

STRATEGIES FOR A DEREGULATED
CANADIAN AIRLINE INDUSTRY

By

JULIE M. LAVIOLETTE

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Department of Business Administration

The University of British Columbia
1956 Main Mall
Vancouver, Canada
V6T 1Y3

Date August 31, 1987

Abstract

The U.S. airline industry's experience under a regime of deregulation, as well as the potential forms of strategic interaction in a duopoly are examined in order to determine what strategies Canada's two major carriers should adopt in the deregulated Canadian airline industry.

The following recommendations are made to Air Canada and to Canadian Airlines International regarding price, service, and network strategies. First, the carriers should strengthen their hub and spoke operations (i.e. by further consolidating feeder carriers, and offering a high quality of service network-wide). Second, the airlines should strive to control costs (i.e. by reducing labour and fuel costs, while capitalizing on the potential economies of scope attainable through international operations). Finally, the carriers should apply their marketing expertise (i.e. by continuing to develop their yield management systems and frequent flier programs, as well as adopting innovative, new pricing strategies).

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1) Introduction

In 1978 the Airline Deregulation Act was passed in the United States. Since then, media reports of low fares in that country have lead to increasing pressures on the Canadian Government to follow the initiative of the American Government and thereby deregulate the Canadian airline industry.

While deregulation legislation is not expected to enter the Canadian statute books until late 1987, Canadian airlines have nevertheless been operating under a regime of increasing regulatory relaxation for the past three years (i.e. since the release of the 'New Canadian Air Policy' on May 10, 1984) due to the liberal interpretations of the existing laws. This transition towards deregulation has prompted an industry-wide shakeout (i.e. a series of consolidations, mergers and alliances - see Figures 1-1 & 1-2) which, as of December 2 1986, has culminated in the emergence of a virtual duopoly in the Canadian airline industry. In essence, there now exists only one airline (i.e. Wardair) independent of the two major carriers (i.e. Air Canada and Canadian Airlines International Ltd. (CAIL)).

These developments have gone far in uprooting the underlying competitive forces of the industry which evolved under the protected environment of regulation. Yet, the transition towards deregulation in Canada has been proceeding at a much slower pace than it did in the U.S..

Thus, Canadian airline management has had more time to adjust to the changing competitive forces and, hence, to the new opportunities and threats that have been unleashed into the industry. Moreover, Canadian managers have had the advantage of being able to observe the experience of their U.S. counterparts, and learn from their mistakes.

The aim of this paper is to determine what strategies (i.e. network strategies, pricing strategies, and service strategies) should be adopted by Canada's two major carriers in light of the U.S. experience under deregulation, and in light of their interdependence in the duopolistic Canadian airline industry. More precisely, what strategies (i.e. network, pricing, and service strategies) should Air Canada follow if CAIL adopts a given set of strategies? Similarly, what strategies (i.e. network, pricing, and service strategies) should CAIL adopt if Air Canada chooses to follow a given set of strategies?

The answers to these questions are of extreme importance since, under a regime of deregulation, market forces and not regulators determine carrier performance. Moreover, as the U.S. experience has demonstrated, the key success factor in the airline industry is the soundness or appropriateness of an airline's set of strategies.

In this connection, while there exists a vast body of literature on the various strategies adopted by U.S. carriers since the passage of the Airline Deregulation Act in October 1978, including an excellent account by Byrnes

