are sometimes reluctant to accept revisions since these imply that the original agreement was flawed. Airlines that are doing well under the existing terms of a bilateral or that are threatened if it is changed will hold up

effective renegotiation. A case in point was British Airways' success in holding up for several years the granting of traffic rights to Manchester for Singapore Airlines. Negotiations to change or modify air services agreements can only succeed if both countries wish to move in the same direction. Even then, the changes agreed may have to be a compromise. The needs of passengers or shippers may take second place to those of other parties with vested interests.

Such is the rigidity of the system that governments wishing to overcome a particular impasse created by other countries may have to bring trade issues unconnected with air transport into play. Thus in the mid-1980s the Malaysian government negotiators unable to obtain increased frequencies for Malaysia Airlines into London or Amsterdam pointed out that the two front runners for replacing the Fokker 27 fleet on their domestic network were the Dutch-built Fokker 50 and the British Aerospace ATP. Increasingly, trade deals or threats are introduced into air services negotiations to break down the reluctance of one partner to accept changes.

Finally, one aspect of the bilateral system's inherent flexibility can create confusion and uncertainty for both airlines and consumers: it allows governments to adopt contradictory policies simultaneously when negotiating with different countries. Thus the British Government throughout much of the 1980s espoused a liberal open skies policy towards other European countries while consistently trying to limit frequency increases by East Asian carriers on services to London. These apparently contradictory approaches were, however, consistent in terms of supporting the interests of United Kingdom airlines.

Countries can normally give twelve months' notice of termination of an agreement if they are unhappy with it. Unfortunately, this flexibility provides an opportunity for countries to change policies suddenly. For instance, the Canadian Government, having espoused liberalisation in air transport, signed a very open bilateral with Singapore in 1987. This enabled SIA to start Singapore-Toronto services in 1990 with 5th Freedom rights between Vienna or Amsterdam and Toronto. Within a year, in August 1991, Canada served notice of termination of the Canada-Singapore Air Services Agreement in order to deny SIA access to these transatlantic markets in which SIA was doing well in competition with Air Canada. As a result, SIA's Europe-to-Toronto services were discontinued in July 1992. The sudden reversal of Canadian policy, which clearly ignored consumer interests, has also forced SIA to lose the money it invested in opening up these routes. In short, the flexibility inherent in the bilateral system can be and is abused by governments, creating confusion and uncertainty for both airlines and their customers. It would clearly be much more difficult for countries to reverse policies suddenly if they were signatories to a multilateral agreement.

Thus, while the bilateral system is inherently flexible in allowing countries that espouse similar policies on air transport to move forward together, it can create rigidity and inflexibility when – and this is frequently the case – the negotiating partners do not pursue identical objectives. Even when aviation policies are apparently similar, the detailed objectives of each partner in any set of bilateral negotiations may differ. In those circumstances, the system may not respond quickly enough to changing market needs.

Safeguarding the interests of smaller states

The bilateral system emerged in the 1940s and 1950s in the form it did partly because of the need to facilitate and protect the development of airlines in countries destroyed by the Second World War. By ensuring equal opportunities for airlines from both states, by allowing in many cases for a fifty-fifty sharing of capacity and thereby limiting capacity growth, and by specifying the points that could be served, the early bilaterals enabled the reconstituted airlines of Europe to emerge and prosper. The IATA tariff agreements also helped. At the same time the bilaterals prevented their home markets from being swamped by the relatively large United States carriers that had emerged from the war as the major force in international aviation.

Subsequently, bilateralism enabled newly independent states to set up and operate national airlines, some of which have become major international operators with worldwide networks. Air transport is one of the few industries that can easily be set up by any country, at virtually any level of economic development, and with limited capital resources since funds can easily be borrowed or aircraft can be leased. It is easier to do this if one's country is a major tourist destination or an industrial power, or located at geographical crossroads. These are not essential prerequisites, however.

Singapore Airlines, Garuda, Malaysia Airlines, Thai International, Cyprus Airways, Air Mauritius, Emirates and others have only emerged and succeeded because in the early years they were guaranteed access to key markets on an equal basis with their foreign and initially stronger competitors. It is highly unlikely that they would have survived their early years if they had been operating under a multilateral open skies regime.

Given that the industry has now matured and there are so many national airlines, is the protection that can be afforded through the bilateral regime for smaller national airlines still necessary? Such protection seems particularly important for smaller countries or for countries which, although large in terms of population, have relatively small international airlines because of the stage of economic development that they have reached. Larger aviation powers or small states with large airlines, such as Singapore or the Netherlands, may well feel that they have outgrown the bilateral regime. The answer to the question depends on the benefits that smaller countries feel they obtain from having their own national airline. These benefits can be summarised as follows:

a) Many countries feel it is crucial to have their own airlines, to ensure that adequate and continuous air links with the outside world are maintained. They believe that their external links should not be subject to the whims of foreign airlines or the world's periodic economic or political crises. Two examples illustrate this need clearly. In the period immediately before and during the Gulf war early in 1991 virtually all foreign airlines stopped flying to countries in the region because of the war risk and the huge jump in insurance premiums, or because traffic collapsed. Cyprus would have been cut off from its main tourist and export markets if Cyprus Airways had not kept flying, and the economic impact of the crisis on the island's economy would have been even worse than it was. All foreign airlines also stopped flying to Dubai when war broke out. Emirates, on the other

hand, negotiated a special reduced insurance premium and its European services were interrupted for less than twenty-four hours. There are countless other instances where countries have for a certain period been wholly dependent on their own airline to maintain their external communications. For most countries the need to ensure such external links is more important than any assumed military benefit from having an airline. Many governments also consider that domestic air services, which have a crucial social and development role, are easier and cheaper to operate if linked to the international services of a national carrier. If the international services are actually profitable, they may even cross-subsidise domestic services, many of which may be inherently unprofitable. Malaysian and Olympic are two airlines that have done this in the past (see "Airline Benefits and Costs", below).

b) As explained earlier, airlines are relatively easy to set up. Once established they can generate substantial direct and even more indirect employment. Moreover, since they involve relatively advanced technology, they accelerate the transfer of technological and managerial know-how to the local population – which may subsequently benefit other industrial sectors.

c) In many countries the national airline has played a key role in developing incoming tourism. This has often been done in collaboration with the national tourist office. Foreign airlines may have neither the same interest in developing such tourist flows nor the same level of local knowledge and expertise to do so. SIA, Air Mauritius, Thai International, Cyprus Airways, Kenya Airways, Royal Air Maroc and Egyptair among many others have all played crucial roles in generating more employment in the tourism and related industries of their countries, especially in the early stages of development, than would have been the case had these industries been purely dependent on foreign airlines.

d) A national carrier may also generate net foreign exchange earnings or at least a saving in foreign exchange outflows. A high proportion of an airline's costs are likely to be in foreign exchange, notably fuel costs, interest and debt repayment, expenditure on spare parts and overseas station and staff costs. Against these must be set its overseas earnings plus that proportion of revenue from international tickets sold at home that would otherwise have gone abroad if the tickets had been bought from a foreign carrier. The more successful an airline is in earning revenue abroad, the more likely it is that it can generate a net inflow of foreign exchange rather than an outflow.

e) A national carrier may also generate revenue for its government through profit or corporation taxes if it is profitable, but also through the income taxes paid by its employees. The latter are likely to be among the better paid in the economy, so tax revenues are likely to be relatively high.

