



Institute of Transport Studies

Graduate School of Business
The University of Sydney

Working Paper
ITS-WP-92-14

SINGLE AVIATION MARKETS AND CONTESTABILITY THEORY: GETTING THE POLICY BEARINGS RIGHT

Michael Z. Nyathi

A paper for presentation at the Industry Economics Conference,
Australian National University, Canberra, 23-25 July 1992

NUMBER: Working Paper ITS-WP-92-14

TITLE: Single Aviation Markets and Contestability Theory:
Getting the Policy Bearings Right

ABSTRACT: This paper looks at the theory of contestable markets as it relates to the aviation industry, particularly its contribution to the deregulation debate and subsequent extension to the evaluation of welfare benefits in single aviation markets. The conclusion reached is that the theory has limited usefulness as far as policy formulation in aviation markets is concerned.

AUTHOR: Michael Z. Nyathi
Institute of Transport Studies

ACKNOWLEDGEMENTS:

My thanks go to Institute of Transport Studies staff members Professor David Hensher, Paul Hooper and Rhonda Daniels for their useful comments in the preparation of this paper.

CONTACT: Institute of Transport Studies
Graduate School of Business
The University of Sydney NSW 2006
Australia

Telephone: +61 2 550 8631
Facsimile: +61 2 550 4013

DATE: July 1992

COST: \$10

INTRODUCTION

Deregulation of the airline industry in the US was the harbinger of similar moves in a number of OECD countries. The purveyors of deregulation point out that in the US, air carriers have achieved efficiency, cost reduction, and pricing innovations (Barrett 1992). The industry witnessed an increase in the number of airlines, an expansion of feeder services and increased consumer choice. In the mid 1980s, the industry started exhibiting signs of concentration. There are fears that the increasing oligopoly profile is gnawing away at the benefits brought about by deregulation. The realisation that deregulation of the industry confers more benefits than the converse has seen the pro-deregulation lobby move to the international aviation scene. Arguments for the creation of single aviation markets are premised on the benefits that derive from deregulation. Liberalisation of bilateral agreements and the creation of single aviation markets are currently the industry's fad. In 1993 Europe will become a single market; Canada and the US are moving towards an "open skies" arrangement; Australia and New Zealand are set to fashion out an Australasian single market; the Andean countries are forming their own; the members of the Southern African Development Coordination Conference (SADCC) are exploring the option and West Africa's Air Afrique's operations and the underlying bilaterals have the mark of a single aviation market.

Single aviation markets are said to be the natural extension of deregulated domestic markets. As such, the rationale for their birth may be steeped in contestability theory. In some cases the calculation of welfare benefits assumed to flow out of these markets is based on the assumption that the threat of entry by new airlines will goad the incumbents to behave in a welfare maximising manner. Contestability theory has in this regard been the bedrock for policy formulation and regulatory procedure. The theme of this paper is that whilst deregulation has a number of benefits, using contestability theory to formulate competition policy in single aviation markets has pitfalls to be avoided. We argue that the welfare benefits may *a priori* be overstated and policy makers should seriously turn their attention to the barriers to entry both within and outside of the markets. The latter falls more under the domain of trade policy than micro economic policy. We do, however, give it some attention in this paper.

The paper begins by briefly looking at the theory of contestable markets as it relates to the aviation industry, particularly its contribution to the deregulation argument and subsequent extension to single aviation markets. The shortcomings of the theory are looked at, before

proceeding to examine the barriers to entry and operation within/without common aviation markets. The policy and welfare implications of using contestability theory are then examined.

CONTESTABILITY THEORY - WHAT ARE ITS PRESCRIPTIONS ?