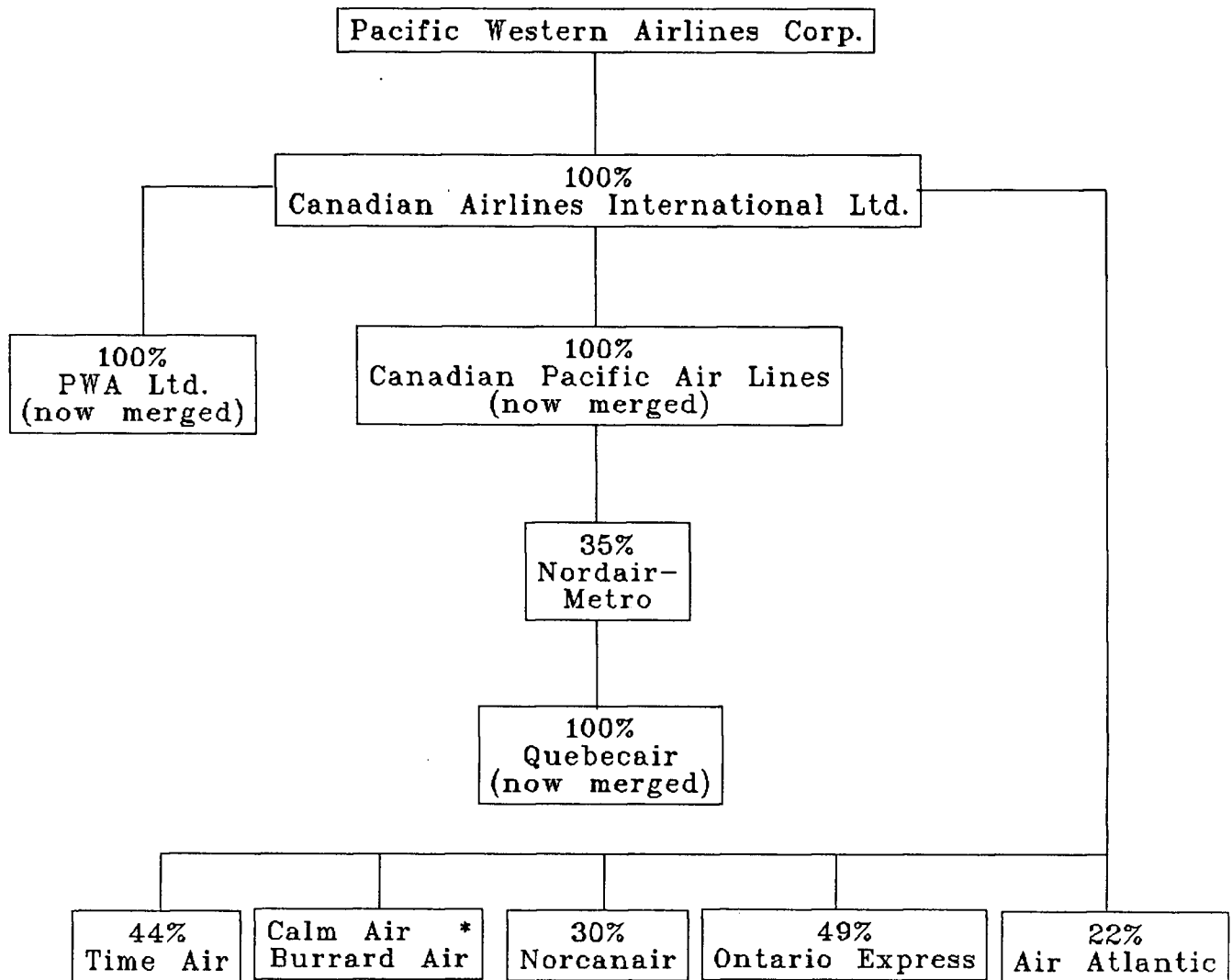
(1985), none of these works apply directly to the duopolistic Canadian airline industry. That is, the situation facing Canada's major airlines, unlike that of their U.S. counterparts, is unique in that they will be competing not only in a deregulated airline industry, but also in a duopolistic one. Hence, there is a gap that needs to be filled.

To this end, we begin with an historical overview of the regulation of both the U.S. and the Canadian airline industries, along with a brief discussion of the pending Canadian deregulation act (i.e. The National Transportation Act, Bill C-18). Next, we discuss the nature of competition under regulation, as well as developing a set of expected outcomes for the deregulated airline industry using Porter's Competitive Forces Model as a general framework. This is followed by a discussion of the actual outcomes of deregulation in the U.S., as well as of the differences that exist between the two countries' industries in order to determine the relevance of the U.S. experience to Canada. In the subsequent chapter, we explore the potential forms of strategic interaction in a duopoly, along with their application to the Canadian airline industry.

Finally, in light of the foregoing, we derive implications for Canadian airline management. More precisely, we make recommendations to Air Canada and to Canadian Airlines International Ltd. regarding which strategies to adopt in the new competitive environment.