The size and impact of the above benefits depend partly on whether the country concerned succeeds in developing a tourism industry and partly on the success of the national flag-carrier or other carriers. For a small country in particular, the direct and indirect benefits described above increase with the success of its airline(s). The potential benefits for a small state can be gauged from the

Singapore Airlines example. In 1990 the airline generated 4.2 per cent of Singapore's GDP as well as $151 million in public sector revenue through corporate tax, dividends and airport charges. The airline was the country's largest private sector employer: one out of every 74 workers in the country. SIA also produced gross foreign exchange earnings of $2.6 billion (SIA, 1991).

It could be argued that these benefits arose only because the protection offered by the bilateral system permitted SIA to establish itself and grow successfully in the early 1970s following the breakup of Malaysia/Singapore Airlines. The fact that it no longer needs such protection is irrelevant to those smaller countries whose airlines have not yet enjoyed SIA's success.

The counter-argument would be that for those smaller or poorer countries whose airlines are consistently unprofitable, the costs of maintaining the loss-makers outweigh the benefits outlined earlier. However, this is not an easy equation to make since certain of the benefits are difficult to quantify while others may be intangible (e.g. the ability to avoid total dependence on foreign-owned airlines). In practice, most governments of smaller countries or of countries with weak airlines have come to the conclusion that the benefits of having a national carrier are real and important, and outweigh the costs. An international airline is seen as essential for economic development and the maintenance of external trade and communications links. For them, bilateralism safeguards their aviation interests.

The breakup of the Soviet Union has highlighted the advantages of bilateralism for many weaker states. How many of the new states of eastern Europe or central Asia would be able to establish airlines of their own if it were not for the safeguards afforded by the bilateral system?

Airline benefits and costs

The traditional bilaterals frequently had features which produced substantial benefits for scheduled airlines. Where the air services agreement limited the number of designated carriers allowed on any route, and especially where there was single designation (i.e. only one airline from each state), airlines clearly faced less competitive pressures. The designated airlines could develop their fleet plans and investment programmes in the certainty that no new 3rd/4th Freedom airlines would enter their key markets and undermine their traffic projections. The risks of overinvestment and overcapacity in such a situation are considerably reduced.

Many of the traditional predetermination-type bilaterals also required the capacity between two countries to be shared equally between the airlines of each state. This has meant that increasing capacity for one airline was effectively impossible if the airline of the other country refused to do so. The same also held if the two airlines had entered into a commercial agreement involving revenue-sharing or pooling. In either case the effective control of capacity by either or both airlines could ensure that passenger load factors were pushed up, which in turn usually meant that profitability was more likely to be achieved. Many airlines benefited from higher load factors as a result of capacity controls. During the 1980s, as previously mentioned, SIA, Malaysian and other East Asian airlines repeatedly complained that European countries such as the United Kingdom prevented them from offering additional frequencies on their routes to Europe. In

fact, the effect of this capacity control was to push up passenger load factors to unusually high levels on their major European routes.

The beneficial impact of bilateral capacity controls on load factors can be seen by comparing overall load factors on scheduled services. In 1990 in the deregulated US domestic market, the major US carriers all achieved weight load factors of between 45 per cent and 55 per cent on their domestic services. In other words, half their production was wasted. Meanwhile, the larger European airlines, many of which had some bilateral capacity constraints, generally achieved load factors of 65 to 72 per cent on their international services, despite the impact of the Gulf crisis in the summer of 1990. The East Asian airlines, operating in markets where bilateral controls on 3rd and 4th Freedom capacity were even tighter, achieved slightly higher load factors (IATA, 1991). One of the reasons for this significant discrepancy in load factors is that in liberalised markets with no capacity controls, higher frequencies become a major competitive tool.

Capacity control and the double approval requirement for tariffs have proved particularly helpful to smaller airlines and the airlines of states that were destination points rather than generators of traffic. Together they prevented capacity- and price-dumping by larger and financially more powerful airlines. Bilateral constraints on capacity and pricing together provide smaller or weaker airlines with a "fair and equal opportunity" to operate international air services.

Surprisingly, the bilateral system has in some instances actually facilitated the entry of new carriers on existing air routes. Where bilaterals have allowed for double or multiple designation while requiring a fifty-fifty sharing of capacity, the entry of a new designated carrier from one end of the route has meant that another carrier from that country would have to give up some frequencies, however unwillingly. In some cases the new entrant would be able to use the runway slots liberated for its own services. Virgin did this at Tokyo when British Airways was forced by the UK Civil Aviation Authority to give up some frequencies to permit Virgin to compete on more equal terms on the London-Tokyo route.

On the other hand, the regime in the days before the open market bilateral was detrimental to the interest of the more efficient and successful airlines. It precluded them from taking full advantage of any cost economies or of their superior marketing by developing or expanding markets at the expense of their less efficient or less popular competitors. They were constantly limited by constraints arising from capacity-sharing, by tariff controls and by limitations on the points and markets they could serve. Conversely, the bilateral system protected some carriers that were inefficient in cost or marketing terms, and reduced any need or impetus for cost reduction and improved efficiency. The working of market forces was further distorted if governments actually owned the inefficient carriers and were prepared to support them financially. In many markets, consumers too have suffered from higher fares, poorer quality of service and less choice.

However, it is not always the case that the bilateral system protects only the inefficient airlines. Many smaller national carriers, such as Cyprus Airways, are relatively low-cost and efficient operators because their wage costs are low or because their administration and marketing costs are tightly controlled. They need some protection, not because their costs are high but because they cannot obtain the marketing advantages arising from the very large scale and scope of opera-

tions of their larger competitors, especially if the latter are European or American airlines. Deregulation experience in the United States has shown that the trend towards mega-carriers arises primarily from the marketing benefits of scale rather than from any cost economies. Many new low-cost and low-fare airlines in the United States failed to survive against higher-cost majors because of the marketing advantages the latter enjoyed purely due to their size.

It is difficult to conclude whether the bilateral regime has on balance been beneficial for airlines or detrimental to their interests. What is clear is that many airlines, particularly smaller ones and those weaker in marketing terms, have benefited as a result of being protected from the full rigours of a competitive environment. On the other hand, successful, aggressive airlines offering superior products and able to capture a growing market share have been held back from expanding in the markets they already served or in developing entirely new markets.

It is important to remember, however, that the above disadvantages of the bilateral system apply primarily to the old-style Bermuda and predetermination types of air services agreements. The newer open market bilaterals, particularly those signed between European states (such as the United Kingdom/Netherlands agreement), have largely removed any constraints on competition. The only real constraint remaining in many cases is the ability to exercise effectively any 5th Freedom rights that may be granted, since the agreement of the third countries concerned is also required.

Consumer benefits and costs

Many of the advantages of bilateralism outlined above are also of direct benefit to consumers, i.e. passengers and shippers of air freight. The development of a stable worldwide network of interlocking air services is clearly welcome to consumers. At the same time, bilateralism has permitted the emergence of new national carriers, some of which have been innovators and market leaders in terms of product, service quality and (often) pricing. Consumers have undoubtedly benefited from the impact which innovative airlines such as SIA or Emirates have had in the markets they serve. Moreover, the bilateral system ensures that in most markets there are at least two airlines operating, one from each end of the route, and often more than two if there are 5th and "6th" Freedom operators as well. This has meant that consumers nearly always have a choice of carrier and product, though not always a choice of fares. Without the bilateral system to protect the smaller or weaker carriers, many thinner international routes would effectively have become monopolies operated by a single carrier offering consumers no choice and possibly resulting in higher fares.

The higher load factors which become possible where there is some form of bilateral capacity control may well mean that the resource costs of providing air services are reduced, since a smaller proportion of the capacity produced is actually unsold. Operating at higher load factors should also mean reduced environmental pollution, i.e. aircraft emissions, noise and so on.