Conventional normative economics looks at the number of sellers and buyers in the market to determine the keenness of competition. Contestability theory on the other hand discounts the “numbers theory” and puts emphasis on potential entry into a market. A perfectly contestable market is one in which entry is absolutely costless. In such a market all firms are forced to behave as if they were in a perfectly competitive situation, irrespective of their actual number, their scale of production and capital requirements. The driving force which ensures that they do so is the threat of costless reversible entry (Baumol et al. 1982). For the costless reversible entry result to hold, three conditions are necessary:

- On the production side, both entrant and incumbent must be symmetrically placed, being subject to the same regulations, having access to technology of the same vintage, and being perceived to produce outputs of similar quality.
- In the technology of production, sunk costs must be absent. This is likely whenever the capital employed is reusable or when production can be sub-contracted.
- The pricing practices in the market must be such as to prevent responsive pricing by incumbents. This will be true if consumers respond to price differences with a shorter reaction time than do incumbents, or else if entrants are able to secure contracts with customers so as to allow a period of positive profit before possibly retiring.

When these conditions are satisfied, allocative efficiency, x-efficiency and zero profits will result. Where they obtain, there would be observation of hit and run entry, large-scale entry and nullified monopolies or dominant firms.

Much standard analysis of the determining output and prices takes the structure of particular industries to be determined outside the domain of the analysis, in effect to be imposed by the fates in a manner that requires no explanation (Baumol et al. 1982). In contestability theory, the structure is determined endogenously and simultaneously with the vectors of industry output and prices. In oligopolistic and imperfect competition, the players have to be always on the look-out for the strategic manoeuvres of opponents. In

contestable markets, players are not troubled by these problems of indeterminacy and competitive variations, and surmises about competitors' reactions play little or no overt role. The behaviour of potential entrants provides the determinacy and their behaviour can be a natural response to the freedom of both entry and exit.

Central to the theory is the height of entry and exit barriers. An entry barrier can be present when the potential entrants face costs greater than those incurred by a firm now incumbent in the industry. Another definition would be that entry barriers are an impediment to the flow of resources into the industry arising as a result of socially excessive protection of incumbent firms. In effect, a barrier is an undefined object whose presence is to be judged only in terms of the undesirable consequences for social welfare. Davies (1986) says that there has been confusion in the minds of contemporary students of the airline industry over how to evaluate the impact of instances of entry. He goes further to assert that this confusion seems to also affect the work of Baumol. Baumol et al. (1982:446) state that the most obvious indicator of contestability is "a history of frequent entry and exit". Yet elsewhere Baumol et al. (1982) assert that an absence of entry does not in itself imply that an industry is not highly contestable, for it may be the consequence of competitive pricing which would make profitable entry impossible: it may thus be a symptom of "virtue not of vice" (Baumol et al. 1982:446). It would appear therefore that the authors of the theory perceived a history of frequent entry and exit to be a sufficient but not necessary demonstration of contestability which may also occur in the absence of such a history under an appropriate technological and business environment.

The theory of contestability hypothesised that in aviation, carriers could not behave uncompetitively because entry into an airline market was reversible and aircraft could easily be moved between different sets of city pairs. Baumol et al. (1982) argued that the theory had two major policy implications for the role of the regulatory authorities. On market entry, they warn of the questionable desirability of artificial impediments to entry that regulators were long inclined to impose. Contestability theory puts forward the view that any proposed barrier to entry must start off with a heavy presumption against adoption. Some industries with a small number of firms are highly contestable. In other cases the contestability of the market can be increased by public policy, and in those cases, this will sometimes prove to be the most efficient means to serve public interest. Prior to deregulation most city-pair markets were served by one airline and it was expected that this would remain the case. An argument (contestability) was required which would dismiss this as a concern. They thus recommend that the aviation regulators had to use contestability theory to analyse the industry.

In perfectly contestable markets, social welfare is maximised. Firms produce at the lowest cost and inefficiencies are eliminated. Those firms that cannot be pushed out by new entrants who can do so at lower cost. Consumers benefit from low fares, optimal schedules and frequencies. Generally, the industry becomes both allocatively and productively efficient. The division of the total industry output among its firms must minimise the industry's total production costs. Moreover, for a configuration to be efficient (sustainable) if at least two firms produce the same good, then its price must equal its marginal costs (Baumol et al. 1982).

