

A Carlson
Principal Research Officer
September 1997

**RESEARCH PAPERS PREPARED
FOR THE IASC
1996/97**

<http://www.dot.gov.au/program/iasc/iaschome.htm>

The views expressed in this paper are those of the author and do not necessarily represent those of the International Air Services Commission.

FORWARD

In late 1996, the International Air Services Commission (IASC) commenced an 'in-house' research program to consider specific issues facing the IASC. To assist in this task, the IASC seconded Anthony Carlson from the Bureau of Transport and Communications Economics.

This report brings together the results of Mr Carlson's work. A valuable contribution was also made by Melinda Hughes, a Graduate Administrative Assistant on rotation in the IASC. While the IASC Commissioners and Secretariat also provided comments and direction, the views put forward in this report do not necessarily reflect the views of the IASC.

Throughout the course of the year, three major matters relating to the IASC's allocation of capacity to Australian airlines were considered. These were:

- a comparative assessment of the IASC's requirements for start-up airlines;
- cooperative agreements between airlines; and
- defining indicators to determine whether or not a carrier has effectively serviced a route.

The results of investigations into the first two matters resulted in papers to be presented at the 21st Australasian Transport Research Forum, to be held in September this year. The results of the third matter appear publicly in this report for the first time. Due to resource constraints, the research program consisted primarily of literature reviews to determine the issues relevant to the IASC's procedures, possible approaches the IASC may take in the future and areas where further research is required. While the IASC also allocates freight capacity, the emphasis in this report is on passenger capacity.

The subject matter presented here is not necessarily sequential. This reflects the preliminary nature of the IASC's investigations. Any comments on the matters discussed, or possible future studies, would be appreciated.

Danny Scorpecci
Executive Director
IASC
September 1997

CONTENTS

	Page
FORWARD	i
CONTENTS	ii
ABSTRACT	iv
PART A: AN OVERVIEW OF THE IASC AND THE CAPACITY ALLOCATION PROCESS	1
The Reasonably Capable Test	2
The Additional Public Benefit Criteria	2
The Start-Up Phase	3
Contested Renewals Not In The Start-Up Phase	4
THE IASC'S DETERMINATIONS	4
PART B: FINANCIAL REQUIREMENTS AND START-UP AIRLINES	5
INTRODUCTION	5
INTERNATIONAL AVIATION REGULATORY REQUIREMENTS	6
The Economic Requirements of the IASC	6
The Economic Requirements of the OST	7
European Economic Requirements	8
Canadian Economic Requirements	9
A SUMMARY OF THE ECONOMIC REGULATORY REGIMES	9
A COMPARISON OF BARRIERS TO ENTRY	10
Factors facilitating start-up airlines in the US	10
The Lack of a Successful New Carrier	11
The Lack of Available Capital	11
The Nature of the Australian Domestic and International Networks	11
Operating Costs	12
REGULATORY VERSUS NON-REGULATORY BARRIERS TO ENTRY	12
THE COSTS AND BENEFITS OF START-UP AIRLINES - AN INITIAL ANALYSIS	13
Benefit to Consumers from Air Fare Savings	14
Benefit to Consumers from Time Savings	14
Cost to Consumers from an Airline's Overnight Collapse	15
Results	15
CONCLUSION	16
PART C: AIRLINE COOPERATIVE AGREEMENTS	17
TYPES OF COOPERATIVE AGREEMENTS	17
Examples of joint services	18
Code sharing	18
Blocked space and seat exchange agreements	19
Revenue pooling	19
WHY JOINT SERVICES?	20
Frequency type joint services agreements	21
Density type joint services agreements	21
THE IMPACT OF JOINT SERVICES ON COMPETITION	22
What is an aviation market?	23
Type of passenger	23
The impact of joint services agreements on market structure	24
Concentration of firms	24
Barriers to entry	25
Joint services agreements and commercially sustainable services	26
THE IMPACT OF JOINT SERVICES ON CONSUMERS	27
JOINT SERVICES ON AUSTRALIAN ROUTES	28
CONCLUSION	29
PART D: EFFECTIVELY SERVICING THE ROUTE: THE CASE OF A CONTESTED RENEWAL OF A DETERMINATION WHERE THE ROUTE IS NOT IN THE START-UP PHASE	30

INTRODUCTION	30
DEFINITION OF EFFECTIVE.....	30
MEASURING EFFECTIVENESS	31
A serious breach of a term or condition contained in the determination.....	32
Serious safety concerns	33
Development of the market.....	33
Appropriate use of the capacity	34
Service Reliability	35
Development of Australian aviation infrastructure.....	36
Service convenience	36
In-flight services.....	37
How Hard Should The Effectiveness Test Be?	37
CONCLUSIONS	39
REFERENCES.....	40
ABBREVIATIONS	40

ABSTRACT

The International Air Services Commission (IASC) was established in 1992 to allocate Australian international aviation capacity rights to new and existing Australian airlines upon application. In doing so, the IASC refers to the objectives contained in the *International Air Services Commission Act 1992* (the Act) and public benefit criteria contained in the Ministerial Policy Statement. Part A of this report outlines the role of the IASC and some of the major issues it faces when making allocations of capacity.

It is a specific objective of the Act to enhance international air services by fostering greater economic efficiency in the airline industry, and increased competition between Australian carriers. In this regard, the entry, or threat of entry, by new or existing carriers provides some stimulus for incumbent carriers to remain efficient. However, there is a risk in allowing companies with inadequate financial resources to commence operations as international airlines providing regular scheduled passenger services. This risk includes the costs an Australian carrier, ceasing to operate without warning, imposes upon consumers. There is also a risk such airline failures have a negative effect on the perceived quality of the services provided by the remaining Australian carriers, as well as the increased difficulty for future airlines to obtain start-up capital. In such cases, the community may be better served by the IASC not making an allocation of capacity.

The IASC is required to only allocate capacity to a carrier if the IASC believes the carrier is reasonably capable of operating its proposed services. Part B of this report considers the IASC's financial tests of 'reasonably capable'. Although it is unlikely that the IASC's financial tests represent an unreasonable barrier to entry, a simple cost-benefit analysis of a hypothetical example illustrates that the present tests may exclude a new entrant even though its proposed services could provide a net public benefit within a short time period.

The international aviation industry is changing. In particular, an increasing number of airlines are engaging in cooperative agreements of one form or another with other airlines. Part C of this report discusses the issues of cooperative agreements between airlines with an emphasis on the Australian circumstance. One conclusion drawn is that at present, most cooperative agreements are likely to have a net public benefit. However, it is possible that in the future these agreements may lead to an international aviation industry which is highly concentrated, with the agreements acting as barriers to entry for potential new airlines.

Part D of this report provides a discussion of a specific issue facing the IASC. Under paragraph 8.2 of the Minister's Policy Statement, in a contested renewal of determination allocating capacity on a route not in the start-up phase, the IASC must renew in favour of the incumbent carrier unless two tests are satisfied. One of these tests is that the incumbent carrier has failed to effectively service the route. The legislation provides little guidance on what is meant by effective. Consequently, Part D provides an interpretation of effective and a possible means of determining whether the carrier has failed to effectively service the route.

PART A: AN OVERVIEW OF THE IASC AND THE CAPACITY ALLOCATION PROCESS

The International Air Services Commission (IASC)¹ is a Commonwealth statutory authority, established under the *International Air Services Commission Act 1992* (the Act)². The object of this Act is to enhance international air services by fostering:

- greater economic efficiency in the airline industry, and increased competition between Australian carriers;
- increased responsiveness by airlines to the needs of consumers, including an increased range of choices and benefits;
- Australian tourism and trade; and
- the maintenance of Australian carriers capable of competing effectively with airlines of foreign countries.

The IASC's role is "to determine the outcomes of applications by existing and prospective Australian airlines for capacity and route entitlements available under [international] air services arrangements" (IASC 1996a, p. 3). These air services arrangements (ASAs) are the outcomes of bilateral negotiations between the Department of Transport and Regional Development (DoTRD), on behalf of the Australian Government, and the appropriate foreign counterpart representing the government of that country. While there is a trend to more liberal ASAs, most still limit the capacity between the two countries available to the designated carriers of each country. For example, Australia has only one ASA providing unlimited capacity - the Single Air Market Arrangements with New Zealand, while the Australia-US ASA effectively allows for unlimited capacity.

The IASC plays no role in the negotiation process. Instead the IASC has the sole responsibility of allocating available capacity, acting independently subject to the Act and Policy Statements issued by the Minister under s.11 of the Act (currently the *International Air Services Policy Statement Number 3*, signed by the Hon. John Sharp, Minister for Transport and Regional Development, on 23 April, 1997).

An Australian carrier can not operate a scheduled international air service without a capacity allocation by the IASC. In allocating capacity, the IASC assesses the merits of the applicant's proposed services on the basis of public benefit criteria contained in the Policy Statement, the essential features of which are:

- a reasonably capable test (paragraph 4);
- additional criteria which are applicable in assessing public benefits (paragraph 5);
- a start-up phase to facilitate the new entry of a second carrier on a route (paragraph 7); and

¹ Based in Canberra, the IASC consists of a part-time chairman and two part-time members. It is supported by a secretariat consisting of approximately nine analytical and administrative staff. Copies of the Act, Policy Statement No. 3 and the IASC's determinations, decisions and procedures can be found at the IASC website.

² A bill amending this Act is presently before the Senate after passing through the House of Representatives. The most significant proposed change allows the IASC to allocate 5th Freedom rights.

- a rebuttable presumption in favour of the incumbent carrier seeking a renewal of a determination allocating capacity on a route not in the start-up phase (paragraph 8.2).

The Reasonably Capable Test

Paragraph 4 states that as long as the applicant is reasonably capable of obtaining the necessary approvals to operate on the route, and is reasonably capable of implementing its proposal, the use of the entitlements of Australian carriers under a bilateral arrangement is of benefit to the public.

The necessary approvals required to operate the route refers to matters such as designation as an Australian carrier, safety approvals and timetabling. On those matters the IASC takes the advice of DoTRD.

When deciding whether or not an applicant is reasonably capable of implementing its proposals, the IASC considers the managerial and financial capabilities of the applicant. For existing airlines it is relatively easy for the applicant to demonstrate its managerial capability. For new carriers, it may be more difficult to demonstrate managerial capability, but it does not appear to be a major obstacle. Instead, new carriers appear to have more difficulty in passing the IASC's reasonably capable financial test³. This is discussed in Part B of this report.

The Additional Public Benefit Criteria

Paragraph 5 contains additional criteria which are applicable in assessing the benefit to the public of an applicant's proposed services when capacity is limited, insufficient capacity exists for competing applications, or when the IASC receives submissions opposing an application. The criteria have also been applied as the framework for evaluating joint services applications.

In brief, the paragraph 5 criteria are:

<i>Tourism benefits</i>	The extent to which proposals will promote tourism to and within Australia;
<i>Consumer benefits</i>	The extent to which proposals will maximise benefits to Australian consumers;
<i>Trade benefits</i>	The extent to which proposals will promote international trade;
<i>Competition benefits</i>	The extent to which proposals will contribute to the development of a competitive environment for the provision of international air services; and
<i>Industry structure</i>	The extent to which proposals will impact positively on the Australian aviation industry.

The IASC is not obliged to apply all the above criteria if it is satisfied that the important criteria in the circumstance have been met. The IASC may also apply additional criteria as it considers relevant. While in general the criteria are fairly self explanatory, it is important at this stage to point out three issues contained within the competition criterion.

³ Existing carriers must also pass this financial test when applying for capacity on a route for the first time.

Firstly, there is a possible contradiction contained in the phrase “[the IASC] should have regard to the need to develop strong Australian carriers capable of competing effectively with one another and the airlines of foreign countries”. It is possible that an allocation of capacity to one Australian carrier over another may increase the competitive forces between those two Australian carriers, but at the same time, it may weaken their competitive positions vis-a-vis foreign carriers operating on the same route.

Secondly, the competition criterion specifically states that independently operated services are to be preferred over joint services “as, in the long term, operation of capacity on own aircraft is likely to result in more competitive outcomes”.

Thirdly, the current Policy Statement contains specific references to the IASC taking into account the outcomes of determinations and decisions made by the Australian Competition and Consumer Commission and the Australian Competition Tribunal.

The paragraph 5 criteria have been criticised by Findlay and Round (1994, p. 52), who argue the competition criteria “over-rides” all others and that a “greater degree of competition on the route contributes...to all the other criteria”. While essentially this is true, it is possible to consider cases where giving either applicant the capacity may result in no discernible difference in the degree of competition on the route. In such cases, the other criteria provide additional means in determining the relative merits of each application.