Finally, domestic consumers in many countries benefit from the fact that profits from the somewhat protected international services of their national

airline(s) may be used to cross-subsidise domestic air fares. Lower and subsidised domestic fares generate larger volumes of domestic traffic, and thereby higher levels of consumer benefit.

On the other hand, the disbenefits to consumers arising from the bilateral system appear to be substantial. In the first place, in many markets it clearly reduces or precludes competition between airlines. This in turn reduces the impetus towards cost reduction, improved service, lower fares and better marketing. Second, the bilateral system stifles and impedes the growth and development of air transport. Bilaterals may impose a variety of restrictions – on the points to be served, on the number of aeroplanes flying between the designated points, on the capacity or frequencies offered, on the tariffs that can be charged, on 5th Freedom rights, and so on. Not all restrictions may apply in all markets. Nonetheless, the overall effect is that to a greater or lesser extent the development of new routes, of new types of products or services, and of new and innovatory fares may all be stifled or distorted. Significant potential benefits are thereby denied to consumers.

The key question then becomes one of ascertaining whether the benefits denied or forgone by consumers are greater or smaller than the benefits they enjoy as a result of bilateralism. Once again, this is a difficult equation to work out because of the difficulties of quantification. However, a recent Australian study unequivocally concluded that the welfare benefits of abandoning bilateralism were greater than the benefits of maintaining it.

In 1990 a joint Australia/New Zealand team examined the costs and benefits of creating a single open Australasian aviation market covering the two countries and abandoning the existing bilateral regime. It was assumed that domestic deregulation in Australia would take place and result in the entry of a major new start-up airline, probably Compass. The welfare benefits of expanding the Australian deregulated market to include New Zealand would arise from increased travel and lower fares. These were then calculated for three alternative scenarios. The results are shown in Table 4.

Another interesting point about the Australian study is that it supports the view expressed earlier that many airlines benefit from the bilateral regime. Abandoning the bilateral agreement between Australia and New Zealand would lead to a significant reduction in annual profits from the airlines involved (line 2 of Table 4).

It is evident from the Australian study that consumers would benefit from abandonment of the bilateral regime between these two countries, and that there would be a significant net welfare gain.

In any other similar situation, however, the net benefit to consumers of removing the bilateral system depends very much on the type of air services agreements between the two countries concerned. Where such agreements are traditional, i.e. of the Bermuda or (more especially) the predetermination type, the welfare gains may be substantial. However, if the bilaterals have been revised and are of the open market kind similar to the United Kingdom/Netherlands or United Kingdom/Ireland agreements, then a large part of the welfare benefits should already have been gained.

Table 4. **Welfare consequences of a single Australia/New Zealand aviation market following domestic deregulation**

A$ million per year

	Scenario		
	2	2A	2B
Consumer gain	93	249	85
Change in airline's profits	−40	−108	−20
Net welfare gain	53	141	65

Scenarios: 2: Single aviation market covering Australia and New Zealand.
2A: Single aviation market but with Air New Zealand entering Australian domestic market.
2B: Single market but Australian Airlines and Air New Zealand merge to match Ansett's network advantages.

Source: Australian Government Publishing Service (1990), *Costs and Benefits of a Single Australasian Aviation Market,* Canberra, December.

Thus one key question for discussion must be whether all or most of the welfare gains to be obtained by moving away from the traditional bilateral system can be obtained by moving to open market bilaterals; another is whether the bilateral system should be abandoned altogether.

5. The impact of the open market bilaterals

US-type open market bilaterals

The new open market ASAs signed by the United States with European and Pacific rim states affected many transatlantic and transpacific markets. At a general level, the impact of the liberalisation created by the new bilaterals can be summarised as follows:

- Many cities on both sides of the Pacific or the Atlantic received direct intercontinental services for the first time and many new routes were launched. Airlines found it much easier to serve new points.
- There has been a significant increase in the number of airlines operating in both these market areas. On the North Atlantic, much of the increase has come from additional US airlines.
- There has been an increased diversity of fare types and a strong downward pressure on fares as airlines new to these markets have tried to capture market share and establish themselves by price-cutting.
- As a result of lower scheduled fares, charter services on the North Atlantic have seen their market share cut from close to 30 per cent in 1977 to below 10 per cent.

- Industry-wide profit levels in both these markets have been low or non-existent. Many airlines have made substantial net losses for several years on the North Atlantic or the transpacific markets before finally withdrawing from them. Their ability to continue operating for so long adversely affected the profitability of the surviving carriers.

From a consumer viewpoint the benefits have been substantial – lower fares (often so low that they have had to be subsidised by profits elsewhere), wider choice of products and services, and more points served directly.

However, many airlines and governments both in Europe and Asia feel disadvantaged by the new bilaterals when facing up to competition from US carriers. They believe that the revised bilaterals do not provide conditions for a free and truly open market but are biased in favour of the US airlines. There are several arguments put forward to support this view.

First, market access is unbalanced. For instance, while US airlines can fly from any point in the United States to any point in the new Germany, German airlines only have bilateral rights to ten continental US cities (excluding Alaska and Puerto Rico) and special authorisations for two additional points.

Secondly, US airlines enjoy valuable 5th Freedom rights, whereas 5th Freedom rights granted to European or Asian carriers are of very limited commercial value. In 1990-91, US airlines served thirty intra-European routes out of Germany while Lufthansa could only operate four 5th Freedom sectors on its routes to the United States.

Many of the 5th Freedom rights enjoyed by US airlines in Europe are particularly valuable because they allow for a "break-off gauge" (i.e. change of aircraft type) in, say, London or Frankfurt, or because they generally involve relatively short sectors within Europe which can easily be flown as extensions to transatlantic sectors. To achieve similar benefits, European or Asian airlines would need to be given cabotage rights on United States domestic sectors.

Thirdly, most of the new bilaterals place no constraints on capacity growth or on the development of new services. The effect has been an overprovision of capacity on many routes to/from the United States, as existing US carriers have tried to increase their market share or new ones have attempted to establish themselves in the market. The result has been falling load factors and price-cutting as capacity growth has outstripped demand. European or Asian carriers have tried to restrict capacity growth more closely to forecast demand, with the result that they have lost market share. The German and French Governments have both accused US airlines of capacity-dumping. The French Government, for instance, has recently been trying to restrict the increases in capacity planned by the eight US airlines serving France for the Summer of 1992 to levels that would not undermine market conditions.

The above criticism arises directly from the workings of the bilateral agreements. There are numerous other criticisms which are levelled not at the bilateral regime as such but at the way air transport is operated in the United States – e.g. laws that allow airlines such as TWA or Continental to continue operating in intercontinental markets even though they are technically bankrupt. The listing practices of the US computer reservation systems, the charging policies of the US

Table 5. **Share of total passenger traffic (scheduled and charter) carried by US airlines, 1978-1990**

	US airlines' share in each market area[1]	
	United States – Europe (%)	United States – Far East (%)
1978	43.9	41.7
1979	44.6	44.4
1980	42.9	42.0
1981	41.0	39.0
1982	44.9	39.3
1983	46.5	41.4
1984	47.2	42.6
1985	47.2	41.0
1986	43.0	40.7
1987	46.6	41.4
1988	49.2	45.5
1989	46.9	49.0
1990	46.3[2]	53.7

1. In 1990 these two market areas generated close to 60 per cent of international travel to/from the United States.
2. Affected by the Gulf crisis.
Source: Compiled by the author from *US International Air Travel Statistics*, US Department of Transportation.

airlines for the domestic sectors of passengers arriving on foreign airlines, and the reluctance to allow foreign ownership of US airlines are all further causes for concern, and there are others.