The concept of sustainability is the analytic device (compared to concentration ratios and the Herfindahl index) that summarises the proclivities for a certain type of market conduct. It is designed to describe an equilibrium vis-a-vis potential entrants who take as (temporarily) fixed the prices of incumbent firms. The point being made is that in the absence of exogenous changes, if incumbents adopt prices sustainable against entry, then in principle they need never resort to strategic price responses and counter moves in order to prevent profitable entry opportunities.

The airline industry in the US was seen to provide a suitable testing ground for contestability theory. Arguments for deregulation were premised on the theory. Even with subsequent consolidation in the industry, some experts are still of the view that the industry bears the marks of contestability. The pro-single market lobby in the Andean and US-Canada common markets has used contestability theory to develop their argument. The problem with such arguments is that the theory tends to appear synonymous with deregulation. The welfare benefits derived from a deregulated airline industry are made out to be a justification for contestability theory. The theory has been used, though not as vigorously, to put forward arguments for single aviation markets. We turn briefly to look at the short-comings of contestability theory as it relates to aviation.

SHORTCOMINGS OF THE THEORY - WHAT THE JURY SAYS

There appears to be some empirical evidence that the number of competitors on any route does have an impact on the price levels (Graham, Kaplan and Sibley 1983). Morrison and Winston found that:

“... a combination of some version of the dominant firm model and imperfect contestability seems to characterise competition in the deregulated airline industry” (Morrison and Winston 1986:64).

William and Kessides (1991), in a study on localised market power in the US airline industry, found that the bulk of any deviation from contestability in the airline industry is associated with airports rather than routes. Their findings suggest that the two sources most commonly suggested as the root cause of localised market power, scarce airport facilities and airline ownership of CRSs, only augment an already existent market power.

Alamdari (1989) gives a checklist against which to evaluate contestability theory. On the question of sunk costs, she asserts that it is not realistic to assume that because aircraft are transferable from one route to another, then there are no sunk costs. Entrants need to acquire gates, landing slots, advertising, pay travel agents commission, etc. She asserts that it seems intuitively obvious that airlines serving airports where the factors of production are particularly in short supply enjoy some protection from entry. In this regard, the “equal access to the productive techniques” requirement of the theory does not pass the test. Morrison and Winston (1987) point out that entry into a new market requires that a carrier already has some presence in the market by serving at least one of the relevant airports. Otherwise carriers require time and must absorb sunk costs to obtain gate space and establish patronage.

Predatory pricing does take place and new entrants have to absorb these costs - they thus need a “fighting fund”. On international routes flag carriers may receive government support. The operation of CRSs and the type of contracts between the owners of the system and the travel agents in the US have proved that perfect information in the airline industry is not achievable.

Sinha (1986) has reviewed the literature on contestability of airline markets and has revealed diverse opinions among economists on the subject. Sinha (1986) reports that Bailey and Panzar at first argued that city-pair markets were perfectly contestable but later supported the theory only partially. Call and Keeler (1985) in their empirical studies on the industry have shown that various measures of efficiency (for example the price-cost ratio) depend on the number of actual competitors. Shepherd (1984) argued that recourse to contestability was unnecessary. Shepherd (1984:585) also notes that “airline competition can be explained by well established concepts of market structure and entry”.

Morrison and Winston (1987) concluded that transport in general is not perfectly contestable. But most importantly Morrison and Winston (1987:67) conclude that “potential entry may still affect welfare although this does not drive markets to welfare maximisation”. They call this a case of imperfect contestability. Leigh concludes:

“It seems that attempts to apply contestability theory to deregulated airline markets do not offer better predictive validity than more traditional models of industrial organisation” (Leigh 1990:55).

He asserts that the development of hub-and-spoke networks provides carriers with the opportunity to exercise a degree of market power by existing firms and to erect barriers to the entry of potential new ones - both things that contestability theory said they could not do. Besides, new entrants have defied conventional wisdom by designing networks in the not so dense routes. Entry and exit into individual city-pair markets does not appear to conform to the random, instantaneous and reversible response to opportunities for earning supernormal profits that would be consistent with pure contestability. Leigh says:

“If it fails to prove its usefulness there, then one wonders if contestability may not be relegated to being an intellectual "curiosum" the stringency of whose assumptions prevent it from having much real world application” (Leigh 1990:56).