The Start-Up Phase

The start-up phase provision is contained in paragraph 7, whereby, on any route on which an Australian carrier is already operating scheduled international services, the pre-eminent consideration is to introduce competition on the route by allocating to an *first* new entrant a level of capacity appropriate to the development of efficient, commercially sustainable operations. In doing so, the IASC should allocate capacity to an *first* new entrant, provided it is satisfied that:

- the level of capacity available and in prospect is sufficient to support a level of services necessary to permit the development of efficient, commercially sustainable operations by both the initial new entrant and the incumbent Australian carrier; and
- the proposed new carrier’s tariff and service proposals would enhance competition on the route; and
- approval would not result in a decrease in inbound tourism to Australia, Australian consumer benefits or trade; and
- the proposed new carrier is reasonably capable of obtaining the necessary approvals and commencing operations as proposed.

Where there are two or more new carriers applying for capacity as the first new entrant, the criteria contained in paragraph 5 are applied to determine which of the carriers is the first entrant. In addition, if a new entrant’s application is contested by the incumbent carrier, and the total amount of capacity sought by both carriers exceeds the amount of capacity available, then the start-up phase provisions only apply to the amount of capacity required to provide commercially sustainable operations. If the new entrant has applied for more capacity than this, then the paragraph 5 criteria are applied to the balance of the contested capacity.

The difficulty facing the IASC is determining what level of capacity is enough to provide commercially sustainable operations. A discussion of this difficulty is contained in the Findlay and Round article referred to above. However, two points raised by Findlay and Round are applicable to many of the IASC's considerations and not to those specifically involving the start-up phase. These are:

- the difficulty of making decisions on a route basis, when the competitive position of a carrier is often determined by network considerations over a number of routes (and consequently involve numerous other capacity allocations already made); and
- the difficulty of making decisions based on expected outcomes when the IASC has no control over the outcomes of its decisions.

In addition, the present framework in which the IASC must allocate capacity creates the situation where a carrier can be operating services on a route, utilising capacity which has been allocated to it via a number of determinations. This incremental allocation of capacity is not only administratively burdensome, it can also make it difficult for the IASC when considering the competitive implications of successive applications, and in contested renewal cases (as shown in Part D of this report).

Contested Renewals Not In The Start-Up Phase

Paragraph 8.2 provides the criteria to be applied in cases where the renewal of a determination allocating capacity on a route not in the start-up phase is contested. The criteria provided favour the incumbent carrier, with the onus of proof being on the contesting carrier. A discussion of this issue is contained in Part D of this report.

THE IASC'S DETERMINATIONS

The IASC allocates capacity by determination. Section 15 of the Act allows the IASC to include such terms and conditions it sees fit. However, the IASC must:

- specify the period during which the determination is in force (presently 5 years for a determination and 3 years for an interim determination);
- include a condition that the capacity be fully utilised, which is an implicit 'use it or lose it principle'⁴;
- include conditions relating to the use of the capacity for own or joint services; and
- include a condition stating the extent to which changes in the ownership and control of the carrier are permitted while the determination is in force.

The IASC may review a determination at any time, but only if it believes the carrier has, or is likely to, breach a term or condition contained in the determination.

⁴ Paragraph 9 of the Policy Statement explicitly states the use it or lose it principle. This principle is based on the assumption that aviation capacity is a scarce resource and, therefore, valuable.

PART B: FINANCIAL REQUIREMENTS AND START-UP AIRLINES

INTRODUCTION

On occasions, in allocating capacity it can be difficult for the IASC to meet each of the objectives contained in the Act. In particular, facilitating competition by increasing the number of airlines providing services may not necessarily lead to a public benefit, even though there is an assumption that international aviation rights are valuable and it is in the public benefit for available capacity to be used. For example, it is possible that a new entrant maybe unable to sustain its services in may need to withdraw from the route at a later date. Depending on the nature of this withdrawal, the cost to the community of the airline's withdrawal may outweigh any initial benefits from allocating the capacity. These costs may include damage to the Australian tourism industry, additional costs to stranded passengers and the perception Australian carriers provide poor quality services, reducing the competitiveness of other Australian carriers. Consequently, it may be possible that the community is better served by the IASC not making an allocation to the new entrant.

When an airline "collapses" (as happened to Compass and the New Zealand carrier Kiwi International) there is a *perception* that the cost to the community is large and consequently some form of government intervention may be required to minimise the likelihood of airline failures. This is perhaps one reason for the IASC being required to only allocate capacity if it is of benefit to the public, and it is not a public benefit unless the applicant is 'reasonably capable' of implementing its proposals.

However, the definition of 'reasonably capable' is open to some interpretation, and it is possible the IASC has approached this requirement conservatively. Between 1992 and 1996 there have been seven prospective airlines that have been unable to obtain capacity, primarily because they were unable to satisfy the IASC that they had the necessary funding to commence sustainable operations. An eighth airline, Australia Air "was allocated capacity to China but that determination was subsequently revoked when the airline was unable to secure funding" (Bain 1996). At the same time, only Ansett Transport Industries (now Ansett International) and National Jet Systems (NJS) received capacity to provide international passenger services.

More recently, Flight West Airlines and Australia World Airways (AW) have been allocated capacity. However, the AW allocation is on the condition that it provides evidence to the IASC that it has in place funding, on terms and conditions approved by the IASC, within six months of the final determination being issued. Meanwhile, NJS applied to the Commission to hand back all of its capacity on the Australia-Singapore route and over half its capacity on the Australia-Indonesia route.

This paper examines the interpretation of 'reasonably capable' taken so far by the IASC in terms of:

- the approach taken by similar overseas regulatory authorities;
- the costs of airline failures; and

- the time required for an airline to remain operating before the sum of the benefits provided by the airline's services would outweigh the costs should the airline fail at any given time.

As a starting point, there appears to be a difference in the number of North American start-up airlines compared to the Australian experience. For example, 19 North American carriers commenced operations in 1993 alone (Moreno 1994, see also Nuutinen 1996) compared to only two major Australian domestic start-up airlines since deregulation, and only three entrants into the Australian international aviation market since 1992. Should there be more new Australian carriers? If so, what barriers do potential Australian international carriers face? Rather than going through all the forms of aviation barriers to entry (for such a discussion see Street, Spence and Smith 1993), this paper compares the Australian aviation industry structure with US observations, to determine what are the substantial differences in the Australian circumstance.

INTERNATIONAL AVIATION REGULATORY REQUIREMENTS

In general, there are two types of regulatory requirements that airlines must meet - a safety requirement and an economic requirement. In the US, Canada and Australia, these requirements are separated, with the safety requirements administered by the Federal Aviation Authority, Transport Canada and the Civil Aviation Safety Authority respectively. While safety requirements, particularly equipment standards can form a barrier to entry, they are not considered in this paper.

Economic requirements are imposed by the Department of Transportation - Office of the Secretary (OST) in the US, and the Canadian Transportation Agency (CTA) in Canada. One difference between the IASC and its US and Canadian counterparts is that the IASC only deals with international carriers. In Australia there are no special economic requirements for domestic carriers, nor are there any regulations restricting service capacity.

In Europe, while the licensing of intra-European Union air carriers is regulated by EC Regulation 2407/92, member states retain administrative responsibility through their national licensing agencies (Farrell 1993). Individual EC member states continue to maintain economic regulatory authority over their national international carriers.

Although the comparison here is mainly focused on the US requirements, the IASC is continuing to seek further information on the regulatory requirements of its overseas counterparts.

The Economic Requirements of the IASC

The public benefit criteria used by the IASC to assess applications for capacity are contained in the Minister's Policy Statement. Paragraph 4(b) states:

"It is not of benefit to the public for the Commission to allocate capacity to Australian carriers unless such carriers:

- (i) are reasonably capable of obtaining the necessary approvals to operate on the route; and
- (ii) are reasonably capable of implementing their proposals."

Subsection (i) refers to such matters as designation as an Australian carrier, safety approvals and timetabling. On those matters the IASC takes the advice of DoTRD.

It is under subsection (ii) that the IASC has established “a rough rule of thumb” (Bain 1996) to test the capability of a new carrier to implement its proposal. In general, this test consists of two parts: an assessment of the applicant’s business plan; and an assessment of the applicant’s funding arrangements.

The IASC’s usual test of an applicant’s business plan is whether the applicant’s proposed services can be expected to ‘break-even’ by the end of the period of the determination (usually 5 years).

In terms of the applicant’s funding arrangements, the IASC usually requires the applicant to have sufficient capital to cover start-up costs and normal operating costs, for a period of six months after the commencement of operations. As part of this assessment, the amount of capital required can not be offset by revenue flows to the carrier.

The amount of capital required of the applicant is not rigid since the IASC may be prepared to reduce the amount required if the applicant can provide a convincing argument, such as substantial contractual agreements providing guaranteed future revenue flows.

In addition to the quantum of funds required by the applicant to implement its proposals, the IASC is also interested in the form the funding takes. The IASC’s main concern is the irrevocability of the applicant’s source of funds, rather than on the gearing of the applicant’s capital base.

The IASC assesses applications based on the following information requested from the new entrant:

- principals and management of the company;
- route frequencies, aircraft type and capacity;
- fares, traffic projections and break even load factors; and
- a detailed business plan including projections of profit and loss, and cash flow statements and the proposed funding base.

The Economic Requirements of the OST

The US Department of Transportation, Office of the Secretary (OST) adopts a ‘natural justice’ process, similar to that used by the IASC, which seeks to determine whether a new airline is “fit, willing and able” to perform the proposed service (OST 1994). This three part test determines whether the applicant has the:

- managerial competence;
- disposition to comply with regulations; and
- financial resources necessary to operate a new airline.

OST requires an applicant to “provide independent, third-party verification that it has available to it resources...sufficient to cover all of its pre-operating costs plus a reserve equal to the operating expenses projected to be incurred by the applicant during three months of normal operations. Because projected expenses during the first several months of operations

do not include all costs that will be incurred during a normal period of operations, the three month standard is based on one-quarter of the first year's operating cost forecast" (OST 1994, p. 11). That is, the zero revenue test applied by OST is based on an average period⁵.

OST requires a business plan for only the first normal year of certificated operations compared to the IASC's requirement of 3 or 5 years (depending on the period of the determination sought). Although the information sought is much the same, one difference is the dimension of the bureaucratic process. For example, OST requires each applicant to file an original application and 12 copies compared to the IASC's requirement of just the original application.

Like the IASC, OST has a 'use it or lose it' principle with OST allowing one year from notification of the final order before the applicant loses its certification. The IASC applies this principle slightly differently by stating in its determinations a date by which the applicant must fully utilise the capacity allocated to it. The 'use it or lose it' principle reflects the notion that air rights are a valuable resource.

European Economic Requirements

European Council Regulation 2407/92 states a new airline must be able to demonstrate to the "reasonable satisfaction of the competent authorities of the licensing Member State" (Farrell 1993, p. 164) sufficient capital resources to meet the applicant's fixed and operational costs for the first three months of operations without any revenue. While this is similar to the Australian and US models, there is no specific mention of start-up costs although it is likely such costs are included in the fixed cost component.

The EC test of the applicant's business plan is that the applicant must be able to demonstrate it can meet at any time its financial obligations, both actual and potential, for the first two years of operation.

The biggest difference in the European model is its formal monitoring process. Every financial year and at any time upon request by the licensing authority, the applicant must provide to its licensing authority the audited accounts related to the previous financial year (Farrell 1993, p. 164). In addition, the licensing authority has the power, although not obligation, to withdraw or suspend the airlines operating licence when there are "clear indications that financial problems exist" (Farrell 1993, p. 165). These powers could be seen as an attempt to minimise the impact of an airline collapsing and/or lowering safety standards to remain competitive. Also, since no reference can be found to the duration of the European airline operating licences (this could be at the discretion of the individual member states), this power could be considered as an alternative to the review processes of the Australian and US authorities which occur when the term of the decision has expired.

This review of European regulatory requirements is unlikely to be comprehensive since only those regulations covering intra-European Union carriers are discussed here.

⁵ OST insists that its test should not be considered a zero revenue test as it argues a zero revenue test would enable an applicant to reduce the start-up capital required by excluding those operating costs incurred when collecting revenues. However, the IASC does not allow these costs to be excluded either, therefore, for uniformity, the OST test will be referred to here as a zero revenue test.

Canadian Economic Requirements

Canadian carriers seeking a licence to operate domestic, non-scheduled international, or scheduled international services, are required to pass an economic assessment of their proposed services. A prospective carrier must demonstrate that it has or can acquire funds at least equal to the total costs of its proposed services, including start-up costs, and operating and overhead costs for a period of 90 days. However, the Canadian economic requirements are different in that there is no zero revenue test. Instead, this test is replaced with the condition that at least 50 per cent of the carrier's funding requirement be represented as equity in the carrier's balance sheet.

While the Canadian equity requirement overcomes the difficulties of estimating future revenue streams, it is the experience of the IASC that such a requirement would pose a substantial barrier to start-up airlines in the Australian context.