It is argued that the imbalance in opportunities arising under the terms of the bilaterals, together with these additional operational factors, favours the US airlines and prevents competition on a free and fair basis. Consequently, European and Asian carriers have steadily lost market share to their US competitors since the new open market bilaterals were introduced in 1978 (Table 5).

The result has been a backlash – many governments and airlines feel that the new bilateral system is not working well and should be revised. Several of them argue that there can never be a truly open skies aviation regime because of imperfections in the market, and that capacity and other controls should be imposed to ensure that competition with US mega-carriers can be on a fairer and more equal basis. While such controls could be part of a multilateral agreement, they would be easier to impose bilaterally.

European-type open market bilaterals

In Europe the impact of bilateral liberalisation was most dramatic on the air services between the United Kingdom and Ireland. Many new routes were opened up and a handful of new airlines entered this largely ethnic market. The most aggressive was Ryanair, which launched new services in May 1986 with significantly lower fares. Within a year or so average passenger yields on the London-Dublin route had dropped by about a third, while traffic levels which had stagnated

in the period 1980-85 doubled by 1988. The strong downward pressure on fares continued as more airlines subsequently entered the market. By early 1991 yields were so low that British Airways pulled out of the London-Dublin route altogether. Nevertheless, frequencies overall have risen sharply.

A similar picture emerged between the United Kingdom and the Netherlands. The number of airlines operating between London and Amsterdam/Rotterdam jumped from five to ten. Total frequencies increased as existing airlines downsized to challenge the new entrants. There was a proliferation of various types of low fares, and average yields fell about 16 per cent in the first two years after liberalisation became effective. Traffic growth did not accelerate, however, and load factors declined.

The new European bilaterals appear to have won greater acceptance than their US equivalents primarily for two reasons. Firstly, they have generally been between neighbouring states with airlines that were often broadly similar in the size or scope of their operations. Secondly, because of open route access, each country's airlines were given equal opportunities to expand and develop new routes and markets. The overall result is that neither side has felt particularly disadvantaged by the workings of the new open market bilaterals. The parallel changes being introduced by the European Community have in any case reinforced the bilateral changes.

6. Future prospects for bilateralism

The new open market bilaterals appear to have removed some of the apparent disadvantages of the more traditional bilateral regime.

For consumers, bilateral liberalisation has generally meant lower fares, an increased range of fare types, more direct point-to-point services, higher frequencies and a wider range of airlines and service products to choose from. In nearly all bilateral markets, traffic growth has tended to accelerate in the first two or three years of liberalisation as a result of lower tariffs and/or new routes being opened, suggesting that additional consumer benefits have been generated.

On balance, as predicted in the Australia/New Zealand study, the open market bilaterals appear to have generated considerable consumer gains. Much can clearly be achieved through such bilateral liberalisation. Multilateral liberalisation would presumably increase the scope of any consumer gains. However, the figures in Table 4 above suggest that to maximise both consumer and welfare gains, foreign airlines would need to be allowed to compete in domestic markets. In other words, it would be necessary to have, say, British airlines operating on French or German domestic sectors, or KLM and SIA competing on US domestic routes. That has yet to happen.

For airlines, the open market bilaterals have meant significantly greater opportunities to open and develop new routes without entry and capacity constraints, and to introduce innovative and competitive pricing policies and new product features. The revised bilaterals have opened up the markets and made those operating within them more flexible and responsive to market needs. On the other hand, there has been evidence of both overcapacity in some markets and a

strong downward pressure on tariffs which has sometimes pushed them to an uneconomically low level. Airlines in liberalised bilateral markets have had great difficulty in increasing revenue yields when input costs such as fuel prices have escalated sharply. On balance, it is difficult without more detailed study to assess whether overall airlines have benefited or lost as a result of the open market bilaterals.

In general, the bilateral regime has become even more flexible, allowing states a greater range of options in adapting their aviation policies to their own needs and stages of economic development; as always, however, when states with differing objectives are negotiating, a compromise needs to be reached.

Another serious question is whether the new open market bilaterals, if more widely adopted, would enable smaller nations or those with relatively weaker airlines to protect their airlines, as the more traditional bilaterals have done. The experiences of and reactions to some of the newer US bilaterals suggest that to maximise consumer benefits, it may be necessary to abandon any idea of protecting the interests of smaller states or airlines. However, this would have the effect of making the open market bilaterals less widely accepted.

Finally, even the open market bilaterals leave two key issues unresolved. The first is airline ownership. As the airline industry becomes more globalised and the benefits of scale more apparent, it is increasingly unrealistic for countries to insist that designated airlines should be substantially owned and controlled by their own nationals or, in the case of incoming airlines, by the nationals of the designating state. Since within the European Community airline ownership in any one state will be opened up to any EC nationals or companies, the bilateral agreements between EC countries and third parties will have to be modified accordingly. In the longer term, the ownership requirement in ASAs may have to be relaxed to allow individual countries to designate any airline, irrespective of ownership, to operate the traffic rights they have obtained.

The second issue is that of 5th Freedom rights. The main advantage of multilateral agreements on traffic rights is that they make the exploitation of such rights immediately feasible. Those same rights granted under bilateral agreements, however, can only be used if the country granted them also has a separate bilateral with the third country concerned, granting it the same rights. Thus many 5th Freedom rights are granted but only a small proportion can actually be used, and even when they are, royalty payments may be required. Could this question be resolved by the inclusion in bilaterals of some kind of most favoured nation article on 5th Freedom rights?

The third constraint which continues under the new bilateralism is the inability of airlines to operate domestic services with full traffic rights in another country. Where the countries concerned are small, this is of little importance. Where countries are of considerable size and have well developed domestic air traffic flow, as in the United States or Japan, reserving such traffic for national carriers clearly gives the latter a major advantage in international operations as well. This is because well developed domestic networks can provide feed to their international services and also enable them to achieve the benefits of large scale more easily. There cannot be a truly free market in air services if large sections of that market are reserved for particular carriers. This is a difficult issue. However, within

the European Community domestic cabotage rights have already been granted to other Community carriers, though with some limitations until 1997.

All three problems could be resolved by changes in the relevant articles or route schedules of open market bilaterals if two like-minded countries wished to do so. They could then be described as true open skies bilaterals. The 5th Freedom issue is the most problematic in that 5th Freedom rights, once granted, cannot be exercised unless the third countries concerned also grant them. This might be made easier if some kind of most favoured nation approach was adopted on 5th Freedom rights by countries signing open skies agreements.

If these shortcomings of the new open market air agreements could be overcome, then it would seem that much could be achieved in reducing constraints to trade in international air services through a network of open skies bilaterals. This could be done more easily and more quickly than trying to reach multilateral agreement, especially as bilaterals could still allow some flexibility to individual states to reflect their own particular views.

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Scope and Limits of Multilateral Approaches to International Air Transport

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1. The prototype: "ideal" multilateralism – universal access with or without GATT

Much confusion exists in both the public and expert arenas about what is meant by a "multilateral approach to international air transport". Those who are fully committed to a nonprotectionist regime are talking about a world in which at least two of the guiding ideals of the General Agreement on Tariffs and Trade (GATT) or the General Agreement on Trade in Services (GATS) obtain – namely, that in every country which is part of the regime it is possible for airlines to compete for passengers regardless of the carriers' nationality. This competition would accommodate the special characteristics that make airlines a form of network services.