THE THEORY AND SINGLE AVIATION MARKETS

Barrett (1992) formally links contestability theory to single aviation markets. He argues that deregulation of market access in the European market will leave unaddressed other barriers to contestability in the deregulated European market. He talks of structural and strategic barriers to contestability. Gillen et al. (1990) in a paper on liberalising the Canada-US air transport agreement bilateral allude to contestability theory in their proposed solutions. Clough and O'Donovan (1989) in a study on Australia-New Zealand air services liberalisation actually modelled welfare benefits using contestability theory to capture the likely welfare consequences of “strong threat[s] of entry”. They assert that:

“Non-rail transport industries like airlines, with minimal sunk costs in infrastructure and active market on which to buy and dispose of equipment, conform to most requirements of this theory. The dominant airlines might therefore reduce their average fares by 10% to ward off a serious threat of entry, and seek to reduce their own costs by 10% to maintain their current profitability” (Clough and O'Donovan 1989:61).

Even in the absence of a likely new entrant into a market, the incumbent operators may make pre-emptive adjustments to their fare and services offerings to reduce the opportunities for a prospective new operator.

We would argue that when modelling possible welfare gains from a single aviation market the prevailing industry structure and the most likely after the event scenarios should be uppermost. Modelling on the basis of contestability theory may not bring out optimal

results - it should be used as a remote rather than most likely scenario. Basing decisions on contestability of the aviation market may distort the results. We turn now to the barriers to contestability in single aviation markets with a view to suggesting how these may be lowered or removed.

BARRIERS TO CONTESTABILITY IN SINGLE AVIATION MARKETS

Barrett (1992) identifies two types of barriers to contestability in single aviation markets; structural and strategic. He deals mostly with those obstacles that are to be found in Europe. Different markets would naturally have their peculiarities.

The structural barriers include hub airport dominance, ground handling monopolies and computer reservation systems. The strategic barriers would include mergers and pricing policy. Several analyses of the US aviation industry have found important barriers to contestability albeit within a policy change which remains a substantial net benefit to the US economy as a whole. If these barriers to contestability prevent new entry, a major assumption underlying the theory is invalidated.

STRUCTURAL BARRIERS

The importance of network effects

Leigh (1990) asserts that probably the most important source of non-contestability may be found in the dramatic changes to route network structure that characterised the post deregulation period in the US. One of the principal ways that airlines have protected themselves against the threat of potential entry implied by contestability theory is through the development of hub-and-spoke route networks.

In the case of the Canada-US single market, Gillen et al. (1990) find that Canadian airlines will face formidable (and perhaps unequal) competition from US carriers that have a well developed hub-and-spoke system. Barrett (1992) also sees hub and airport dominance as the most important obstacle to contestability in a deregulated aviation market. Hub airport dominance occurs principally because of the allocation of airport capacity or slots on a seniority or grandfather rights basis. In Europe, the outright bias on new entrants at London's Heathrow airport since 1977 is the most extreme form of grandfather rights. In the US, Morrison and Winston (1987) found evidence of increasing rents attributable to dominance of certain key hub airports.

In Europe with airport extension being precluded by environmental concerns and extension involving extremely long lead times, the possession of strong positions at these airports offers incumbent carriers a relatively stable (although constrained) source of economic rent. Morrison and Winston (1987) found that fares are higher on routes with greater concentration at airports. Costs could be higher as well due to such factors as greater congestion and higher landing fees.

Ground handling monopolies

Barrett (1992) found that aircraft and passenger handling costs accounted for 12.2% of total airline costs in the EC in 1984. He found that in the US most of these services are supplied by a few airlines authorised by the British Aviation Authority, which wishes to avoid unnecessary duplication of spaces and handling facilities,. Although at Heathrow an unusually large number of airlines retain handling rights originally granted many years ago. New entrants cannot easily establish an independent presence at airports if passenger and baggage handling are carried out by a rival airline. British Midland stated that from its own experience of handling at Birmingham, it could have provided the services itself at just over half the rent it paid at Heathrow. It believed it could have been able to pass on the benefits of lower handling charges to its customers.