A SUMMARY OF THE ECONOMIC REGULATORY REGIMES

The similarities between the Australian, US, European and Canadian economic regulations for new airlines are:

- sufficient capital to cover start-up costs;
- sufficient capital to meet the operating costs of the proposed service for a given period;
- the provision of a sound business plan; and
- a period of review.

These regulations, are summarised in table 1, are similar enough to represent a common paradigm of the economic regulation of new airlines. However, although there is a common concern for ensuring the financial stability of a new entrant airline, whether this concern is based on the perceived costs to the community of commercial failure, or whether the concern is that financial instability may lead to a degradation of safety standards, is not known.

TABLE 1 A COMPARISON OF INTERNATIONAL ECONOMIC REGULATIONS FOR NEW AIRLINES

<i>State</i>	<i>Start-Up costs covered</i>	<i>Operating capital test</i>	<i>Test of business plan</i>	<i>Review process</i>
Europe	Yes	Zero revenue test, based on the first 3 months.	Financial obligations for the first 24 months able to be met at any time.	Annual and ongoing
United States	Yes	Zero revenue test, based on an average 3 months.	No tests but a business plan for the first year must be provided with the application.	Expiry of the determination
Canada	Yes	An equity test based on 90 days.	Profitability based on optimal demand.	None
Australia	Yes	Zero revenue test, based on the first 6 months.	'Breaking-even' on the service within the period of the determination sought.	Expiry of the determination

Sources Farrell 1993, OST 1994, CTA 1996 and IASC.

A COMPARISON OF BARRIERS TO ENTRY

Baumol et. al. (1992, p. 908) define barriers to entry as “any impediment to the establishment of a new firm in an industry”. Barriers to entry may also include those barriers that make it difficult for a firm to withdraw from an industry and hence deter a firm from entering the industry in the first place.

Types of barriers to entry can be considered in terms of the effect that they have upon new entrants. That is, barriers to entry may:

- exclude, limit or deter a firm from providing a service; or
- raise the total cost of providing a service above that incurred by an incumbent firm.

Before considering whether the economic regulatory requirements of the IASC are barriers to entry, it is appropriate to review some of the literature on start-up airlines. Unfortunately, the focus of analyses into barriers faced by new Australian carriers has been on the inter-state market. There has been little analysis into the barriers faced by Australian international carriers. Similarly, analyses of the US situation often do not distinguish between domestic and international carriers. Consequently, the following discussion relies heavily on domestic examples being applied to the international context, with the implicit assumption that the underlying economic conditions in the international and domestic markets are the same, allowing for the influence of international capacity limitations.

Factors facilitating start-up airlines in the US

In the US, from January 1990 to July 1995, there were 180 applications to OST, by potential new airlines, for an authority to operate commercial services, of which 90 were approved (GAO 1996). At the end of July 1995, 57 were still operating, although there is no indication how many of these airlines operate international services. In 1993, Nocella argued the following reasons for the number of start-up airlines entering the US aviation market even though the larger incumbent airlines were making substantial losses:

- the success of Southwest Airlines;
- the inability of large carriers to control their costs;
- the availability of low cost aircraft;
- a ready supply of cheap labour and experienced managers;
- the availability of gates at airports; and
- a readily available pool of capital.

Nuutinen (1996) added other factors such as:

- the improved government approval process;
- growth in aviation support services; and
- improvements in distribution technologies.

Comparing these influences to the Australian international and domestic markets provides an interesting insight. The Australian domestic market is considered here since, given the substantial start-up capital requirements for potential Australian international carriers, it is

likely that future international air carriers would have at first been domestic carriers, as is the case of Flight West Airlines.

The Lack of a Successful New Carrier

When the Australian domestic aviation market was deregulated in 1990, Compass commenced operations within a month, and six potential carriers were preparing to enter the market within a year (BTCE 1991, p. 15). However, both Compass Mk 1 and 2 collapsed and were not replaced by any new carriers.

Although National Jet Systems successfully entered the international aviation market, its limited operations from the north of Australia to Singapore and Indonesia has probably resulted in its success not being widely known. This lack of publicity contrasts dramatically with the publicity surrounding the more recent collapse of the New Zealand carrier, Kiwi International, on the Australia-New Zealand route.

The Lack of Available Capital

The perceived lack of a successful new entrant is likely to reinforce the unwillingness of the capital market to provide funds for new start-ups. When Compass was formed, “the airline floated \$50 million on the Sydney Stock Exchange and was oversubscribed by \$15 million” (BTCE 1991, p. 22). However, Compass Mk 2’s attempt to raise \$50 million of capital through a public float was under-subscribed by 46 per cent (Street, Spence and Smith 1993, p. 169). More recently, when the IASC approved Australia Air’s application for capacity on the Australia-China route, Australia Air was unable to attract the minimum \$55 million of capital even after 15 months of the determination being made.

While obtaining funding may be easier in the US, “the majority of the applicants that do not complete the process or never begin operations do not acquire the financial resources necessary to cover the start-up costs for their proposed operations” (GAO 1996).

The Nature of the Australian Domestic and International Networks

If there is a lack of available capital in Australia, and since the type of route chosen by the airline has a direct impact on the required start-up capital, then one could expect that by starting small it may be easier for an airline to gain the required funds to expand their operations to include international services. However, in Australia the inter-state domestic network is characterised by a fairly simple string of routes dominated by the high volume Sydney-Melbourne corridor from which most other flights extend either north or west. Although this means a new entrant can “gain access to a large number of passengers by flying on only a small number of key routes” (BTCE 1991, p. 11), it also means the new entrant would be in direct competition with the two incumbent airlines, Ansett Australia and Qantas. Holloway (1995) suggests such a strategy would make it difficult for a new entrant to be successful.

Instead, Holloway argues that a new entrant should be seeking a route structure that provides quick turnaround times, keeping clear of congested airports particularly if associated with high airport user charges. This is supported by Halstead (1996) who identified two types of route structure used by new entrants in the US domestic aviation market. Halstead suggests

Southwest employed a saturation strategy that consisted of using three aircraft between two city pairs, while ValuJet adopted a triangular network, with three aircraft rotating around the three routes. Also, Windle and Dresner (1995) argue Southwest tended to enter more concentrated markets with lower passenger volumes.

While the size of the US domestic aviation network may provide many opportunities for such route structures, the opposite is true in Australia. In addition, Australia's geographical position determines an international network that also provides few opportunities for new entrants. The only significant short distance international route is the highly competitive Australia-New Zealand route. While Indonesia and New Guinea are closer to Australia, they are significantly further from the more populous south east Australia region, the main source and destination of Australian traffic.

New airlines may be able to differentiate their product from existing carriers by identifying niche markets, including routes not served by any carrier. However, while "product differentiation is a good strategy for a new airline, it is not as effective as in other industries. This is so because like prices, products can be matched very quickly by incumbent firms." (Forsyth 1989, p. 11). For example, Air New Zealand established Freedom Air to compete directly with Kiwi International - just four months after Kiwi commenced regular passenger services.

Operating Costs

As in North America, there is little evidence to suggest new Australian airlines are faced with higher operating costs compared to incumbent carriers. For example, the BTCE estimated Compass had a thirty per cent cost advantage over the incumbent airlines (BTCE 1991, pp. 11-5). In that study and others, the sources of cost savings available to new entrants are usually attributed to lower labour and maintenance costs due to improved work practices and lower unit wages.

The BTCE (1994, p. 8) estimated that maintenance and overhaul costs represented approximately 10 per cent of total operating costs and 25 per cent of direct operating costs. Holloway (1995) suggested that start-up carriers should be able to compete equally with major carriers in terms of the labour component of maintenance costs, but major carriers have an advantage in terms of the materials component. However, as carriers increasingly outsource their maintenance requirements to reduce costs, it is likely that established carriers will be able to take further advantage of their purchasing power to obtain more favourable maintenance outcomes than start-up airlines.

REGULATORY VERSUS NON-REGULATORY BARRIERS TO ENTRY

Given that the Australian domestic aviation market has no economic regulatory controls, the lack of new Australian domestic carriers implies that there are substantial non-regulatory barriers to deter new carriers from entering the market. This premise is supported by a post-Compass study conducted by Street, Spence and Smith. They concluded that the "opportunity for entry of the type attempted so far, that is, by Compass Mk1 and 2, is somewhat limited" (1993, p. 178). The main reasons for this conclusion were:

- the lack of risk finance and credit facilities;
- difficulty in capturing a share of the business market;
- lack of access to domestic terminals; and
- the experienced gained by the incumbents.

In comparing Australia with the US, the substantial barriers that exist in Australia include:

- the lack of a well known successful new airline;
- the lack of risk capital; and
- the ‘thin’ nature of the Australian domestic network.

The latter three factors are significant in that they are interdependent. That is, the nature of the Australian inter-state network dictates that a start-up airline would require substantial capital resources to commence operations, however, the existing capital market perception of start-up airlines makes it difficult to secure the required capital.

Given the domestic situation, it is possible that even if the IASC imposed no economic regulations, it is unlikely that a new airline would be able to secure enough funding in order to commence operations. As a result, it could be argued that the economic requirements of the IASC do not impose a substantial barrier to entry for new airlines. At worst, the economic regulations imposed by the IASC do not appear to be substantially different with those imposed by the EC and US authorities.

However, what if a future applicant, with a sound business plan, could demonstrate that it had secured capital but not enough to meet the IASC’s current minimum requirements? Would the IASC’s test then pose an inappropriate barrier to entry, whereby possible net public benefits of the new airline’s services are not realised because of the possibility that the new airline might collapse? This is, perhaps, the more appropriate measure of whether the IASC’s economic requirements are too burdensome.

THE COSTS AND BENEFITS OF START-UP AIRLINES - AN INITIAL ANALYSIS

The importance of new entrants in stimulating greater efficiencies and consumer benefits in the provision of aviation services is very real. Smith and Street (1992) estimated that the net welfare gain from the first year of a deregulated Australian domestic aviation market was approximately \$100 million. It is likely that a significant proportion of these gains were caused by the market entry of Compass. Also, the US Department of Transportation estimated that low cost new entrants saved American consumers over \$US6.3 billion in domestic air fares in 1995 (US DoT 1996). However, no studies have been found on the cost to the community of an airline collapsing.

The following example is used to understand the dilemma faced by the IASC between balancing its competition and consumer benefit objectives. This example focuses only on consumers but obviously there are benefits and costs to industry as well. However, many of the benefits and costs to particular firms are likely to represent transfers. Consequently, the costs and benefits to consumers are likely to represent the largest proportion of net welfare gains or losses.

One important cost not considered here is the effect of another airline collapse on the ability of future airlines to gain capital backing for their proposed services.

Benefit to Consumers from Air Fare Savings

Table 2 presents three different scenarios of an applicant being given capacity on an international route where there exists an incumbent Australian carrier. The difference between each scenario is the amount of air fare discounting, based on an economy return fare of \$2500.

The amount consumers save via reduced air fares depends on the depth of discounting offered by the new entrant and the pricing response by the incumbent carrier. If the new entrant’s services compete with indirect services provided by the incumbent carrier, then it is possible the new entrant would offer lower air fares compared to those offered by the incumbent carrier. If both the new entrant and incumbent carriers provided direct services, but the new entrant offered a ‘cola and nuts’ service compared to the incumbent carrier’s higher quality service, it is also likely that passengers could take advantage of significant air fare savings. However, the total consumer benefit may not necessarily equate to total air fare savings since an adjustment for the quality trade off would have to be made, particularly if the incumbent carrier adjusts its air fares and level of service provided in response to the new entrant.

TABLE 2 A HYPOTHETICAL COMPARISON OF POTENTIAL CONSUMER BENEFITS AND COSTS

	<i>Case 1</i>	<i>Case 2</i>	<i>Case 3</i>
Annual number of passengers per year (incumbents and start-up)	35000	35000	35000
Market share of the start-up	20%	20%	20%
Return economy fare	\$2500	\$2500	\$2500
Potential Consumer Benefits			
Discount	5%	10%	15%
Discount fare	\$2375	\$2250	\$2125
Consumer savings (per annum)	\$4.3m	\$8.5m	\$12.8m
Potential Consumer Costs			
Number of pre-paid tickets ¹	600	600	600
Pre-payment	\$1.43m	\$1.35m	\$1.28m
Cost to consumers as proportion of savings	33%	15%	10%

1 The number of pre-purchased tickets at any time is assumed to be one months worth of annual ticket sales.

Source IASC example based on actual passenger numbers and advertised ticket price for an international sector.

In the example provided, if the number of fare paying passengers on this route was 35000 per year and the same level of discounting was applied by both the incumbent airline and the new entrant, then a simple estimate of the direct savings to consumers would be in the order \$4.3 million, \$8.5 million and \$12.8 million per year respectively for each case.