In such a regime, airlines could be established in any of the participating countries ("right of establishment" in GATT/GATS terms) and carry passengers and cargo on equal terms with other market participants ("national treatment" in GATT/GATS terms) to, from and within any other country forming part of the regime. The regime would be so widespread that airlines of all participants could add to their networks all significant traffic flows – thus none would be at a disadvantage in achieving the economies of scope and scale that are necessary for effective competition in deregulated markets.[2] Once fully established, this regime would automatically produce the desirable effects which are the object of Most Favoured Nation (MFN) status in GATT/GATS, since all competitors on the air transport network connecting the countries involved would have access to all significant traffic available to others; however, MFN in this regime would be an effect which defines free trade rather than an independent goal.

More generally, if multilateralism is understood in this ideal sense, GATT/GATS is not a result, but only one set of institutional arrangements which might produce the result. Other possible arrangements include a universal convention of the Chicago Five Freedoms variety, a set of connected regional open air transport

markets, or a parallel set of identical "open skies" bilateral undertakings which encompass every significant air transport market. Any of these, if fully developed in the ideal sense, would produce the same result – a single worldwide air transport market.

The *advantages* of such a market are those of free trade in general.

First, all producers could compete on an equal economic footing from a trade rules perspective, since all airlines would have access to networks of competitive scale and scope. (This corresponds to the condition of free trade in goods that all producers have access to economies of scale, regardless of the size of their home markets.)

Secondly, the market would provide concomitant benefits to aviation consumers and to producers of other goods and services for whom air transport is an important intermediate service, by allowing them access to the maximum possible choice in securing air transport services.

Thirdly, it would minimise "accidental" advantages and disadvantages of production and consumption which have their origins in political geography. Producers, consumers and airline operators around the world could benefit from services provided by airlines based in countries with comparative advantage in airline operations but little trade leverage.

It is important to recognise that this is not a change which would make everyone better off, even if on balance it produced large net gains. Air transport producers in countries with large home markets would lose the bilateral trade advantages conferred by the size of those markets, in return for which their consumers would gain from the competitive offerings of airlines from countries whose access to markets is at present limited by their poor bilateral trade position. For the world as a whole, the value of production would rise. Experience has demonstrated that for most countries of the world, the resulting benefits to consumers and other producers from lower prices and additional choice are sufficiently important to offset losses by particular producers and workers in industries affected by foreign competition. Those losses are real, however, and people suffering the losses understandably object to the changes and/or demand compensation. This is the classic trade-off inherent in the economics of free trade, and the gains and losses from that trade-off are at the heart of the politics of international trade in air transport services.

This highlights the *disadvantages* of an "ideal" multilateral regime once established.

The regime provides no "shelter" for those whose level of trade, economic or political development does not allow them to participate as full competitors. Producers, officials, owners and workers with human or physical capital relating specifically to air transport (executive or pilot skills; bureaucratic responsibility for air transport matters whose benefits include employment, prestige, travel and the opportunity to attend international meetings and negotiations; facilities such as headquarters or maintenance bases which are not easily moved) and who are located in countries which cannot compete with the best world producers, will lose in the competition which this regime creates.

If such producers and workers are politically influential, the multilateral regime may become unstable as individual governments come under internal political pressure to withdraw from its provisions. This is certainly not far-fetched: examples from trade in goods include agreements and rules, formal and informal, which hinder international trade in automobiles, agricultural commodities and products, textiles and shoes.

Since the economics of air transport competition require that airlines have access to networks which realise economies of scope and scale, the withdrawal of major participants would threaten the system once in place. Countries whose airlines, while very competitive, were faced with loss of access to markets critical to maintaining an efficient operation, would be inclined to compromise competitiveness to protect access (as has happened in automobiles). Major markets would then find it more rewarding to restrict access, and noncompetitive producers in important markets would consequently press for more restrictions despite opposition from consumers. It is difficult to predict precisely the equilibrium which would result from all this manœuvring, but the current trade pressures which have hindered progress in the Uruguay Round and are indeed threatening the GATT would probably be reproduced in any real-world version of an "ideal" multilateral aviation regime.

These pressures automatically tie the "ideal" multilateral regime to the cabotage question. Universal access without cabotage favours states with large internal markets. In a network industry in which economies of scope and scale are important, cutting off access to large internal markets can create competition problems. As one example, there have been several bilateral attempts to restrict US airlines' 5th Freedom access to European markets. (At least one succeeded in replacing Bermuda 1 with Bermuda 2.) These attempts have been expanded to the EC through the discussion of "EC cabotage", a concept which would impose varying degrees of restriction of access on outside airlines to markets which are currently accessible on a 5th Freedom basis. Intra-European "tags" to intercontinental routes are common and important to the viability of the routes. As the Community grows, "tags" will become increasingly subject to restrictions limiting the ability of airlines outside the EC to serve lower-density intercontinental markets. Similarly, while long-haul aircraft and the consequent realignment of transpacific routes have made Hawaii cabotage less important, there are still some transpacific markets in which restrictions on US mainland-Hawaii cabotage may affect the ability of non-US airlines to compete for some passenger routings and flows.

Hence, the viability of "ideal" multilateral regimes is affected by cabotage issues, even after the regime is established. The reality is that there will be intense pressure against cabotage in countries with well developed aviation industries, as long as some of their firms and workers cannot compete internationally. While all protectionist pressures can be difficult, nationalistic and historical reasons will make this kind especially so. It is an interesting fact that, whatever the theoretical trade advantages of cabotage – especially for countries without the internal market size to support well developed domestic air transport systems – only Chile, at the height of its embrace of free-market ideas, has ever permitted aviation cabotage as a matter of general principle. Placed in the same context as the pressure for access restrictions, the question becomes, "what level of cabo-

tage restriction is incompatible with the maintenance of a multilateral regime once established?"

In addition to its disadvantages (many of which, to be fair, will to a lesser extent also plague more limited attempts to create liberal air transport regimes multilaterally), the transition to 'ideal" multilateralism is difficult to achieve from the present situation. The primary reason for this is the well-known "free rider" problem, which makes it nearly impossible for any country with substantial markets to commit itself unilaterally to a multilateral regime which is less than complete.[3] No state with political gains to be made by protecting its market is likely to be willing to open access to that market on a multilateral basis without reciprocal commitments. The concern would be that other states would use access to the open markets to achieve scale and scope economies for their airlines, while denying the airlines of the "open" states access to their own markets – that is to say, states would not "pay" for access to the open markets by allowing access to their own. While it is possible that in some states consumers would be so powerful as to insist on allowing access to their own markets even though others were not open to their own producers, the history of anti-dumping laws and other trade barriers suggests that this is not likely.

In a network industry like air transport, the problem is particularly difficult when an unconditional commitment is made to MFN using the GATT/GATS approach. In a transition to multilateralism using a GATT/GATS regime, trade gains are made by gradually opening markets and including all participants unconditionally, so that a trade gain by any member expands the opportunities available to all. This works (with difficulty) for the GATT because trade in goods is multisectoral and divisible. However, air transport networks exhibit economies of scope and scale, and firms cannot compete if they cannot achieve scope and scale which allow competitive costs and competitive ability to attract revenue. Under these conditions, states whose air transport networks cannot achieve competitive scope and scale on their own can be expected to commit rapidly and easily to the new regime. States with large protectable markets can be expected to be the last to commit, since with unconditional MFN, access to other protected large markets is hindered by the fact that it is accompanied by the bestowal of competitive rights on airlines from small markets already within the umbrella (Kasper, 1988, pp. 95-100). Without some regime which produces mutual simultaneous commitment, or one which allows large states to commit mutually first and then creates incentives to admit smaller ones, an MFN approach will meet the same fate as the Five Freedoms proposed at the Chicago Convention, which attracted almost no adherents because no large nation was willing to sign except the United States (the country with the most competitive industry in the world at the time).