Computer Reservation Systems (CRSs)

In the US over 80% of all tickets purchased are sold by travel agents (Morrison and Winston 1987). Travel agents do business using CRSs. There are economies of scale in CRSs and new entrants depend on established CRSs. In the US the CRSs owned by United and American are used by seventy percent of travel agents. The monopolistic power of CRS-owning airlines is also reflected in their charges to other airlines for access to the system. Sinha (1986) found that the return on investment for a CRS ranges from 24% to 95%.

STRATEGIC BARRIERS

Strategic barriers to contestability have more to do with the strategic moves that incumbent carriers engage in to forestall easy entry.

Mergers and acquisitions

Leigh (1990) states that from 1987 to 1990, the airline industry in the OECD countries saw increased oligopolisation. Barrett (1992) echoes the same assertions. In Europe, potential competitors are being taken over by national airlines thus reducing contestability of the market. The traditional collusion on prices and capacity between national airlines has been strengthened by a series of alliances between national airlines. The gains from Anglo-Irish and Anglo-Dutch deregulation required new market entrants. The need for independent airlines on European routes is shown in a study of SAS's monopoly of the Oslo-Stockholm route. Barrett (1992) estimates that competition on the route could yield fare reductions of 20 to 30%.

Pricing policy

Airlines with large networks can reduce fares selectively in response to new entrants on contested routes. Kahn (1988) describes this process in the case of Capitol Airways as follows:

“I take perverse satisfaction in having predicted the demise of price-cutting competitors like Capitol Airways and we still did nothing to limit the predictable geographically discriminatory response of the incumbent carriers to their entry, and having rejected the conventional wisdom that predation would not pay because any attempt to raise fares after the departure of the price-cutting newcomers would elicit instantaneous competitive re-entry” (Kahn 1988:319).

It must be noted that aviation is produced as a network of services. It is unlikely that a network entrant will be able to enter the entire network of an incumbent airline. The scope is thus created for geographical price discrimination between routes with and without new entrants. Another source of funds for geographical price discrimination arises when airlines have different regulatory regimes. An airline might face full competition on some routes and participate in high-fare revenue sharing on others. It is thus able to subsidise its competition-facing routes. This would be typically the case in common aviation markets. The welfare gains in the liberalised markets will typically translate to losses in the regulated extra-single aviation markets. Barrett (1992) provides an example of how between 1987 and 1989 only two routes from Dublin to other EC capital cities had reductions in their economy fares. Madrid had a 10% reduction and the London fare was almost halved. Economy fares to other cities increased. The Dublin - London route experienced new market entry while others were operated in collusion by established national airlines.

Geographical price discrimination therefore developed a widening margin between a contested and uncontested route. The absence of market entry was associated with high

fares. Europe's charter airlines charge between 32% and 37% of the scheduled airline airfares and typically face less strict market entry difficulties than scheduled services.

WILL SINGLE AVIATION MARKETS BE PROTECTIONIST?

The history of international aviation has not been one of competition. To the contrary, it has been one of collusion and parallel behaviour. The scheduled airlines' main source of profit has always been carrying business passengers on international scheduled services. It is a price sensitive market and so competition was always going to appear in the form of scheduling and service standards and price cutting (Tugendhart 1992).

Applying contestability theory to international aviation presents problems. Entry and exit are restricted by bilateral arrangements. Even where more liberalised bilaterals have been negotiated, national regulations sometimes require entrants to publicly disclose their strategy thus giving incumbents a competitive edge. The airport constraints, technological differences and price retaliations by incumbents leads to an *a priori* rejection of this model for international trade in aviation services. Nonetheless, we will examine the barriers to multilateral competition in aviation services focusing particularly on how single aviation markets will impact on this sector of the industry.

In both Europe and Australasia, the incumbent airlines will strengthen their positions before the formation of single aviation markets. A privatised Qantas is soon to merge with Australian Airlines. In Europe, mergers and acquisitions are currently taking place.