Figure 1-1

Ownership Structure of CAIL



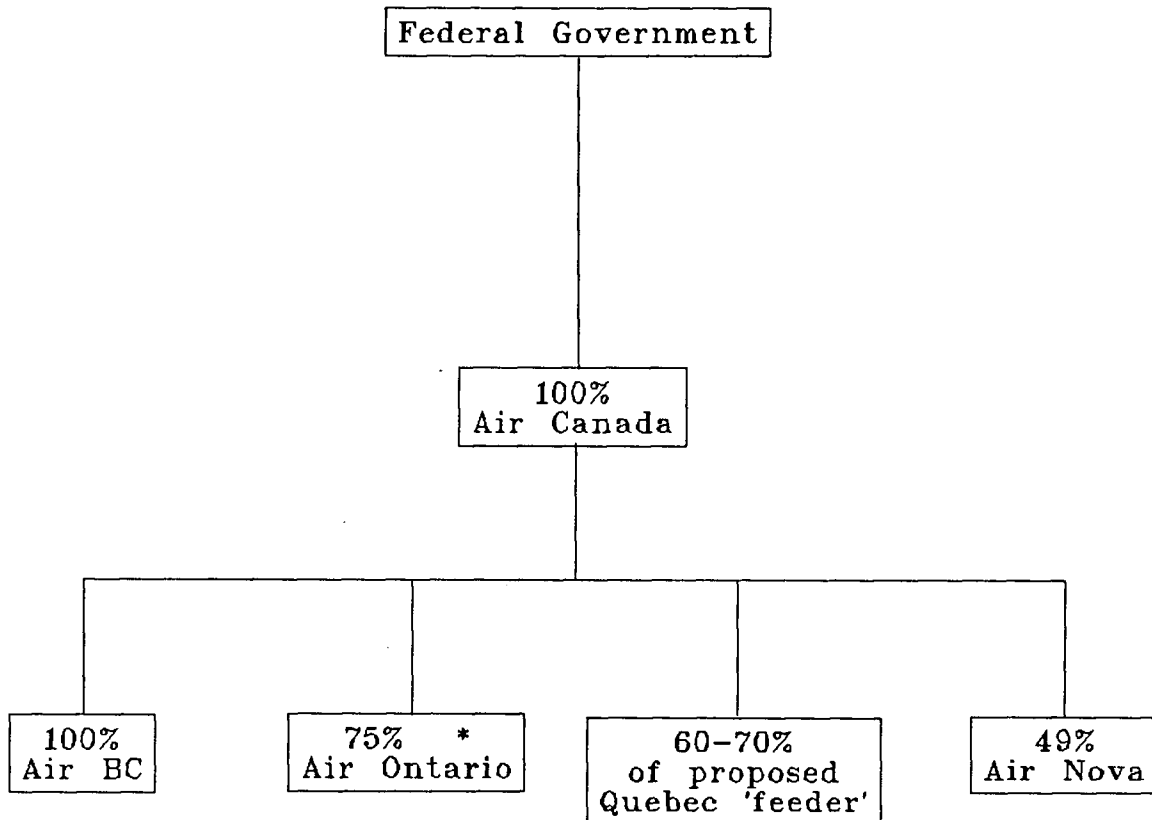
* CAIL has an agreement with privately owned Calm Air and Burrard Air to use CAIL's colours and Canadian Partner name on planes.

Sources: Gillen, D.W., W.T. Stanbury and M. Tretheway, "Analysis of the Takeover of Canadian Pacific Air Lines by Pacific Western Airlines", Working Paper #1223, Faculty of Commerce and Business Administration, the University of British Columbia, January, 1987, p. 49.

Won, S., "The New Kid On Block Has High Hopes", The Montreal Gazette, July 18, 1987, p. C-1.

Figure 1-2

Ownership Structure of Air Canada



* Former 'feeder' Austin Airways is now joined with Air Ontario.

Sources: Gillen, D.W., W.T. Stanbury and M. Tretheway, "Analysis of the Takeover of Canadian Pacific Air Lines by Pacific Western Airlines", Working Paper #1223, Faculty of Commerce and Business Administration, the University of British Columbia, January, 1987, p. 50.

Won, S., "Why Air Canada Wants to Fly Own Way", The Montreal Gazette, July 11, 1987, p. D-1.

2) An Historical Overview of the Regulation of the North American Airline Industry

2a) Regulation of the U.S. Airline Industry

The Civil Aeronautics Act of 1938 established that the U.S. airline industry would be regulated by the Civil Aeronautics Board (CAB). This independent administrative body remained the sole regulator of the industry until passage of the Federal Aviation Act of 1958 granted authority to the Federal Aviation Agency (FAA) for the regulation of air safety. The CAB was then solely responsible for the economic regulation of the industry, strictly controlling entry into the airline business, the routes which each carrier was permitted to fly, and the fares the airlines could charge consumers.

According to Taneja (1976), "ever since the establishment of the Civil Aeronautics Board in 1938, the costs and benefits of regulation within the airline industry have been debated."¹ However, in the mid 1970s, airline regulation was the subject of increasing criticism from consumers, academic theorists, public officials, industry participants, and even the Department of Transport. These critics claimed that although CAB regulation was necessary when the industry was in its

¹Taneja, N.K., (1976), The Commercial Airline Industry, (Toronto: Lexington Books), p. 291.

formative stages, it was no longer in the best interests of either consumers or air carriers.

The drive to deregulate the industry and to abolish the CAB was spearheaded by the "Ford Administration's proposed Aviation Act of 1975 and the bills emanating from hearings conducted by Senators Edward Kennedy and Howard Cannon, and by Congressman Glenn Anderson."² These efforts culminated in the passage of the Airline Deregulation Act in October 1978.