For these reasons, achieving "ideal" multilateralism in one programme would require a new negotiation as ambitious as the original Chicago Convention or GATS. This would be time-consuming and dangerous, since recent trends (such as France's notice of termination of its bilateral relationship with the United States, and request for capacity controls) suggest that a new comprehensive multilateral negotiation is as likely to produce more protection as more liberalisation (as seems to be a possibility created by the precarious condition of the Uruguay Round of GATT).

2. Alternatives to "ideal" multilateralism

If "ideal" multilateralism is likely to be difficult to achieve, and attempts to achieve it risk a more rather than less protectionist regime, what are the alternatives?

2.1. Phased multilateralism

One choice is to negotiate a regime of "phased multilateralism". In such a regime, a nucleus of three or more states would negotiate a mutually binding agreement among them which would create an open air transport market (with or without cabotage). This agreement could be "closed" – that is, it could require that admission of additional states as signatories would have to be approved by the original members, much as did the original Treaty of Rome. Alternatively, it could be "open", i.e. to adherence by additional members without the specific consent of the original signatories.

A closed agreement could not truly be "closed", or exclusive, by its terms, since it is always possible for the signatories to amend their agreement to admit other members after further negotiations among themselves and with the prospective members. At the same time, an "open" agreement cannot be truly open, since it is always possible for a signatory to resign from the agreement if it is unhappy with the addition of a member or members. "Closed" and "open" really define the terms on which discussion begins and the consequences of non-agreement. In a "closed" agreement, the initiative must be taken by new members or those who wish to add them, and the latter cannot easily arrange to stay inside the agreement and add members on terms to which other members object.[4] In an "open" agreement, the initiative must be taken by those who wish to block the addition of a member, and those who wish to do so cannot easily stay inside the agreement when the agreement provides for the adherence of new members.

It seems most likely that a phased multilateral agreement would be "closed" in its early stages (like the Treaty of Rome), when there were relatively few adherents and they held strong views or were uncertain about the future of the regime and would not want to risk being committed to a regime whose evolution they could not control. Such a regime would become unwieldy as it grew larger and might evolve toward an "open" one (like the GATT). An intermediate stage might well look like the current phase of evolution of the Treaty of Rome, in which unanimity has given way to voting rules as the Community has grown in size.

This regime has many *advantages:*

- It allows the initiative to come from like-minded states at a similar stage of development or aviation sophistication. This should substantially reduce the bargaining costs associated with the agreement. In particular, it should reduce the costs of persuading "holdouts" to join by allowing like-minded states to "work around" them.
- It permits taking advantage of historical commercial or political affinities, so that the adjustments necessary in any regime of freer trade can be carried on with relative political goodwill.

- It allows the project to begin on a very small scale if necessary. As problems emerge, adjustments can be made relatively quickly, with a low cost of renegotiation. Solutions worked out in small groups of states can be used as prototypes by other groups.
- States can be added one by one as they become interested, avoiding the necessity of persuading reluctant potential partners who happen to be geographically contiguous to enthusiastic ones.

It also has *disadvantages:*

- Opening aviation markets on a small-group multilateral basis may produce the kind of aeropolitical trade conflict between contiguous states that has sometimes been a concomitant of bilateral liberalisations. The fact that a group of non-contiguous states might be willing to sign a liberalising multilateral aviation agreement might put them at odds with their geographical and political neighbours. Contiguous states in Europe, for example, have sometimes had very different views of their bilateral relations with the United States. Where contiguous states with differing views about air transport arrangements share other loyalties, cultural or political (e.g. mutual membership in the EC), those loyalties can act as a check on the evolution of the process.
- It may be difficult to construct a group of non-contiguous states whose markets form a unit that is coherent from an aviation standpoint.
- Withdrawal of a state from a non-contiguous group of states may have the effect of making the geographic configuration of the remaining states commercially unviable. For example, given present technology, an association of several European states, Singapore and Australia might be made commercially non-viable if either Singapore or Australia withdrew.
- There is an important cabotage problem connected with the transition to partial multilateral liberal regimes, whether those are formed from arbitrary groups of consenting states or from regional arrangements. Article 7 of the Chicago Convention provides that "each contracting State undertakes not to enter into arrangements which specifically grant any such privilege [cabotage rights] on an exclusive basis to any other State or an airline of any other State, and not to obtain any such exclusive privilege from any other State".[5] There has been dispute over the meaning of this provision. The less restrictive view, which in the author's opinion is correct, is that it prohibits granting or obtaining cabotage rights conditioned on an undertaking on the part of the granting state not to grant them to any other states.[6] The more restrictive view is that this is a kind of MFN provision, and requires any state granting cabotage rights to any other state to grant them immediately to all states. Reconciling these legal views will complicate negotiating less-than-universal multilateral liberalisations if some negotiating parties insist that cabotage exchanges are necessary to achieve negotiating balance.

2.2. Regional negotiations

An alternative is to take pre-existing or new regional groupings of geographically contiguous states and bind them into a single aviation market using common air transport trade principles. An example of such a regime is the much-talked-about evolution of the United States-Canada-ECAC (European Civil Aviation Conference) North Atlantic regime into a multilateral air transport market governed by a comprehensive agreement. This regime might in turn be expanded to include other countries, such as Mexico or Eastern Europe, and ultimately other "developed" aviation countries.

While regional groupings of individual states might form a separate aviation trade area, such as the North Atlantic regional agreement, it is more likely that each participant grouping of states might itself be a broader regional trade area, such as the EC or the North American free trade area. These pre-existing regional groupings could then negotiate with one another to form an inter-regional aviation market.[7]

Adding geographical contiguity and pre-existing regional economic integration would bring important *advantages:*

- Much of the political give and take that is a necessary part of the creation of any such aviation group would already have taken place in the negotiations to form the broader regional market. As difficult as achieving a single aviation market inside the Community may seem, it is much easier than it would be without the Community because the institutions and basic political compromises of the Community provide a framework for the aviation discussion. It is difficult to imagine even the slow progress which is finally taking place in discussions between the United States and Canada without the success of the previous negotiations on a single free trade agreement between those countries.
- Geographic contiguity increases the likelihood of having a substantial "home" market to serve as a traffic base. It has become apparent that successful airlines in liberalised markets must have a strong local overseas and domestic traffic base in order to compete successfully at their hubs (Levine, 1987). A broader geographically contiguous home market allows selection of a hub with the appropriate local traffic base, and the concomitant ability to establish spoke routes freely within a substantial home market assures enough "mass" at the hub to provide traffic support for frequent flights or service on thin routes.
- Using regional single markets as the building blocks for links into a multilateral market makes it easier to erase or obscure the nationality of the participating airlines. Identifying airlines with states is probably the biggest single obstacle to the creation of a liberalised aviation market. Regional groupings which recognise internally the right of establishment begin to obscure the nationality of the firms within them. If the right of establishment were extended between groupings, so that EC investors could create or purchase an airline within the North America free trade zone or vice versa, it would be difficult for authorities to characterise claimants for protection on a national or regional basis. If combinations of European and North American investors created or owned an airline, nationalist "protectionism"

(at least with respect to Europe and North America) would not be a meaningful concept.