Benefit to Consumers from Time Savings

If the new entrant’s services provided consumers the opportunity to travel directly rather than indirectly, then these consumers will benefit in terms of reduced travel times. However, what is the value of time for these passengers? It is likely that there would be a difference in the value of time for first class, business, economy and discount passengers. In economic

literature, most studies on the value of time are associated with either urban travel choices or environment resources issues, and are usually estimates of the traveller's marginal utility of the time spent travelling. For example, the BTCE recently estimated that the average national value of commuter travel time was \$15.19 per hour (BTCE 1996, p. 484). However, it is likely the marginal utility of time for urban commuters is not the same as the marginal utility for air passengers. In particular, many tourists associate a positive utility with air travel, particularly for direct services. That is, the cost of the time spent travelling may be less than the benefit derived from the joy of flying. Also, for business passengers, it is probably more important to use an estimate of the opportunity cost of the business passenger's trip rather than the time taken travelling.

Until more robust estimates are made, it is assumed the BTCE value of time estimate provided above represents a mean value of time. Consequently, the IASC assumes the value of time for business, economy and discount passengers to be \$25, \$15 and \$5 per hour, respectively. No estimates of time savings have been provided in the example.

Cost to Consumers from an Airline's Overnight Collapse

If the new entrant was to collapse there are direct costs to consumers who have pre-purchased their tickets to travel on the start-up airline, and those who have purchased return tickets but are stranded away from home. However, no information has been obtained indicating the number of tickets that are pre-purchased at any one time. Although media reports indicate that when Kiwi International collapsed, \$NZ5 million was owed to 2000 pre-paid passengers (see for example *The Australian* 1997), this would equate to \$2500 per trans-Tasman passenger and seems unrealistic.

By definition, it is likely more discount passengers would purchase their tickets well in advance of flying compared to economy and business passengers. At present, the IASC assumes that, on average, discount passengers pay for their tickets four weeks in advance, while business and economy passengers pay for their tickets one and two weeks in advance, on average.

In the example provided in table 2, if the start-up airline was able to capture 20 per cent of the market, and pre-purchased tickets represent one months worth of annual ticket sales at any one time, then the cost to consumers ranges from \$1.5 million to \$1.2 million. Interestingly, this indicates that there is little variation in the cost to consumers regardless of the amount of fare discounting.

There are other costs to consumers such as the cost of additional tickets to return home and additional accommodation expenditure for those passengers actually stranded by the airline.

Results

In the example provided, the new entrant would not have to remain in the market for very long before the benefit of lower air fares outweighed the cost to those consumers caught with pre-purchased tickets if the airline collapsed⁶. While there are additional benefits and costs not

⁶ Although there may be a net benefit, those incurring the costs of the airline's collapse will not be the same people, generally, who derive the benefit of the airline's initial entry.

taken into consideration here, these costs and benefits are unlikely to affect the overall conclusion that it is possible the benefits to the community of new airlines commencing operations may quickly outweigh any costs should the airline collapse overnight. That is, a measure of 'reasonably capable' could be the length of time a new entrant would need to remain competing before the consumer benefits of the applicant's proposal outweigh the possible cost to consumers should the start-up fail.

However, whether or not the IASC's economic requirements provide a sufficient guarantee of the start-up airline competing long enough would depend on the sensitivity of the airline's operating costs to factors such as fuel prices and interest rates. Also, on the revenue side, the IASC can not impose a level of discounting on an applicant. While the new entrant may have every intention of providing significant discounting, the commercial reality may well result in little discounting actually occurring.

CONCLUSION

This analysis suggests that on a comparative basis, entry into the Australian domestic and international aviation markets is more difficult than is the case in the United States. The principal difficulty appears to be a lack of available capital due to the lack of a well publicised successful new entrant, providing little encouragement for the capital market to provide funds. Also, the size of the Australian domestic network, the length of Australian international routes, the strength of the incumbents, the lack of experienced entrepreneurial managers and an appropriately skilled workforce, and a small aviation support industry, seem to limit the potential for start-up airlines.

On a comparative basis, the economic requirements of the IASC seem to be in line with those of overseas regulatory agencies. However, on a case by case basis, such financial tests may not be sensitive enough to measure the balance between the potential public benefits provided by a new entrant and the possible costs to consumers and industry due to the start-up's collapse.

The simple example provided in this paper provides an indication that more detailed work, such as applying the analysis to a real application, may provide beneficial input into the decision making of the IASC and its overseas counterparts. In addition, such an analysis could also be applied to the relative benefits and costs for industry, particularly the tourism sector.

PART C: AIRLINE COOPERATIVE AGREEMENTS

The structure of the international commercial airline industry continues to change. Many governments are adopting a more liberal approach to the regulation of their international aviation routes. At the same time, airlines are positioning themselves to take advantage of the development of a global economy, a process sometimes referred to as 'globalisation'. The impact of these changes upon the quality, quantity and price of commercial airline services is difficult to measure. Consequently, uncertainty and speculation exists regarding the future shape of the aviation industry.

Given this uncertainty, some aviation regulators have been concerned that the strategy by many airlines to enter into cooperative commercial arrangements will lead to a less competitive aviation industry with negative consequences for national welfare.

When making its determinations, the Act states the IASC must be satisfied that an allocation of capacity would be of benefit to the public (s.7(2a)). If international services are to be provided jointly, the IASC must include conditions relating to those services (s.15(2e)). Consequently, the IASC has an ongoing interest in cooperative arrangements between airlines providing international air services to and from Australia.

Internationally, there has been little quantitative research into airline cooperative agreements. However, there has been substantial qualitative discussion. This paper places these issues in an Australian context, particularly from the perspective of the IASC. The paper does not provide a comprehensive account of the many different forms of cooperative agreements and the impact individual agreements may have on the various international aviation markets.

TYPES OF COOPERATIVE AGREEMENTS

In this paper, a cooperative agreement is an encompassing term used to describe any commercial relationship between two or more airlines and can include such things as;

- a statement of common interests;
- the coordination of frequent flier programs;
- interlining agreements;
- the coordination of interconnecting services;
- the rationalisation of ramp services and terminal facilities;
- seat capacity exchanges;
- hard and soft blocked space agreements;
- code sharing;
- revenue sharing or pooling; and
- equity links.

The actual number of cooperative agreements between international airlines is uncertain. Table 3 indicates that in 1996 there were 389 'alliances' between 171 carriers, an increase of approximately 50 per cent over two years. At the same time, the number of airlines involved in alliances increased by approximately 25 per cent. However, Vellas (1995, p. 11) states that

in 1994 more than 177 agreements were concluded among 223 International Air Transport Association (IATA) airlines. This difference is probably due to the differing definitions of alliances [and hence the very broad definition of cooperative agreements used in this paper]. Nevertheless, it is agreed that the trend of more airlines entering into more cooperative agreements continues.

TABLE 3 ALLIANCES BETWEEN AIRLINES, 1994-96

	1994	1995	1996	Percentage change (1994-96)
Number of alliance airlines	136	153	171	25.7
Number of alliances	280	324	389	30.9
<i>with equity</i>	58	58	62	6.9
<i>without equity</i>	222	266	327	47.3

Source Gallacher 1996

The nature of cooperative agreements varies depending on the commercial requirements of the airlines. This paper focuses on those cooperative agreements that directly impact on an airline’s ability to secure international aviation capacity. These agreements are referred to as joint services agreements. The IASC regards joint services as including “*inter alia* code sharing, seat exchanges, block space arrangements and revenue pooling” (IASC 1996b, s10.5). However, a proposed amendment to the Act currently before the Senate defines joint services as including but is not limited to, the provision of international air services by an Australian carrier involving code sharing, blocked space arrangements, joint pricing, revenue and cost sharing, revenue and cost pooling, or the sale of capacity to another airline.

The majority of joint services agreements that the IASC is concerned with are in the form of code sharing agreements.

Interline agreements are agreements where the “carriers involved are required to honour tickets issued by other carriers in the agreement. The identity of each carrier is maintained” (BTCE 1994, p. 402). Since interline agreements do not impact an airline’s capacity rights they are not discussed here, nor are some forms of strategic alliances, even though some complex non-joint services agreements may provide airlines with benefits similar to those achieved through joint services. Nevertheless, some of the conclusions drawn in this paper may also be applicable to non-joint services agreements.

Examples of joint services

Code sharing

Code sharing is an agreement between two commercial airlines, “whereby one carrier permits a second carrier to use its airline designator code on a flight, or where two carriers share the same airline designator code on a flight” (ICAO 1996, p. 5). Code sharing can operate under a number of mechanisms depending on the nature of the route and the commercial relationship between the carriers concerned. The International Civil Aviation Organisation (ICAO) provides examples of code sharing, such as the use of “the same designator code with different flight numbers, or two codes with the same number...[or] shown as a through service with the same code and same number even when there are aircraft and carrier changes en-

route....[and] it may be that the same flight uses two codes and two numbers” (ICAO 1996, p. 5).

Code sharing usually exists as part of an overall cooperative package and it is possible cooperative agreements may have negative consequences with or without the inclusion of a code sharing agreement. Consequently, to isolate code sharing from other forms of cooperative arrangements is inappropriate. As Humphreys argues (1994, p. 204), “What [code sharing] is not, although it is often mistakenly presented as such, is the core of the alliance.”

Blocked space and seat exchange agreements

Blocked space agreements are where one airline purchases capacity on another airline’s services. Seat exchange agreements are where one airline provides capacity on its services in exchange for capacity on another airline’s services. This exchange is in lieu of any financial payment. Although these agreements usually involve the sharing of designator codes, this is not essential.

Blocked space agreements take two forms: hard and soft. A hard blocked space agreement usually refers to an agreement that specifies a predetermined number of seats that the operating carrier sells to the non-operating carrier on each flight. It is usual for hard agreements to include a clause whereby the non-operating carrier may sell back any unused capacity prior to each flight.

A soft blocked space agreement does not predetermine the number of seats that the non-operating carrier must purchase. Instead, the non-operating carrier purchases as many seats as needed for each flight. It is usual for these agreements to limit the total number of seats per flight that the non-operating carrier may purchase.

In most instances, Australian carriers enter into blocked space agreements where the cost of the capacity provided is not shared. Instead, the operating carrier tends to charge the non-operating carrier a negotiated charge that may be specific to the particular service or may be based on the airlines’ agreed interline charges. To a large extent these charges are commercially based and although the IASC requires carriers to price their services independently, the IASC is usually not too concerned with this practice. Consequently, the IASC normally places a condition on the carrier to seek approval for any amendments to this arrangement but not necessarily to any changes in the charges themselves. However, the IASC does become concerned when the operating and non-operating carriers share the revenue earned from the capacity provided jointly, regardless of the charging arrangements.

Revenue pooling

Revenue pooling is where airlines combine their revenues from given services then redistribute the revenues among the participating carriers in such a way that the revenue received by a carrier is not related to the type of service provided or the number of passengers carried. This type of collusive behaviour, and others such as the joint determination of prices, often require an exemption from anti-trust regulations before an allocation of capacity can proceed (for example, see TPC 1995 for the Qantas-British Airways Joint Services Agreement case). These exemptions are usually based on the premise that the additional public benefit is greater than any cost due to a reduction in competition.

Unlike revenue pooling, revenue sharing or apportionment is where the combined revenues of the carriers operating the joint services are redistributed among the participating carriers based on a formula that takes into account the contribution each carrier makes in providing such services. For example, the formula may be expressed in terms of the cost per revenue passenger kilometre flown.

Regardless of the type of joint services agreement, it is usual for the IASC to impose the following conditions on an Australian airline seeking to operate its capacity jointly with a foreign carrier:

- it must price and sell its services independently; and
- it must not pool revenues.

WHY JOINT SERVICES?

While airlines may enter into cooperative agreements for many reasons, they enter into joint services mainly to decrease costs and/or increase revenues. Carriers may enter into joint services with other carriers to decrease unit costs by:

- increasing load factors and aircraft utilisation;
- sharing maintenance and ground handling costs;
- achieving economies of scope through rationalisation of services; or
- gaining economies of density by increasing the utilisation of terminal capacity.

An airline may also enter into joint services to reduce the capital costs of accessing new markets or to reduce the costs of increasing frequencies on an existing route. By doing so, the airline achieves greater network presence via routes that would otherwise be uneconomical or where access is restricted by capacity limitations. In turn, a larger network enables a carrier to market itself as having more flights to more destinations, making the airline more attractive to a wider range of passengers.

Without increasing air fares, carriers may increase total revenue by entering into agreements that result in higher traffic volumes by:

- feeding the foreign carrier's traffic through the national carrier's domestic network;
- feeding international passengers via the domestic carrier's network on to the foreign carrier's international services; or
- obtaining a better Computer Reservation Systems (CRS) display position through code sharing.