Collusion on prices and capacity between national airlines has been strengthened by a series of alliances between national airlines, the notable ones being the acquisition of UTA and Air Inter by Air France which reduced the remaining independent French airlines to 3% of scheduled aviation performed by French airlines. KLM acquired a controlling interest in Transavia to achieve a 97% share of Dutch aviation. The collapse of German Wings gave Lufthansa a 98% share of scheduled aviation by German carriers. British Airways (BA) took over British Caledonian in 1987 to bring BA's share of scheduled aviation to 90%. In Italy, Denmark and Greece, national carriers dominate aviation (Barrett 1992).

In 1990, British Airways was involved with KLM to each acquire 20% of the proposed Sabena Airways (SWA). SWA was to succeed the Belgian carrier, Sabena, which was then undergoing a major financial restructuring to stem mounting losses. The deal would have created an airline serving seventy-five European cities from a Brussels hub, but it was called

off amidst wrangling over government approvals as Sabena's financial situation worsened. British Airways has since acquired a stake in the restructured carrier.

As Europe moves towards liberalisation, a number of national airlines are taking strategic equity stakes in smaller operators and forging alliances across continents. British Airways for instance has submitted an indicative bid for a privatised Qantas. The liberalisation of some of the bilateral agreements between Great Britain and the Netherlands, Britain and West Germany, Britain and Luxembourg, Britain and Belgium, Britain and Singapore, and Britain and Switzerland, has raised some hopes for improved performance of the non-US airline industry. Some commentators, however, see mergers and strategic alliances as having a negative impact on the contestability of markets. Morrison and Winston concluded that in the USA:

“Mergers have not diminished competition on high-density routes enough to threaten to erase deregulation's benefits, but by substantially foreclosing the possibility of increased competition on low to medium density routes, mergers have made it even less likely that deregulation will reach its full potential” (Morrison and Winston 1989:83).

Since European aviation has few routes that are high density by North American standards, the anti-competitive impact of mergers will be greater. Mergers entail the use or monopoly of computer reservation systems and greater down and upstream integration by the merged carriers. It is posited that this raises the barriers to entry and makes operations for those already in the market much more onerous. Kahn states:

“The increasing sophistication with which the leading carriers - particularly the ones with the most fully developed computer reservation systems - have learned to practice what the industry euphemistically calls "yield management" has enabled them to take full advantage of that monopoly power while also creating possible insurmountable barriers to entry by truly new competitors” (Kahn 1990:348).

It would be inappropriate to pre-judge what Europe '93 will entail for foreign carriers. But the indications are that the contestability of the market will be lessened by the mergers and strategic alliances currently taking place. The EC's third package will “constitute the final phase in the organisation of the Community air transport market” (Pilling 1992:19).

The proposals are for common airline licensing, approval of fifth freedom in the EC, approval of cabotage in EC, removal of route capacity limitations, fare setting freedom, allocation of landing/take-off slots, and the EC to negotiate air service agreements with foreign countries. There is a general feeling that the EC will take a defensive posture with regards to foreign airlines. There is already some evidence of this, with the Commission urging flag carriers to defer re-negotiation of bilaterals that put the EC carriers at a

“disadvantage” against North American carriers. The allocation of landing/take-off rights is another source of concern for foreign carriers who feel that the EC would tend to favour its own carriers.

Annex IV of the EC third package deals with third country carriers. It explicitly prohibits price leadership by non-EC airlines for intra-EC trips. It also establishes the applicability of EC competition legislation to non-EC airlines on routes to, from, and within the Community and the code of conduct for computer reservation systems (CRSs). The defensive nature of the proposed package is captured in the Annex:

“The Community should avoid diminishing the value of the traffic rights credited by the Community legislation within the internal aviation market for Community air carriers” (Pilling 1992:21).

A number of foreign carriers from outside Europe currently do not have fifth freedom rights. It is therefore hard to envisage many of the carriers gaining them after the EC takes over the negotiations.

Single aviation markets often mean the removal of intra-single market duty free sales which is likely to lead to a substantial reduction in airport revenues. This may mean airport authorities may increase charges to airlines in an attempt to recoup lost revenue. Such moves are likely to impose higher costs on third country airlines.