There would be *disadvantages* as well to attempts to create a single aviation market through links between regional groups. These disadvantages would, as is often the case, have their roots largely in the same characteristics which create advantages:

- Since regional groups are still in their infancy (except for the EC, which is perhaps in early adolescence), creation of, say, a North Atlantic agreement may well require much further development. Even the single European aviation market is not yet complete, and resolving such matters as negotiating competence questions may yet take quite some time. United States-Canada aviation matters are moving even more slowly than EC efforts, and the evolution of the North American negotiations and their implications for air transport will therefore take even more time. The difficult questions of negotiating competence which have generated so much concern inside the EC have not been addressed at all in the North American continent, since no North American institutions exist which are comparable to the Commission. Where is the Brussels of North America?
- The Asian market is the fastest-growing in the world, but there is no Asian economic unit in serious prospect. With whom will the states of the EC and NAFTA (North American Free Trade Agreement) negotiate? The inter-regional market would make negotiations between any single state and the group very difficult. On the other hand, to whom within the grouping would the participating regions, say EC-NAFTA, delegate competence for negotiations with third countries? What would be the implications for negotiation if every existing route from North America and Europe to, say, Tokyo became part of a single market system with connections and feed to and from everywhere in North America/Europe?
- The economic world engendered by these regional groupings is heavily tied to geography. States without regional arrangements cannot easily participate, and negotiations between those states and the regional groupings often seem unsatisfactory and unfair to the non-affiliated states. (An example is the experience of Argentina, Australia, Canada and New Zealand in attempting to deal with the EC on agricultural trade.) In a world in which linked regional aviation markets were the most dynamic, what mechanisms would allow the participation of such developed aviation markets as Australia, New Zealand, and South Africa?
- The same Chicago Convention cabotage dispute that will complicate reaching multilateral liberalisation through a series of multilateral agreements will also complicate reaching multilateral agreement by connecting regional markets.

2.3. Defined Standard Multilateral Terms inserted in bilaterals

If even the inter-regional approach requires a level of institutional development which has not yet been approached, what alternatives remain for multilateral progress? Yet another path toward liberalisation might be the creation of bilateral

agreements incorporating Defined Standard Multilateral Terms. As these bilaterals accumulated, they could form the nucleus of a multilateral market.

This concept is not well defined. In its simplest form, it might include terms which were not explicitly multilateral but drafted in such a way that bilaterals would evolve into a standard liberal form, at least among states with developed air transport markets. Linking states bound by identical liberal bilaterals into a multilateral liberal market would be an easier process than stitching together a multilateral agreement from disparate elements. Such a process could proceed by degrees, ultimately merging with the non-regional multilateral institutions as outlined in Section 2.1 above. To the extent that recent US aviation policy has a coherent objective, it seems to be evolving in this direction, as in the recent open skies initiative.

A more developed form of the Defined Standard Multilateral Terms concept might make each term part of an agreement which would be explicitly reciprocally multilateral. Each defined standard term would cover one element of a totally liberal agreement. When a pre-defined cluster of these terms existed in agreements among several states, the terms would define a multilateral agreement among them. Since each state would control the existence or non-existence of a bilateral agreement with any other, states could be admitted to the multilateral market only by unanimous agreement of the others, but that agreement would not necessarily be simultaneous. This approach combines elements of the "closed" and "open" multilateral arrangements described in Section 2.1 above.

Defined Standard Multilateral Terms would include:

- A pricing article, which could create incentives for adherence by providing differential rights to price matching or leadership for those who incorporate the terms and those who do not.
- Open route exchanges, including 5th Freedom.
- Capacity freedom, including the right to change of gauge. This term might include the moving market share limits used by the EC in its single market packages.
- "Doing-business" terms, relating to computer reservations systems, distribution access, facilities access, self-handling, and the other incidents of what the GATT would call "national treatment".
- Finally, the cabotage question would require attention. Any resolution which included grants of cabotage rights would probably include definitional adherence to an empowering interpretation of the Chicago Convention (Article 7).

Defined Standard Multilateral Terms would have several *advantages*. They would be free of geography, allowing the creation of a liberalised market nucleus worldwide. By pre-defining the options, they encourage simplicity of negotiation. They would allow states to choose whom they dealt with on liberalised terms, thus avoiding the problems of MFN. Yet on the other hand, no state could block the development of multilateral aviation relationships among others willing to create them. This process permits phasing and fine-tuning among the initial core group of adherents, allowing for caution at the beginning.

It might also be possible to establish a minimum core of terms (pricing, routes, capacity) which would define a multilateral regime, while allowing expansion into doing-business and cabotage terms on an optional basis. This might allow negotiators to "trade off" terms, including a less-than-complete set with some partners, with the possibility of further expansion later. Including each term expansion would commit a state to allow all other states incorporating that term to use rights conferred by it.

The concept of Defined Standard Multilateral Terms is sufficiently new, and the web of relationships and incentives it would create sufficiently complex, that it is difficult to be confident that all its *disadvantages* have been identified. Some, however, are now apparent.

Although early adherents could control the entry of new adherents, they could not control the agenda of opportunities. One state could create awkward choices or even conflict by beginning the process of inclusion with a state whose participation would be objectionable to others for political, historical or commercial reasons. Moreover, individual disputes might be hard to resolve, since no formal multilateral mechanism would exist, and disputes between states would affect bystanders. Finally, states with geographic advantages could use them to control the viability of competitors.

3. Choosing and using the defined options

The prospects for liberalisation

It is necessary to put any discussion of the various options for liberalisation into a general context. Very strong forces continue to push the industry and governments toward liberalised markets.

First of all, in order to meet the travel needs of an increasingly global business market, it is necessary to build airline networks of large scope and scale. In order to provide traffic volumes that will support these large networks, it is necessary to have the pricing freedom to encourage mass leisure travel and the freedom to combine many traffic flows to provide volume on individual routes. It is increasingly difficult to meet scope, scale and volume needs in tightly protected bilateral markets.

Secondly, many markets have already been substantially liberalised. In order to compete with airlines which have been sharpened by competition in those markets and which use the flexibility which those markets provide to shape traffic flows, airlines in countries which do not favour liberal policies are forced to seek access to new markets and to adopt newly flexible marketing policies. Eventually, these requirements force further liberalisations.

Attempts to protect airlines from rivals operating in liberalised markets are very difficult to maintain over the long term. It is easy to sympathise with those who are endeavouring to mitigate the disproportionate effects of competition on their national airlines and workforces. However, it is difficult to see how the competitive realities of the airline business or of politics will allow the clock to be turned back. Traffic turned away from one market (especially leisure traffic) will

move to another, and that traffic will in turn strengthen the ability of the carriers and countries benefiting from it to compete in business markets against protected carriers.

Accordingly, efforts to protect one market will not work; protection would need to be reinstituted in most of the already liberalised markets. It is unlikely that a widespread political consensus to allow this exists. An increasingly sophisticated travelling public is aware of the opportunities that have been created by liberalisation and has exerted pressure on governments and national airlines all over the world. At the same time, restrictions on public expenditure in all the industrialised democracies have made it unfeasible to continue to use public funds to support national airlines. As government financial support becomes difficult, airlines are being privatised to give them access to capital and to limit public financial exposure. This process in turn weakens the ability to produce a political consensus for protection. The cycle may take many years to work itself out, but it seems inexorable.

Thirdly, governments which have already liberalised find it difficult to turn back, since doing so involves taking away rights from airlines which already have them. This is always more difficult than declining to expand rights where airlines do not have them.

If liberalisation is likely to continue, what form will it take?