By entering into a joint services agreement, it is also possible for the airlines to increase revenues by increasing air fares to reflect improvements in the standard of services provided. These improvements may include the apparent seamlessness of services as passengers change from one carrier to another, and access to better terminal facilities for waiting passengers.

In practice, the above benefits of joint services agreements can be summarised into two forms: flight frequency and traffic density. In this paper, these characteristics have been used to differentiate between the many different types of joint services. This is a different approach to

others, where code sharing agreements in particular have been typed by their diagrammatical appearance (see for example, Humphreys (1994), and Oum, Park & Zhang (1996)).

Frequency type joint services agreements

As illustrated in figure 1, frequency joint services agreements are characterised by a single sector (or at least linear network). Examples of frequency joint services include where:

- one carrier operates the service and sells seats to the second carrier in a blocked space arrangement, such as the Qantas-Air Vanuatu Capacity Purchase Sale Agreement; or
- two carriers operate the same route with a seat exchange arrangement on both carriers, such as the Ansett International-Malaysian Air Services (MAS) Joint Services Agreement.

Another variation of figure 1 is where there is an intermediate point (city C) whereby carrier A operates between city A and city C linking up with carrier B’s services between city C and city B. An example of this type of frequency joint services is the Qantas-Canadian Airlines (CAI) Joint Operation Agreement between Australia and Canada via Honolulu, where Qantas operates services between Australia and Honolulu connecting with CAI services between Honolulu and Canada.

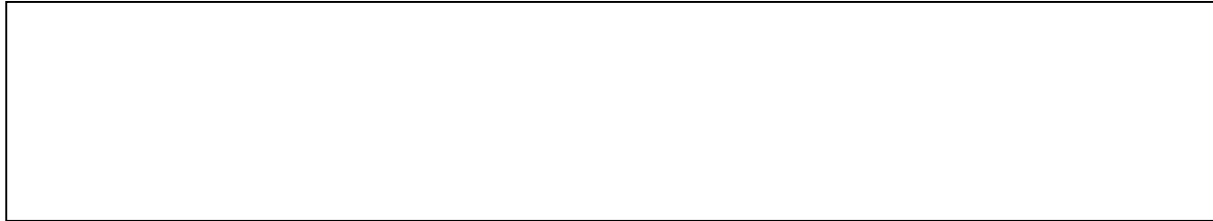


Figure 1 An example of frequency joint services

Frequency joint services agreements may not be limited to one sector and may enable the cooperating carriers to rationalise services over a number of sectors. For example, prior to the Basic Memorandum of Understanding of Cooperation between Qantas and Japan Airlines (JAL), Qantas and JAL operated 14 independent frequencies between Brisbane and Tokyo via Cairns. Through the Qantas-JAL agreement, both carriers were able to rationalise their services with Qantas operating seven direct services between Cairns and Tokyo, and JAL operating seven direct services between Brisbane and Tokyo, with both carriers code sharing on each others services on a seat exchange basis.

Density type joint services agreements

Figure 2 illustrates an example of joint services where the emphasis is on maximising traffic density. For example, two carriers may enter into a joint services agreement for the city pairs C-A, D-A and E-A. Under such an agreement, carrier B increases its load factors from city A to city B due to the feeder traffic it acquires from carrier A’s network. In addition, carrier A increases its load factors, extending from city A, by linking its network with carrier B’s incoming flights. In Australia, an example of this type of agreement is the Ansett Australia-MAS Joint Services Agreement.

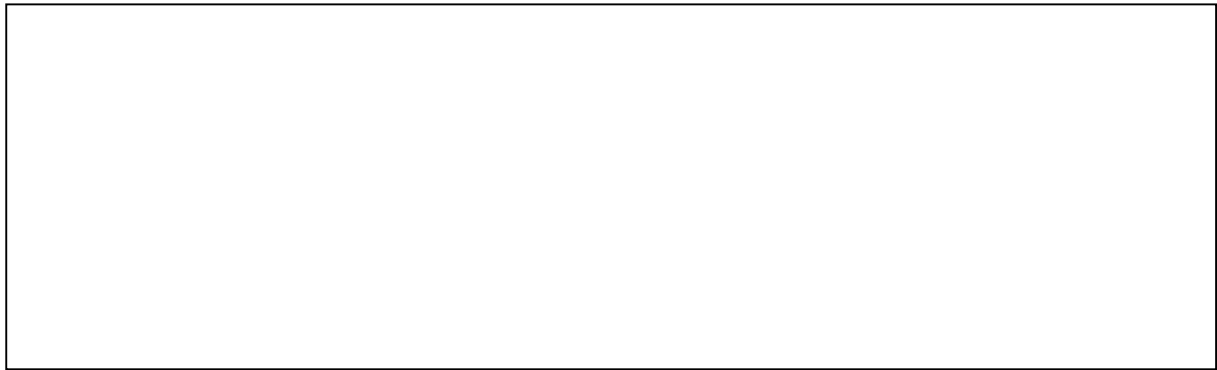


Figure 2 An example of density joint services network

The benefit to airlines of density agreements can be substantial. For example, United Airlines has estimated that the Ansett Australia-United joint services agreement (where United code shares on Ansett’s domestic network) contributed \$US14 million of revenue to United in 1994 (GAO 1995, pp. 38-9). No estimate of the benefit to Ansett Australia was given although it is reasonable to suspect that Ansett has also benefited from this agreement. However, since no correlation between traffic stimulation and code sharing has been established, with traffic more likely being redistributed between airlines (ICAO 1996, p. 9), it is likely that United and Ansett Australia have benefited at Qantas’ expense.

Airlines may enter into agreements that increase both their frequency and traffic densities, that is, the carriers form joint services to cover the sector A-B, and points beyond. However, it is typical for frequency type agreements to be signed between two international carriers, while density agreements are made between a foreign carrier and a domestic carrier (or at least a national carrier’s domestic division). In the latter case, it is a typical requirement for the foreign carrier to obtain approval from the regulatory authorities of the domestic airline. Consequently, since the IASC does not have any jurisdiction over Australian domestic services, the IASC deals principally with frequency agreements. However, as joint services agreements become more common, particularly those involving an Australian carrier operating joint services in another country, the proportion of frequency to density agreements is becoming less.

Both frequency and density type joint services agreements can provide carriers with the additional benefit of market access.

THE IMPACT OF JOINT SERVICES ON COMPETITION

In a recent quantitative study on the implications of code sharing on airline competition, Oum, Park & Zhang state (1996, p. 189):

“Many articles concerning the effects of carrier alliances...have appeared in the popular press....However we know of no studies that have systematically investigated the effects of airlines code sharing on firm conduct and air fares.”

However, there is a substantial amount of qualitative literature on joint services and from this it can be concluded that joint services have both negative effects (principally increased market concentration) and positive effects (principally reducing barriers to entry) on competition. The

nature of this balance depends on the characteristics of the appropriate market in which the joint services agreement operates.

What is an aviation market?

A difficulty in determining the impact of joint services is the issue of defining the appropriate market. This can be a contentious issue and crucial to the conclusions drawn⁷. For example, in relation to the British Airways (BA) and American Airlines (AA) alliance, the European Competition Commissioner, Karel Van Miert, rejected BA/AA's assertion that their alliance would provide them with only 24 per cent of the US-Europe market by saying (Avmark 1996, p. 2):

“We do not consider that the routes as a whole between Europe and the US constitute a relevant market. For example, business passengers are particularly time sensitive and do not accept to use indirect flights unless there is no direct flight. Consequently, for example, a London/New York flight is not substitutable with a flight London/Lisbon/New York.”

Usually the definition of a market consists of the product market (the market for the particular good or service) and the geographic market (where the good or services is produced or sold) (FTC 1996, ch. 4, p. 1).

In its simplest form, an aviation market may consist of services between two airports (a city pair or sector). However, in other instances the city pair definition may be too narrow, for example, when there are a number of cities in one country but only one city in the second country. In addition, while consumers tend to prefer flying direct and with one airline (BTCE 1994, p. 18), the availability of indirect flights will impact upon the conduct of airlines operating direct services on any given city pair. Therefore, in some circumstances, indirect routes should be included in the market definition.

Type of passenger

The nature of demand for air travel is a significant consideration when defining the appropriate market. Few passengers “travel for the intrinsic pleasure of travelling” (BTCE 1994, p. 19). Instead, the demand for air travel is derived from passengers' needs or desires to achieve something at their destinations. As a result, the demand for air travel is segregated, with the two most significant groups of passengers being categorised as business and leisure passengers. There is also a third group of passengers, VFR (visiting friends or relatives). However, this group is not homogenous in its demand characteristics. Depending on the reason for the visit, some VFR passengers act like leisure travellers while others act like business travellers.

Leisure travel tends to be highly discretionary, with many competing goods and services. Even when the consumption decision to take a holiday is made, there is still the choice of tourist destinations. Consequently, leisure passengers tend to be more sensitive to the total cost of their holiday package than the type of service they receive when travelling with an airline.

⁷ This difficulty and the implication on the conclusions drawn is perhaps best exemplified in the TPC's consideration of the Qantas-British Airways Joint Services Agreement where the TPC reversed its earlier draft determination substantially due to the evidence provided Professor Michael Tretheway.

Business passengers have less discretion over their air travel choice. However, in recent years the number of substitutes for 'face to face' business meetings, such as teleconferencing, have increased. Nevertheless, business passengers remain more sensitive to service quality than price.

The proportion of business to leisure passengers travelling on different sectors is by no means fixed. Instead, different sectors can be dominated by a particular type of passenger. For example, the proportion of inbound leisure passengers to all inbound passengers on the Australia-Japan route was 88 per cent for the year ending October 1996 (DoTRD 1997). Airlines competing on the basis of quality are likely to be in a stronger competitive position on routes that have a higher proportion of business passengers, while 'discount' airlines will tend to be more competitive on routes where there are more leisure passengers.

Different sectors are also characterised by the origin of passengers. For example, on the Australia-Taiwan route, Australian residents accounted for only 16 per cent of total passenger movements for the year ending October 1996 (DoTRD 1997). It is reasonable that, all else being equal, a national airline will be favoured by its residents over a foreign airline.

The different characteristics of each aviation route makes it difficult to prescribe a general paradigm of the competitive effects of joint services. Instead, each agreement should be judged on a case by case basis. Also, since the characteristics of each route can change, particularly as a result of changes to the bilateral air services arrangements, each case needs to be reviewed at a later date. Nevertheless, some general points regarding the competitive impact of joint services agreements can be made.

The impact of joint services agreements on market structure

Concentration of firms

Given the difficulty of proving the competitive implications of joint services, anti-competitive concerns are often argued in terms of the increased market concentration, as past or possible competitors become partners. However, joint services agreements do not automatically result in greater concentration. For example, by their nature, density joint services agreements are not typically made between competing or potentially competing airlines. Also, on low volume routes, it is possible only one carrier will provide independent services in the absence of a frequency joint services agreement.

When joint services agreements do result in increased market concentration, does this translate into an effective reduction in competition? As shown in table 4, aviation routes can be dominated by the designated national carriers to such an extent that, in any other industry, the concentration of firms would already be considered undesirable. Consequently, it is possible that until regulatory restrictions on foreign ownership and capacity are relaxed, frequency joint services are unlikely to have a significant impact on the competitive nature of some routes.

TABLE 4 MARKET SHARES, UPLIFT-DISCHARGE TRAFFIC, SELECTED ROUTES

<i>Route</i>	<i>per cent</i>					
	<i>Top two airline market share</i>			<i>Market share of Qantas</i>		
	<i>1993/94</i>	<i>1994/95</i>	<i>1995/96</i>	<i>1993/94</i>	<i>1994/95</i>	<i>1995/96</i>
Indonesia	84	78	80	33	32	36
Japan	87	88	82	52	53	46
New Zealand	87	91	89	38	40	39
Singapore	94	94	93	46	45	38
United Kingdom ¹	100	100	100	52	55	53
United States	82	93	88	51	54	51

1 The Australia-UK route is an example of the difficulty of defining the market for aviation services. While uplift-discharge data suggests that the route is dominated by Qantas and British Airways, there is effective competition from other airlines via intermediate points. For a discussion of this see TPC 1995.

Source DoTRD 1997

Barriers to entry

Barriers to entry are “regulatory and economic impediments that prevent or inhibit the ability of new airlines to enter, or existing airlines to increase services in, particular markets” (TPC 1995, p. vii). Barriers to entry may also include those barriers that make it difficult for a firm to withdraw from an industry and hence deter a firm from entering the industry in the first place.