The scarcity of runway space, gate frontage and slots in Europe, the US and Australasian markets will give home country carriers an advantage over those of third countries.

On the whole, it appears that single aviation markets will create barriers to multilateral competition. They will become large “domestic” markets within which trade is restricted. It sounds almost tautological that trade as opposed to autarky leads to global welfare maximisation. A motive towards multilateral liberalisation in aviation services would be improved airline industry efficiency, but also implies benefits from trade - great welfare improvement associated with greater exchange in the service. Weisman (1990) shows that domestic welfare increases if a domestic route is liberalised even if the competition comes from a non-domestic entrant. But he cautions:

“It must be remembered that liberal bilaterals or multilateral agreements are only as liberal as market actors permit. Collusion behaviour still violates the spirit of [such] policy initiatives” (Weisman 1990:158).

We now turn to the issues that should concern policy makers in single aviation markets.

ISSUES FOR POLICY MAKERS

Contestability theory has been labelled a “theorist’s toy and a trivial case” and “a theory urgently in search of facts” (Shepherd 1984). Yet Baumol et al. (1982) say the trick is for regulators to adopt policies that enhance the contestability of markets. They say there might be a need to regulate access rules for example, by requiring the leasing of shared use of sunk cost facilities. They claim that mergers and consolidations can be evaluated on the basis of how they will affect structural contestability in the industry.

Perhaps the most important source of non-contestability may be found in the dramatic changes in route network structure that characterised the post-deregulation period. The question may be asked whether regulators should not be concerned about the hub-and-spoke system as a major barrier to contestability. A possible option would be for policy makers to discard contestability theory and use **a network approach** instead. Also, more vigorous anti-trust enforcement may be needed than has been practiced in the past. This will help mitigate the anti-competitive features of the emerging oligopolies. Because the largest consumer benefits occur in markets with three or more carriers, the effect that mergers or acquisitions would have on the ability of three or more carriers to compete in over hub traffic would serve as a test of the anti-competitive features of proposed mergers and acquisitions.

A major barrier to contestability in single aviation markets will be infrastructure. Barrett (1992) recommends the transfer of the slot allocation function from scheduling committees of incumbents to airport management, thus ending the grandfather rights of older airlines. There should be more investment in airport capacity. Other measures include slot lotteries, or buying and selling of slots with ring fences for categories such as regional services, new entrant airlines or other target categories.

Barrett (1992) suggests that an open market in handling at airports should be permitted. The case advanced by some regulations is that this would lead to an increase in the number of ground vehicles on the airport aprons. But this makes no sense as the number of vehicles to handle each aircraft need not affect the overall efficiency of the system. A parking levy could be raised for vehicles not in use.

Carriers owning computer reservation systems (CRSs) are said to have market power. The more radical solutions that have been suggested are to regulate the CRS industry or to require divestiture so that no airline may own a CRS. Fees have to be non-discriminatory and cost-related. CRS vendors should rank flights by departure time or arrival time for non-

stop direct flights with the addition of elapsed journey time for stopping direct flights and connecting flights. At present, there are no laws on the operation of CRSs in Australasia, Europe and US-Canada markets. Providing travel agents with the ability to shift freely among CRSs would give the CRS owners less of a competitive advantage. Better consumer information about the presence of commission overrides would reduce potential biases in information provided by agents.

Price surveillance can be advocated on the grounds that:

“It is not possible in principle to reject the imposition of a price ceiling to protect travellers subject to monopolistic exploitation, where restoration of a more effective competition process seems infeasible” (Kahn 1990:349).

The danger with price surveillance however, is that once introduced, direct regulation has both a logical and almost irresistible tendency to spread (Kahn 1990).

Code sharing appears to inhibit competition in the commuter segment of the industry. Prohibiting alliances between major or national carriers and regional carriers may only encourage the acquisition of the smaller carriers and thereby hasten industry concentration.

A number of experts are in agreement that contestability within single aviation markets is threatened by a number of barriers to both entry and exit. This then brings into question the issue of how policy makers should proceed. Is it necessary or worthwhile to use contestability theory as a policy tool or should policy makers resort to the well established market-structure-conduct theories ? Our view is that the latter provide a sound basis for formulating policies. They present the policy maker with the most likely scenarios.