Regional negotiations: a route to multilateralism?

It will probably take the form of regional negotiations on the North Atlantic. While this may seem plausible, insufficient attention has been given to the issues such a negotiation would create. The form with which a start could most easily be made would be United States-EC negotiations, but it is doubtful whether these could proceed without involving Canada, other western European states such as Switzerland, Sweden, Norway, Austria and others, and perhaps Mexico and some other European states. This would be an unwieldy negotiation, but it might build on the existing United States-Canada-ECAC regime.

In such a process, many obstacles would have to be addressed for which there are no obvious solutions at the moment. Questions of negotiating competence with third parties, rules of accession for new members, cabotage/5th Freedom issues, and adjustments/concessions for states with high-cost or otherwise weak airlines are formidable examples.

Phased multilateralism: a new "Five Freedoms" convention?

An obvious alternative would be the creation of a multilateral network of like-minded states. This would have the effect of creating a new Five Freedoms convention to which others could adhere on terms which would depend on whether the network was "closed" or "open". A place to start might be with those states that have signed new-form bilaterals with the United States in the past fifteen years. These include such developed aviation states as Germany, the Netherlands, Belgium, Singapore, Korea and Taiwan (although the latter's ambiguous juridical status might complicate its inclusion). Such a zone, however, would

probably be seen as threatening by other developed states with which these states have important relationships. A number of questions would need to be resolved. Would the EC permit such a development? What effect would the network have on Asian relationships with Japan and China?

Standard Agreement Terms: a controlled start?

The least threatening route toward multilateralism might be the inclusion of Defined Standard Multilateral Terms in existing bilateral relationships, with a view toward creating a network of such agreements. Again, a starting place might be the language included in certain provisions of new-form bilaterals with the United States, but there is no reason why the language of those agreements could not be modified if other forms were preferred or acceptable. It is worth recalling that this system gives each participant the power to choose its bilateral partners, and it is to be expected that a small nucleus of states would begin to build these relationships in a highly co-ordinated way. In fact, a North Atlantic zone could be built around a web of such relationships, perhaps easing some of the third-party and negotiating competence issues that would be created by an explicitly multilateral form. Another advantage is that states not within the geographic ambit of the North Atlantic could be made party to this network if it was deemed advantageous to do so.

These three alternatives are not mutually exclusive, and in fact might merge and mutate into one another depending on the form and path of evolution that the process might take. Regional negotiations might create a form which could be expanded into a multilateral network that is not limited geographically. A multinational network might gain enough adherents on, say, the North Atlantic or in East Asia to enable it to evolve into an explicitly regional system, creating incentives for other states in the region to liberalise, privatise national airlines and join. A web of Defined Standard Multilateral Terms incorporated into bilaterals might serve as the basis for either a multilateral regime or a regional system, as well as a standard for third-party negotiations with those of the group. The combinations are almost endless and complex, but their very complexity provides a range of opportunities which could be adapted to circumstances and pursued.

Notes

1. As from 1 July 1992, Executive Vice President, Marketing, Northwest Airlines. This paper was written while the author held the posts noted at Yale University. The opinions expressed in the paper are those of the author and do not necessarily reflect those of Northwest Airlines.
2. For an explanation of the effects of economies of scope and scale on airline competition, see Levine (1987).
3. The "free rider" problem occurs when a person or firm cannot be excluded from a benefit which is costly to produce. In that situation, the incentive is to enjoy the benefit without paying for its production. A less than optimal amount of such goods will be produced. In extreme cases, where the benefit is very costly to produce and the benefit received by any individual producer is less than the cost of producing it, no production of the benefit will occur at all, although each potential user would have benefited by more than its *pro rata* share of the costs.
4. Of course, the threatened defection of a member whose market is important to the viability of the airlines of the others is a very significant factor in determining the value of the grouping to the remainder.
5. Convention on International Civil Aviation (Chicago Convention), Article 7.
6. The Chicago Convention represented a least-common-denominator compromise between the free trade position taken by the United States and highly protectionist positions taken by the Western European powers, especially the United Kingdom and France. (As a matter of historical interest, the Australians proposed a single, intergovernmentally owned international airline, which could be characterised either as the ultimate in protectionism or the vanguard of international socialism.) The approach taken in the Convention document was to agree on what could be agreed on and to be silent on all the rest, leaving those issues to the Five Freedoms agreement or bilaterals. Free traders like the United States agreed to a Convention which granted in an affirmative way the maximum access that the protectionist states would be willing to accept. Protectionists, knowing that they could not get the United States to sign a more restrictive agreement, gained the advantage of leaving for further negotiations the issues on which the Convention could not agree.

   The Five Freedoms Convention was made available to those who were willing to adopt a more open regime, but it failed, leaving bilaterals as the principal vehicle for international aviation. The bilaterals which followed varied considerably in their provisions. Those signed by the United States had very broad capacity provisions and asymmetric route grants.

   Under these circumstances, to argue that such signers as the United States consented to restrict their ability to liberalise their air transport regime on a bilateral basis borders on the tendentious. The interpretation of Article 7 urged by those who insist that it prohibits any granting of cabotage to a single negotiating partner – thus reserving

cabotage for the millennium of completely open trade among nations – could not possibly have been acceptable to the United States. The restrictive interpretation of Article 7 put forward by protectionist states is an attempt to ban for all others bilateral liberalisations which they find unattractive. This interpretation is totally at odds with the compromise that emerged at Chicago.

This interpretive dispute has relevance for multilateral liberalisation. To allow progress, it is important to avoid "liberalisations" which restrict any improvement until all have accepted a totally open regime. This paper suggests some ways in which partial but extendable liberalisation could be accomplished.

Nothing in the discussion is meant to suggest that cabotage is or is not a good idea. Rather, its intent is to emphasize that grants of cabotage which do not contain an undertaking to refrain from granting them to others are consistent with the Chicago Convention. The fact that many states take the opposite view, however, is the basis for the author's assertion that cabotage issues will complicate any transition to a multilaterally liberal regime because they will seem to some to be a necessary ingredient of balance and to others legally impermissible.

7. See for example Wassenbergh (1992), which includes a "mock negotiation" between EEC and US delegations.

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Glossary of International Air Transport Terms

Several norms of international commercial aviation guide agreements among airlines and states. The first five, often called "Freedoms", were identified at the Chicago Convention in 1944 as integral to the facilitation of international air transport.

1st Freedom: "the right of innocent passage" permits a civil aircraft to fly over the territory of another country without landing, provided the overflown country is notified in advance and approval is given.

2nd Freedom: provides for the right of a civil aircraft of one country to land in another country for technical reasons, such as refuelling or maintenance, without offering any commercial service to or from that point.

3rd Freedom: allows an airline to carry traffic from its country of registry to another country.

4th Freedom: allows an airline to carry traffic from another country to its own country of registry.

5th Freedom: refers to the right of an airline to carry traffic between two countries outside its own country of registry as long as the flight originates or terminates in its own country of registry.

6th Freedom traffic is international traffic that originates behind a carrier's homeland (e.g. South American traffic flying to Europe via New York on a US carrier). Such traffic is not considered a right, and no Bilateral Air Transport Agreement refers to "6th Freedom" traffic.

Cabotage Rights open up air transport services within the boundaries of a country to foreign carriers.

Based on Vicki L. Golich, "Liberalizing International Air Transport Services", in Dennis J. Gayle and Jonathan N. Goodrich, *Privatization and Deregulation in Global Perspective,* Quorum Books, New York, 1990.

Annex

OECD Forum for the Future
"New Policy Approaches to International Air Transport"

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