Contestability theory suggests that the easier (less costly) it is for new firms to enter into a market, the greater the competitive pressures on incumbent firms to produce efficiently, equating marginal costs with the market price for the good or service (Baumol, Panzar & Willig 1982). At first, deregulated “airline markets were believed to be contestable, and thus easy to enter, because aircraft were mobile at relatively low cost - the ‘capital on wings’ rationalization” (Debbage 1994, p. 191). However, it is now accepted, particularly for international markets, that there can still be substantial barriers to entry which may significantly reduce the degree of contestability. These barriers include economies of scale and scope.

Although “an airline’s network size may not result in lower unit costs it may give an airline a significant marketing advantage over its rivals, making profitable entry more difficult for a new airline” (BTCE 1994, p. 28). Also, the inability of new and existing airlines to gain access to some airports creates a direct barrier to entry because it reduces the ability of competing airlines’ to extend their network presence.

Even without regulatory or physical restrictions, for an entrant airline to establish a comparable network to that enjoyed by an incumbent airline, the entrant airline would need access to substantial capital resources. Even for established carriers, the risks associated with making large capital outlays to finance market entry can be a deterrent. For potential airlines, the IASC has found that it can be very difficult for applicants to secure enough capital to gain regulatory approval to commence independent services.

Joint services provide a less capital intensive alternative for airlines to develop their networks. Frequency type joint services allow an airline to establish a market presence on routes that

otherwise it could not afford, while density joint services allow an airline to extend its network quickly through one agreement with another carrier.

Consequently, joint services may be viewed as reducing barriers to entry to new markets and thus enhancing competition. However, as more airlines enter into more joint services agreements, in the future it may become increasingly difficult for new airlines to find partner airlines who are free to enter into new agreements.

Joint services agreements and commercially sustainable services

Often airlines claim joint services are necessary because of the carriers' inability to provide a commercially sustainable service. In general, commercial viability is a function of the balance between supply and demand for a given market. However, capacity limitations due to either airport congestion or regulatory allocations may also impose impediments to a commercially viable service.

On low traffic routes dominated by leisure travellers, a national carrier may not be able to provide a commercially sustainable service when it is at a cost disadvantage to a foreign carrier. Alternatively, a national carrier may have a cost advantage over a foreign carrier but could find itself in a commercially unsustainable position if the foreign carrier continues to operate on the route at a loss. A foreign carrier may be able to operate at a loss if the carrier can cross subsidise services on the route with the rest of its network or if the carrier can gain government subsidies to operate services on the route.

In the above circumstances, a number of market scenarios are possible. Firstly, the national carrier may choose not to operate on the route. In this instance, the amount of monopolistic power the foreign carrier has would depend on the type of passengers travelling on the route and the number of available indirect services.

A second possibility is that the national carrier chooses to operate a service regardless of the possible losses, that is, the carrier makes the decision to provide a minimum level of service. A carrier may do so if there is an expectation of possible positive returns in the future. Whether or not this market structure would increase competition beyond which would exist if only one carrier operated on the route would depend on the rivalry between the national and foreign carriers. If there is strong rivalry, consumers could expect to benefit from lower air fares as the national carrier attempts to minimise its operating losses by maximising load factors. However, in terms of national benefit, it is possible that any additional consumer surplus would be outweighed by the producer loss incurred by the national carrier. If there was little rivalry between the two carriers, it is likely that air fares would reflect costs in a relationship similar to there being only one carrier. However, unit costs are likely to be higher and hence passengers would probably face higher air fares.

A third scenario is where the national carrier seeks to operate frequency joint services with the foreign carrier. Since the two carriers are willing to cooperate under a formal agreement, it could be argued that the two carriers would be unlikely to act in an overly competitive manner without a joint services agreement. Consequently, it is likely joint services would provide a similar level of competition to what would be the case if the two carriers operated independently on the route. Also, the rationalisation of services and facilities made possible through cooperation could lower unit costs to a level similar to those of one carrier operating

on the route. While this may not translate to lower air fares for passengers, at least the national carrier would be sharing in any monopoly rents earned on the route.

If the joint services were operated as a seat exchange or blocked capacity agreement, and if the carriers were required to market and sell their seats independently, then similar competitive forces may exist to the situation where the carriers provided independent services. However, the operating carrier would be in a stronger competitive position than the non-operating carrier since the operating carrier knows the price at which it sold its seats, and hence knows the 'operating cost' of the non-operating carrier. Also, if the operating carrier can sell capacity to the non-operating carrier for a price greater than the cost of providing that capacity, the operating carrier has an immediate cost advantage over the non-operating carrier.

THE IMPACT OF JOINT SERVICES ON CONSUMERS

Consumer deception associated with airline cooperative agreements has been a concern of aviation regulators around the world. Consumer deception occurs when the product received is not the product the consumer intended to purchase. For example:

- being booked on an airline the consumer would rather not be on;
- the service is operated using an aircraft the consumer would rather not be on;
- a lower level of service level than expected given the price paid;
- consumer confusion regarding where to check in or where to make connections;
- the consumer is unaware of baggage limitations and other restrictions; and
- language difficulties.

ICAO believes the information about joint service operations provided to the public is not sufficient and needs to be improved (ICAO 1996, p. 37). However, concern about consumer deception can be overcome through requirements placed on the carriers by the appropriate regulatory bodies. For example, the IASC places a condition on code sharing in its determinations, stating that airlines must take all reasonable steps to ensure the consumers are aware of who is actually operating the flight and of any aircraft changes. For Australian domestic routes, a code of conduct has recently been signed by the Commonwealth Government, Ansett Australia, Qantas and the Australian Federation of Travel Agents to ensure passengers are able "to make informed travel choices based on an awareness of the identity of the service provider when codeshared services are being operated" (*Codeshare Disclosure - Industry Code of Conduct*, signed December 5, 1996).

There is also a commercial incentive for airlines to keep their customers informed. The results of the 1995 IATA Corporate Air Travel Survey indicate that when business passengers found themselves unexpectedly on a code share flight, more than 20 per cent were confused or disappointed while another 16 per cent were angry. Also, approximately 25 per cent "remained angry or grew even more so after the event" (IATA 1996, p. 40). Not only does this suggest that it is in the best interest of the airlines to inform passengers of changes in the operating carrier, it also provides a strong reason for airlines to choose their joint partners carefully. Some airlines, such as British Midland, have recognised the marketing advantages of transparency and have introduced a code sharing code of conduct to demonstrate their commitment to passengers.

The consumer deception issue aside, the quality of service benefits of joint services agreements for consumers can be substantial and include:

- providing a seamless service;
- a one stop check in and baggage handling;
- convenience of coordinated schedule times for international and domestic flights;
- shorter elapsed journey times; and
- shared frequent flyer schemes.

Given the anti-competitive potential for joint services, there is a perception that joint services lead to higher air fares. However, there is insufficient evidence in the current literature to substantiate this claim. One empirical analysis of the effect code sharing has on international air fares indicates that when non-market leaders adopt a code sharing agreement on a particular city pair, their action induces an average annual equilibrium fare decrease of eight per cent by the market leader (Oum, Park & Zhang 1996, p. 201).

More recently, the Industry Commission (IC 1997) analysed parallel code sharing agreements (a form of frequency joint services agreements) on Australian international routes. Although the Commission's findings should be treated cautiously, the Commission estimated that where code sharing is present, economy air fares may be 10 per cent lower than the mean air fare. The Commission argues that its results "suggest that code sharing contributes to reduced operational costs and/or greater competition between airlines, which are passed on to passengers as lower economy fares" (IC 1997, p. 53). The Commission found an insignificant relationship between code sharing and discount fares.

While both analyses are limited by the available data, and to specific types of code sharing, both indicate that in some cases the savings to consumers from joint services may be significant, and in addition to the unquantified quality of service benefits.

JOINT SERVICES ON AUSTRALIAN ROUTES

Australia currently has 49 bilateral agreements with other countries, of which 31 provide for code share or joint service arrangements. In March 1997, Australian international carriers, Qantas and Ansett International, had a total of 19 cooperative arrangements with foreign carriers. Most of these agreements involved hard blocked space agreements with code sharing. In addition, the domestic carrier Ansett Australia had three density type joint services agreements with foreign carriers (note: since Ansett Australia and Ansett International are separate companies, they may also be considered as operating under a form of density joint services agreement).

The majority of joint services agreements currently in place are on Asian, Pacific and North American routes, with the most far reaching agreement being the Qantas-British Airways Joint Services Agreement.

The number and type of joint services agreements involving Australian carriers are changing rapidly. The Ansett group continues to strengthen its relationship with Air New Zealand (Air NZ) and is set to seek approval for a joint services agreement with Singapore International Airlines (SIA). This agreement may rival the Qantas-British Airways Joint Services

Agreement. Qantas in the mean time has strengthened its relationship with British Airways through code sharing services on Australia-Europe routes.

CONCLUSION

There is still uncertainty regarding the impact international joint services agreements may have on competition, while concerns regarding consumer deception have been overcome to some extent.

What is certain is that the impact of joint services depends significantly on the structure of the market to which the joint services agreement applies, the relationship of the carriers in the market and nature of the joint services themselves. To argue that joint services are anti-competitive because they increase firm concentration in the market can be misleading. Instead, the highly regulatory nature of international aviation prescribes many routes as already highly concentrated markets, with little opportunity for entry by new airlines. Joint services agreements can facilitate the entry of new and small carriers into these markets and hence may actually increase competition on some routes.

As aviation routes become fundamentally more competitive, the issue of the impact joint services agreements have on competition becomes more problematic. Although not discussed here, it is possible that on some highly competitive routes, an agreement between two major carriers may significantly weaken competition. However, as the present debate over the proposed British Airways-American Airlines agreement illustrates, the issue of joint services is not clear cut.

On many international aviation routes, the benefits of joint services agreements are likely to be greater than the negative competition effects until bilateral limitations concerning the foreign ownership of airlines, air capacity and traffic rights are further liberalised. The two quantitative studies referred to in this paper tend to support this conclusion. However, the two studies are not comprehensive, and even if a more comprehensive model could be developed which indicated net positive benefits from joint services, not all international aviation markets are the same, and exceptions will always exist. Consequently, it would seem the most appropriate approach for authorities concerned with regulating joint services agreements is to judge each on a case by case basis.

PART D: EFFECTIVELY SERVICING THE ROUTE: THE CASE OF A CONTESTED RENEWAL OF A DETERMINATION WHERE THE ROUTE IS NOT IN THE START-UP PHASE

INTRODUCTION

Section 8 of the Act allows the IASC, “at any time while a determination is in force, [to] make a fresh determination allocating the capacity to which the original determination relates”. This process is known as the renewal process and can be contested by other Australian carriers.

For renewals, after the start-up phase has ended, paragraph 8.2 of the Minister’s Policy Statement requires the IASC to allocate the capacity to the carrier seeking the renewal unless the IASC is satisfied that both of the following criteria are met:

- (a) the carrier seeking the renewal has failed to service the route effectively; and
- (b) the use of the capacity in whole or in part by another Australian carrier which has applied for that capacity would better service the public having regard to the criteria set in paragraphs 4 and 5 of the Policy Statement.

In Determinations IASC/DET/9701 (Japan) and IASC/DET/9702 (Hong Kong), the IASC decided that, in contested cases, paragraph 8.2(a) would need to be proved before the IASC considered paragraph 8.2(b). However, it should be noted that although the incumbent carrier may be found to have failed to effectively service the route, this does not necessarily mean the carrier has been ‘ineffective’ in the normal negative sense of the word and may still provide a net public benefit in continuing to service the route.

This has an important implication in that paragraph 8.2(a) is a test of how the incumbent carrier *used* the capacity allocated to it under the determination being renewed. Even if the IASC ruled that an incumbent carrier failed to effectively service the route, the incumbent carrier is not precluded from continuing to use that capacity if the IASC finds, under paragraph 8.2(b), that the incumbent carrier’s *future* use of the capacity would provide a greater public benefit than the use of that capacity, whether in whole or in part, by the contesting carrier.

While the onus of proof for demonstrating paragraph 8.2(a) is on the contesting carrier, the following identifies possible indicators which may be used by contesting carriers, and other persons wishing to make submissions, in determining whether the incumbent carrier has failed to effectively service the route.

DEFINITION OF EFFECTIVE

Neither the Act nor the Minister’s Policy Statement provide any guidance in defining the term “effective”. The only reference to effectiveness is contained in the *Second Reading Speech for the International Air Services Commission Bill 1992* (DoT 1995), where the Minister stated:

“The Government considers that five years [for the duration of a determination] will allow the incumbent carrier time to develop its market, to develop its effectiveness on the route and

to recoup its investments, at the same time, protecting consumer interests through encouraging the incumbent carrier to remain responsive to market needs.”

The *Macquarie Dictionary* defines effective as “producing the intended or expected result”. In the context of the Minister’s second reading speech, it is possible that effectiveness refers to the intended or expected result of the incumbent carrier servicing the route, but it is still unclear whose intentions and expectations are being implied.