CONCLUSION

This paper has attempted to highlight the shortcomings of contestability theory in analysing industry structure and competition in civil aviation. Barriers to contestability in the industry are many and policy makers have to address these in order to maximise welfare benefits. Single aviation markets are being formed in many regions of the world and as airlines prepare for these, there have been mergers that will reduce competition both within and outside of aviation markets. Contestability theory would want to put these through the “burden test”. Some of the mergers may not be opposed as the threat of entry would supposedly act as prefect. Herein lies our point of departure with the theory. Empirical evidence has shown that airline markets are not perfectly contestable. Consolidation in the

industry has resulted in welfare losses that were previously derived from deregulation in the US. Policy makers who have been influenced by contestability theory have assumed an indifferent attitude towards mergers.

Policy makers, whilst endeavouring to make single markets as contestable as possible, should not take the theory wholesale. The structure of the markets as it currently pertains should be a key consideration. The structure of the market is generally what determines industry rivalry and as such should form a major input in policy formulation.

REFERENCES

Alamdari, F.E. (1989) *Airline Deregulation: An Analysis Under Different Regulatory and Operating Environments*, Cranefield Institute of Technology, West Yorkshire, United Kingdom

Barrett, S.D. (1992) Barriers to Contestability in the Deregulated European Aviation Market, *Transportation Research A* 26A (2), 159-165

Baumol, W.J., Panzar, J.C. and Willig, R.D. (1982) *Contestable Markets and the Theory of Industry Structure*, Harcourt Brace Jovanovich, New York

Call, G.D. and Keeler, T.E. (1985) *Airline Deregulation, Fares, and Market Behaviour: Some Empirical Evidence*, Analytical Studies in Transport Economics, Cambridge University Press 221-248

Clough, P. and O'Donovan, B. (1989) *Australian-New Zealand Air Services Liberalisation - Report to the NZ Treasury*, New Zealand Institute of Economic Research, Wellington

Davies, J.E. (1986) Competition, Contestability and the Line Shipping Industry, *Journal of Transport Economics and Policy* September, 299-312

Gillen, D.W., Hansen, M. and Ramos, R. (1990) *Free Trade In Airline Services: Assessing the Proposals to Liberalise the Canada-US Air Transport Bilateral*, School of Business and Economics Wilfred Laurier University, Waterloo, Canada

Graham, D.R., Kaplan, D.P. and Sibley, D.S. (1983) Efficiency and Competition in the Airline Industry, *Bell Journal of Economics* 14, 118-138

Kahn, A. (1990) Deregulation: Looking Backward and Looking Forward, *Yale Journal on Regulation* 7(2), 325-354

Leigh, L.E. (1990) Contestability in Deregulated Airline Markets: Some Empirical Tests, *Rand Journal of Economics* Winter, 49-57

Morrison, S. and Winston, C. (1986) *The Economic Effect of Airline Deregulation*, The Brookings Institution, Washington DC, USA

Morrison, S. and Winston, C. (1987) Empirical Implications and Tests of the Contestability Hypothesis, *Journal of Law and Economics* 30, 53-66

Pilling, M. (1992) Compromising the European dream, *Interavia* 47, 18-21

Sinha, D. (1986) The Theory of Contestable Markets and US Airline Deregulation: A Survey, *The Logistics and Transportation Review* 22 (4), 67-81

Shepherd, W.G. (1984) "Contestability" vs Competition, *American Economic Review* 74, 572-587

Tugendhart, C. (1991) Aviation Regulation: What the Future Holds, A paper presented to the Institute of Economics Affairs (London) and reproduced in *Institute of Economic Affairs*, 132-140

Weisman, E. (1990) *Trade in Services and Imperfect Competition - Application to International Aviation* (International Studies in the Service Economy series), Kluwer Academic Publishers, London

William, E.N. and Kessides, I.N. (1991) Localised Market Power on the US Airline Industry, *Review of Economics and Statistics* forthcoming 1992, 1-18