A narrow interpretation of effectiveness is that it is the incumbent carrier’s intentions and expectations, or commercial performance, which is being referred to in paragraph 8.2(a). However, it is probably inappropriate for the IASC to adopt such a narrow interpretation since it is the carrier’s shareholders who have the ultimate role of judging the commercial performance of the incumbent carrier.

Consequently, a broader interpretation of effectiveness is required. Ansett International, in its submissions to the IASC regarding the renewal of Determinations A-9 and B-4 (Japan), and Determination A-6 (Hong Kong), suggested that effectiveness relates to the objectives underlying the allocation of capacity and whether the results contemplated by that allocation of capacity have been achieved. Ansett also submitted that such an evaluation should comprise a review of the performance of the incumbent carrier in light of the criteria specified in paragraphs 4 and 5 of the Policy Statement. This was the approach taken by the IASC in Determinations IASC/DET/9701 and IASC/DET/9702, and is consistent with the IASC being required to renew the allocation of capacity unless it is satisfied that such an allocation is no longer a public benefit (s.8.2 of the Act).

Such an interpretation has the benefit of:

- providing a consistent means for assessing all renewals, whether for different routes or over a number of years; and
- allowing the IASC the opportunity to assess the incumbent’s use of capacity ex-post.

The only other opportunity the IASC has to assess a carrier’s actual use of capacity is under the review provisions of the Act (s.10.(1) and s.23). However, the review provisions can only be used if the carrier has, or it is inevitable that the carrier will, breach a term or condition of a determination. At all other times, in allocating capacity to a carrier, the IASC makes an assessment based on the expectation that the carrier’s proposal will result in a public benefit.

Effectiveness, then, is defined here as meaning ‘producing the intended or expected result’ of the legislative objectives. However, the problem of how to measure whether the incumbent carrier has failed to effectively meet these objectives remains.

MEASURING EFFECTIVENESS

It is possible to consider the service a carrier provides on a route as the sum of a number of different service characteristics, which may include such things as aircraft type, transit time and in-flight entertainment. Ideally, all the individual service characteristics would be quantifiable, and determining whether a carrier has failed to effectively service the route would be a matter of measuring the characteristics against a given standard.

However, not all service characteristics are quantifiable, and not all are of equal importance. Also, some service characteristics are important determinants of other service characteristics.

For example, aircraft type determines to some extent the type of in-flight services provided and transit times. Consequently, while disaggregated and quantifiable service characteristics are preferable, it is likely to be more useful to identify specific aspects of a carrier's service, and use both quantifiable measures and qualitative statements to indicate whether the incumbent carrier has failed in any of these areas.

Although the criteria contained in paragraph 5 could be used to group the individual service characteristics, initial analysis indicates many of the individual service characteristics are applicable equally to the tourism, consumer, trade and competition benefits criteria, making it difficult to assess the relative importance of each service characteristic. An alternative approach is to group individual service characteristics into the following aspects of effectiveness:

- A serious breach of a term or condition contained in the determination;
- Serious safety concerns;
- Development of the market;
- Appropriate use of the capacity;
- Service reliability;
- Development of Australian aviation infrastructure;
- Service convenience; and
- In-flight services.

These aspects of effectiveness are by no means exhaustive, and may be amended after a number of contested renewals have occurred to appropriately reflect the IASC's considerations. Similarly, it would be impossible, and inappropriate, to provide a complete list of all the indicators that could be used to determine whether the incumbent carrier had failed in one of these aspects of effectiveness. Instead, table 5 and the following discussion provides a sense of how particular indicators may be used.

A serious breach of a term or condition contained in the determination

Although the IASC has the power to review a determination whenever it considers the carrier has breached, or it is inevitable the carrier will breach, a term or condition of a determination (s.10(1) of the Act), it is possible the IASC may not be aware that the carrier has, is, or will breach a term or condition until evidence is provided to the IASC during the renewal process. Consequently, it is appropriate for the IASC to establish firstly whether the carrier complied with the terms and conditions of the determination being renewed.

No service characteristics for this aspect of effectiveness have been identified in table 1 since this will depend on the terms and conditions imposed by the IASC and contained in the determination being renewed. However, failure to comply with conditions relating to the provision of joint services, such as the failure to price and sell capacity independently, may be considered an example of a serious breach of a term or condition. Alternatively, it is possible the IASC may identify a breach of term or a condition that it does not consider to be serious, such as the slight under-utilisation of capacity. Consequently, the IASC may not consider such a minor breach as constituting enough evidence as to suggest that the incumbent carrier has failed to effectively service the route.

TABLE 5 ASPECTS AND INDICATORS OF EFFECTIVENESS

<i>Aspect of Effectiveness</i>	<i>Examples of Service Characteristic Indicators</i>
A serious breach of a term or condition contained in the determination	
Serious safety concerns	
Development of the Market	Changes in relative market share Changes in relative load factors Changes in relative air fares and freight rates Promotional expenditure
Appropriate use of the capacity	Own or joint services Aircraft type and age Service frequency The number and type of airports served Direct or indirect services The number and type of stop overs
Service reliability	Difference between actual and scheduled services Days lost to industrial disputes Number of cancelled flights The number of bags misplaced for a given number of passengers Number of customer complaints
Development of Australian aviation infrastructure	The proportion of maintenance and other services expenditure outsourced to Australian firms
Service convenience	Convenient service times Total transit time Availability of return services
In-flight services	Seat pitch Width of seats Aircraft configuration In-flight entertainment In-flight meals The number of flight attendants for a given number of passengers The language skills of the flight attendants Passenger complaint records

Note: In some instances, the same indicator may be used to demonstrate failure on a number of different aspects of effectiveness. However, the indicators here have only been stated once for demonstration purposes.

Serious safety concerns

Safety has been included as an aspect of effectiveness in recognition of its underlying importance to consumers, industry participants and governments. In terms of public benefits, safety is particularly important in the aviation industry since any perception of declining or poor safety standards of any carrier, is likely to have an adverse effect on the competitive position of all Australian carriers.

Serious safety concerns may include actual safety incidents, or an on going safety investigation by aeronautical authorities. However, air safety in Australia is the responsibility of the Civil Aviation Safety Authority (CASA), and therefore any concerns regarding this indicator would require the IASC to liaise with CASA to determine the appropriate outcome, which may involve action being taken by either, or both, the IASC and CASA.

Development of the market

In past contested and uncontested renewals, the IASC has cited the development of the market in which the carrier operates as an important factor in considering the incumbent carrier's performance in terms of the paragraph 5 criteria.

The types of service characteristics which would indicate how effectively a carrier develops the market include the carrier's market share, load factors, air fares and freight rates relative to other carriers operating in the same market. For example, if such indicators demonstrate static or declining market position, particularly if the market is rapidly growing, it could be argued the incumbent carrier failed to be effective. However, it is also possible the incumbent carrier may be operating its own services, with very high load factors, utilising fully all the capacity it has available. If this was the case, it could be argued that the incumbent carrier could not develop the market further until it received more capacity, and consequently, it was not failing to develop the market further.

Appropriate use of the capacity

Each Australian international airline has its own commercial strategy. Consequently, it is possible for different carriers, operating on the same route, to use their capacity in different ways to achieve different objectives, such as maximising profits or market share. It is also possible for different carriers to use their capacity differently to achieve the same commercial objectives. While, as stated earlier, it is probably inappropriate for the IASC to judge whether the incumbent carrier has used the capacity appropriately in a commercial sense (for example, maximising the return on shareholder funds), it is appropriate for the IASC to consider the incumbent carrier's commercial actions in light of the objectives of the legislation. To take an extreme example, if the incumbent carrier operated its capacity by providing services with B747 aircraft when market conditions indicate the market was more suited to 30 seat aircraft, then the IASC may have cause to decide that the carrier has failed to use its capacity appropriately. Another example may be where the incumbent carrier utilised its capacity by operating indirect services, incorporating numerous stop-overs, while every other carrier on the route operated direct services.

Whether or not an incumbent carrier has used the capacity allocated to it appropriately will depend on the air services arrangements (ASA), and the market conditions, of the route. For example, on a route where there was little competition and little available capacity, it may be inappropriate if the incumbent carrier utilised one B747 equivalent unit of capacity, per week, by purchasing just a few seats from another carrier via a joint services agreement. However, if the relevant ASA defines the Australian capacity entitlements in terms of seats, then the issue of providing own or joint services is less important (although the Minister's Policy Statement indicates own services are preferred). In such cases, it may be appropriate to place greater emphasis on the route and network structure provided by the incumbent carrier's use of the capacity. For example, services to large gateway airports provide the greatest opportunity for passengers to connect to other services in the global network. However, this needs to be balanced with passengers' preferences for direct flights.

Consideration also needs to be given to the number of airports served by the incumbent. If the relevant ASA allows for an Australian carrier to operate to a number of airports with any given frequency, then it could be argued that an incumbent carrier that utilises its capacity by

operating between Australia and only one airport in the destination country may not be effectively utilising its capacity. However, the issue of network is complex, particularly for large carriers, in that while the carrier may only operate its capacity on one sector on a route, that service may be commercially significant to the carrier's ability to provide services on other routes not being considered in the renewal process.

In practice, it is likely that if an incumbent carrier has managed to remain commercially viable over the five year period of a determination, the carrier operated its capacity on a commercially appropriate basis. However, the situation may occur where, although commercially viable, the additional public benefit of operating the capacity in another way may be so great that the IASC may consider that incumbent carrier's use of the capacity is no longer appropriate. Nevertheless, the incumbent carrier should not be regarded as having failed to effectively service the route purely because the way it chooses to use its capacity maximises its profit, market share, or any other commercial objective, rather than maximising the public benefit.

Service Reliability

To consumers of air travel, reliability is probably the next most important quality of service indicator after safety. Delays, unscheduled stops and the cancellation of flights can quickly develop into a poor reputation, not only for the carrier at fault, but for fellow national carriers.

Fortunately, service reliability indicators are relatively easy to quantify. For example, the US National Institute for Aviation Research (Wichita State University) uses a number of reliability indicators, such as average on time performance, as part of its American airline quality rating. However, like other quantifiable indicators, the problem with reliability indicators is deciding at what point does a carrier pass or fail.

Depending on the specific indicator being assessed, the effectiveness benchmark could be based on the actual performance of all carriers operating on the same sector as the incumbent carrier. In other circumstances, it may be more appropriate to expand the benchmark carriers to include all those providing services on the same route or even all international carriers worldwide. However, the following references from the Act imply that the IASC should not compare the incumbent carrier's services against the proposed services of the contesting carrier:

- only when there is a contested case for new or shelf capacity is the IASC required to allocate capacity specifically on the basis of providing the greatest benefit to the public (section 7.2(b))⁸; and
- when making a fresh determination, section 8.2(a)(i) implies that the IASC must first consider whether or not the same allocation of capacity as the original determination is of benefit to the public, and in assessing the public benefit during a renewal, the IASC must apply the criteria set out in the Minister's Policy Statement to the original allocation (section 8.4). Only after the IASC is satisfied that the allocation is no longer a benefit to the public can the IASC consider making a different allocation of capacity (section 8.3).

⁸ However, paragraph 3.2 of the Minister's Policy Statement does state: "The Commission should, in any adjudication of applications for capacity allocation, seek to maximise the benefits to be gained from the operation of the capacity, assessed in accordance with the Act and against applicable criteria set out in this statement."

Only at paragraph 8.2(b) of the Policy Statement is the IASC required to compare the relative public benefits of the incumbent carrier's services against the proposed services of the contesting carrier and this is separate to the question of whether the incumbent carrier has effectively serviced the route.

Consequently, the proposed services of the contesting carrier should not be used to assess whether the incumbent carrier has effectively serviced the route. However, if the contesting carrier is an established Australian international carrier, its own performance may still contribute to an average benchmark standard, although its proposed services would not be used to assess the effectiveness of the incumbent carrier's services.

As with all indicators, care will always be needed when considering the appropriate carriers to benchmark the incumbent carrier's service reliability against. For example, if the incumbent carrier is a small start-up airline it may not be appropriate to compare the incumbent carrier's performance against large, well established carriers. Also, in some cases the average standard may not be acceptable. Instead, a percentage higher or lower of average performance could be used. Even when quantitative indicators can be used, it may not be appropriate to rely solely on a quantifiable standard and the IASC may see fit to reserve its judgement on such measures.

Development of Australian aviation infrastructure

The extent to which Australian carriers impact positively on the Australian aviation industry is a specific public benefit criteria contained in paragraph 5 of the Minister's Policy Statement. However, few indicators have been identified which provide an indication of the carrier's commitment to the development of Australian aviation infrastructure. Nevertheless, as airlines increasingly outsource services that they have traditionally provided in-house, quantitative indicators may be developed which indicate the carrier's commitment to support, in dollars, the Australian aviation industry.

Service convenience

Service convenience refers to the nature of the incumbent carrier's schedule. Ideally, a carrier will provide services at times when demand is greatest, will minimise the time between connecting or return flights, and minimise total transit time. To argue that the incumbent carrier has failed on service convenience, it would have to be demonstrated that the incumbent carrier's schedules on the route were insensitive to consumer needs. For example, it could be argued that the incumbent carrier had failed if it operated two flights a week, departing the same Australian airport on the same day. However, appropriate defences for such an argument may be that the incumbent carrier operated such a schedule because of its slot allocation at the destination airport, or because there is an existing heavy demand for such a schedule, for example, weekend traffic.

Stochastic delay is a specific measure of service convenience and relates to the variation between a passenger's preferred departure time and their actual departure time. In practice, this measure is taken as the time passengers have to delay their departure if the preferred flight is fully booked and can be measured as a function of the carrier's load factors, with most problems occurring with load factors greater than 70 per cent. (Douglas and Miller 1997 cited in Jorge-Caldron 1996, p. 67).

In-flight services

Although the quality of in-flight services provided to passengers may be less important to passengers than safety and reliability, it is still a fundamental aspect of servicing a route effectively. The provision of high quality in-flight services makes a carrier particularly attractive to the business market, and on routes dominated by such passengers, it would be expected that the incumbent carrier would compete on this basis. However, there is always a trade off between quality and price, and if the incumbent carrier did not compete on service quality, then it would be reasonable to expect the incumbent carrier's air fares would be less than those carriers providing services of the highest quality.

While some in-flight services can be quantified, it would need to be established whether any differences between the incumbent carrier's services and the services of those carriers it is being compared to, are significant. For example, if the distance between the economy class seats on the incumbent carrier's services was two centimetres less than its competitors, for the incumbent carrier to be considered as failing, it would need to be demonstrated the smaller space provided a discomfort to passengers.

How Hard Should The Effectiveness Test Be?

In interpreting the effectiveness indicators, the question of how hard should it be to prove whether the incumbent airline has failed remains.

In Determinations IASC/DET/9701 and IASC/DET/9702, the IASC suggested the test should not be so high that only cases of serious neglect would be considered, nor so low that "it would be relatively easy to identify some aspect of the carrier's service which did not meet the required standard".

In the *Second Reading Speech for the International Air Services Commission Bill 1992*, the Minister stated:

"Consideration of a re-allocation after the five year term will provide an opportunity for new entrants to compete for entitlements to any remaining single designation routes or those on which it has not been possible to secure additional capacity because of airport congestion or other reasons."

The Minister also stated, in relation to a route not in the start-up phase:

"Where there has been a determination by the Commission allocating capacity on the route to an Australian carrier other than the carrier seeking renewal, the Commission will apply a rebuttable presumption in favour of the incumbent since there had already been competitive entry onto the route."

The Minister's Second Reading Speech, the Act and the Minister's Policy Statement seem to acknowledge there is a need to provide the incumbent carrier with sufficient certainty to maintain its competitiveness against both Australian and foreign competitors, but at the same time, the incumbent carrier must remain responsive to consumer needs via the threat of entry by other Australian carriers. In cases where the route is in the start-up phase, this balance is certainly in favour of providing competition. The cessation of the start-up provisions once two Australian carriers have achieved a level of commercially sustainable capacity, and the rebuttable presumption in favour of the incumbent carrier once this has occurred, seems to imply that the maintenance of a competitive Australian carrier becomes the pre-eminent consideration for all renewals not in the start-up phase. If this interpretation was accepted,

then it would be appropriate for the test for failing to effectively service the route to be reasonably difficult to prove.

However, by using the aspects of effectiveness provided in table 5, a less restrictive assessment can be made by ranking each aspect in terms their relative importance. The three levels of importance consider here are critical, important and less important and are defined as:

- *critical*: proof of which would immediately lead the IASC to the conclusion that the incumbent carrier has failed to effectively service the route;
- *important*: proof of which leads the IASC to have serious reservations about whether or not the incumbent carrier has effectively serviced the route, but in itself, would not necessarily lead the IASC to conclude that the incumbent carrier has failed to effectively service the route;
- *less important*: proof of which concerns the IASC, but is unlikely to lead the IASC to conclude that the incumbent carrier has failed to effectively service the route.

Considering these definitions, table 6 lists the aspects of effectiveness provided in table 5 to indicate one example of possible relative rankings.

TABLE 6 RELATIVE IMPORTANCE OF ASPECTS OF EFFECTIVENESS

<i>Importance</i>	<i>Aspect of Effectiveness</i>
Critical	A serious breach of a term or condition contained in the determination Serious safety concerns
Important	Development of the Market Appropriate use of capacity Development of Australian aviation infrastructure Service reliability
Less Important	Service convenience In-flight services A minor breach of a term or condition contained in the determination

It is possible the relative importance of each of the aspects of effectiveness provided in table 6, may vary on a case by case basis. Also, there is a question of scale that needs to be addressed. While failing one critical aspect is considered to demonstrate paragraph 8.2(a), how many failures of important and less important aspects are required? For example, do two or more less important aspects equal one important aspect, and how many important aspects are required to be proved before paragraph 8.2(a) has been demonstrated.

Consequently, at first it may be more appropriate to consider each aspect as being of equal importance, allowing precedence to dictate their relative importance over time.

CONCLUSIONS

The indicators of whether an incumbent has failed to effectively service a route provided in this paper are meant to be a guide only. The indicators are not exhaustive nor are they prescriptive. They are meant to assist both the IASC in its considerations, and the contesting carrier in providing evidence to establish its case, rather than dictating criteria required to be proved.

Although not discussed here, a difficulty in determining whether or not an incumbent carrier has effectively serviced the route is that the determination being renewed may only be for a small proportion of the total capacity allocated to the incumbent carrier on that particular route. The smaller this proportion and the more complex the incumbent carrier's services on the route, the greater the difficulty of determining which capacity allocation is being used for which service on the route, particularly if the carrier operates on a number of sectors on the route. Nevertheless, should the IASC decide the incumbent carrier failed to effectively service the route, for any particular capacity that the carrier utilises on the route, it would send a strong message to the carrier about its overall performance on the route. However, it should be noted that even if the incumbent carrier was to be found to have failed to effectively service the route, the carrier would not lose that capacity if it was found that the incumbent carrier's use of that capacity would provide a greater public benefit than the competing carrier's proposed use of that capacity.

REFERENCES

ABBREVIATIONS

AGPS	Australian Government Printing Service
BTCE	Bureau of Transport and Communications Economics
CoA	Commonwealth of Australia
DoT	Commonwealth Department of Transport, Canberra
DoTRD	Commonwealth Department of Transport and Regional Development, Canberra
GAO	United States General Accounting Office
IASC	International Air Services Commission
ICAO	International Civil Aviation Organization
TPC	Trade Practices Commission
US DoT	US Department of Transportation

Bain, Jim 1996, 'The International Air Services Commission,' *Australasian Aviation '97*, Canberra, 25-26 November.

Baumol, W. J., Blinder, A. S., Gunther, A. W. & Hicks, J. R. L. 1992, *Economics: Principles and Policy*, second Australian edition, Harcourt Brace Jovanovich, Sydney.

Baumol, W., Panzar, J., & Willig, R. 1982, *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich, San Diego.

BTCE 1991, *Deregulation of Domestic Aviation - the First Year*, Bureau of Transport and Communications Economics Report 73, AGPS, Canberra.

-- 1994, *International Aviation*, Report 86, AGPS, Canberra.

-- 1996, *Transport and Greenhouse: Costs and Options for Reducing Emissions*, Bureau of Transport and Communications Economics Report 94, AGPS, Canberra.

CTA 1995, *Financial Requirements Guide: Information and Instructions*, Canadian Transportation Agency.

Debbage, Keith G. 1994, 'The international airline industry: globalization, regulation and strategic alliances,' *Journal of Transport Geography*, vol. 2, no. 3, Sep., Butterworth Heinemann Ltd., pp. 190-203.

DoT 1995, *International Air Services Commission Key Documents*, compiled by the Department of Transport, Canberra.

DoTRD 1997, *International Arrivals and Departures System*, Department of Transport and Regional Development, Canberra.

- Farrell, Patrick 1993, 'Financial crisis in the aviation industry - United Kingdom,' *Air and Space Law: Special Issue - Financial Crisis in the Aviation Industry*, vol. XVIII, no. 4/5, Sep., pp. 153-67.
- Findlay, Christopher and Round, David K. 1994, 'Managing the transition to competition: the International Air Services Commission,' *The Australian Economic Review*, 2nd Quarter, pp. 43-56.
- Forsyth, P. J. 1989, 'Airline competition and contestability: the prospects for domestic deregulation,' *Discussion Paper No. 211*, The Australian National University Centre for Economic Policy Research, June, Canberra.
- FTC 1996, *Anticipating the 21st Century: Competition Policy in the New High-Tech, Global Marketplace*, vol. 1, report by US Federal Trade Commission staff.
- GAO 1995, *International Aviation: Airlines Alliances Produce Benefits, but Effect on Competition is Uncertain*, United States General Accounting Office Report to Congressional Requesters, GAO/RCED-95-99, Washington D.C.
- 1996, *Certification of New Airlines*, US General Accounting Office Report RCED-96-8, Jan., cited <http://www.airportnet.org/depts/federal/gao/certify.htm>.
- Gallacher, J. 1996, 'A clearer direction', *Airline Business*, July, pp. 22-51.
- Halstead, James 1996a, 'How much cash is needed to start an airline?' *Aircraft Economics*, May/June, no. 25, pp. 20-5.
- Holloway, Tom 1995, 'Keeping material costs lean for start-ups,' *Aircraft Economics*, Nov./Dec., no. 22, pp.36-7.
- Humphreys, Barry K. 1994, 'The implications of international codesharing,' *Journal of Air Transport Management*, vol. 1, no. 4, Dec., pp. 195-207.
- IASC 1996a, *International Air Services Commission Annual Report 1995-96*, AGPS, Canberra.
- 1996b, *Determination IASC/DET/9604*, International Air Services Commission, Canberra.
- IATA 1996, *Airlines International*, Sep./Oct., International Air Transport Association.
- IC 1997, *The Economic Impact of International Airline Alliances*, Industry Commission, AGPS, Canberra.
- ICAO 1996, *Study on the Implications of Airline Code sharing*, International Civil Aviation Organization working paper, AT-WP/1785.
- Jorge-Calderon, J. D. 1996, 'Evaluating the effectiveness of airline operating strategies in UK international markets,' *International Journal of Transport Economics*, vol. xxiii, no. 1, Feb., pp. 63-87.
- Moreno, Nick 1994, 'Start-up activity underpins dynamic market,' *The Avmark Aviation Economist*, April, p. 8.
- Nocella, Andrew 1993, 'New competitive forces in the US,' *The Avmark Aviation Economist*, March, pp. 15-9.

- Nuutinen, Heini 1996, 'US low-cost new entrants: pre- and post- ValuJet,' *The Avmark Aviation Economist*, June, pp. 4-10.
- OST 1994, *How to Become a Certified Air Carrier*, Air Carrier Fitness Division, Office of the Secretary, Department of Transportation, Washington D. C..
- Oum, T., Park, Jong-Hun & Zhang, Anming 1996, 'The effects of airline code sharing agreements on firm conduct and international fares', *Journal of Transport Economics and Policy*, vol. xxx, no. 2, May, pp. 187-202.
- Smith, David and Street, John 1992, 'Estimating the net welfare gains from Australian domestic aviation reforms,' *Papers of the Australasian Transport Research*, Bureau of Transport and Communications Economics, Canberra.
- Street, J., Spence, P. & Smith, D. 1993, 'Entry and exit conditions for Australian Aviation,' *Papers of the Australasian Transport Research Forum*, Graduate School of Management, University of Queensland, pp. 163-81.
- The Australian* 1997, 'Kiwi directors 'reckless'', 14 March, p. 26.
- TPC 1995, *Determination: Application for Authorisation in Respect of an Application for Authorisation Lodged Under s.88(1) of the Trade Practices Act by Qantas Airways Limited and British Airways Plc*, Trade Practices Commission, Canberra.
- US DoT 1996, *The Low Cost Airline Service Revolution*, Office of the Assistant Secretary for Aviation and International Affairs, US Department of Transportation, Washington D. C., cited <http://www.dot.gov/ost/aviation>.
- Vellas, F. 1995, *Tourism and Air Transport Liberalisation*, Institute of Air Transport, Paris.
- Windle, R. J. & Dresner, M. E. 1995, 'The short and long run effects of entry on US domestic air routes,' *Transportation Journal*, Winter, vol. 35, no. 2, pp. 14-25.