As a result of this law, "the CAB's authority over routes expired on December 31, 1981. It's authority over fares expired on January 1, 1983. And it went completely out of business on January 1, 1985."³ Today, there is freedom of entry into the industry for new carriers, the only requirement being that the new service must meet the 'fit, willing and able' criteria (i.e. adequate safety levels and insurance coverage). This is accompanied by freedom of exit (i.e. an airline can now abandon any route by simply giving CAB 90 days advance notice), and pricing flexibility. Finally, each carrier is able to select as many new routes a year as it wishes to serve.

²American Enterprise Institute for Public Policy Research, (1978), Air Transportation Regulatory Reform (Washington, D.C.: American Enterprise Institute for Public Policy Research), p. 1.

³"Where Deregulation Works: For Air Travellers, It's More Than a Buzz Word", Consumer Reports, May 1979, p. 284.

2b) Regulation of the Canadian Airline Industry

On April 10, 1937, Trans-Canada Airlines (TCA), now Air Canada, was established as a Crown carrier (i.e. with the Canadian National Railways holding all its shares) with the mandate of setting up transcontinental service. To regulate its flag carrier, the Canadian Government "took the existing Board of railway commissioners, renamed it the Board of Transport Commissioners (BTC) and expanded its authority to cover airline route operations, rates, and schedules."⁴

In the early 1940s, Canadian Pacific Railways (CPR) began its campaign to gain market share in the air transport industry. By 1942, CP Air had the potential to offer a transcontinental mainline service. Thus, in 1943 the BTC awarded the Victoria-Vancouver route to CP Air, thereby angering Prime Minister King, who declared "Competition between air services over the same route will not be permitted whether between a publicly-owned service and a privately-owned service, or between two privately-owned services."⁵ Furthermore, in 1944, as a result of the BTC's actions, the government transferred the Board's powers to a new three man Air Transport Board (ATB), which was under the authority of the Minister of Transport.

⁴Gialloredo, L., (1983), An Analysis of the Two Irreconcilable Solitudes of Air Transport - Deregulation For Profit or Regulation For Public Necessity, p. 21.

⁵Burgess-Webb, R., "Historical Development of Airline Policy in Canada", Pilot Magazine, January 1981, p. 9.

The ATB continued in its advisory role to the government until 1967, when the National Transportation Act was passed. This Act did little to reform air transport policy, but rather merely established the Canadian Transport Commission (CTC), and changed the ATB's name to the Air Transport Committee (ATC).

The next major change occurred in 1977 with the passage of the Air Canada Act, which transferred the ownership of Air Canada from CN Rail to the Government, and required the airline to seek a profit by operating under the rules of the private sector. This act also gave the ATC jurisdiction over all of the carriers operating in Canada.

The period 1978-1982 was characterized by a series of discussions and decisions that can best be described as a slow transition towards increased reliance on market forces and competition in the Canadian airline industry.⁶

For instance, in 1978, the Cabinet permitted the first interregional domestic advance booking charters (ABCs) on

⁶This discussion is based largely on the following works: Reschenthaler, G.B. and W.T. Stanbury, "Deregulating Canada's Airlines: Grounded by False Assumptions", Canadian Public Policy, Vol. 9 (2), June 1983.

Stanbury, W.T., "Reforming Direct Regulation in Canada" in K.J. Button and D. Swann (eds.) The Age of Regulatory Reform, (Oxford: Oxford University Press), to be published in 1987.

Stanbury, W.T. and F. Thompson, (1982) Regulatory Reform in Canada, The Institute for Research on Public Policy, Montreal, Quebec.

scheduled flights. Restrictions on these were subsequently reduced in 1979-1980. Moreover, beginning in 1978, Canadian airlines began to offer discount fares, most subject to various conditions (i.e. advance booking and round trip travel).

However, on August 19, 1982, officials of the CTC, who feared that competition was becoming destructive between the two national carriers, proposed protectionist 'interim' rules governing fares discounted more than 25 per cent below the lowest applicable unrestricted public fare. For instance, the recommended 'fences' included the requirements that reservations be made 14 days in advance, and that minimum stay include the first Saturday following the departure.

Next, in 1979, all capacity restrictions on CP Air were removed and the airline was encouraged to consolidate its licenses. Also, in August of 1979 Wardair obtained a domestic charter license (i.e. the ATC granted Wardair a temporary license to offer domestic ABCs for two years ending October 31, 1981, after which the licence would be reviewed by the ATC). The latter greatly intensified competition in the charter class market.

However, in August 1981, the DOT released a set of policy proposals designed to define (and restrict) the future roles of Canada's two national, four regional, and about seventy-five third-level or commuter air carriers in the 1980s. These restrictive proposals were for the most

part inconsistent with the Economic Council of Canada's June 1981 recommendations for 'taking additional steps towards deregulation'.

Then, in April 1982, the House of Commons Standing Committee on Transport released its report - Domestic Air Carrier Policy - which rejected US-style deregulation or even a five-year, phased deregulation as proposed by the Economic Council. Rather, it endorsed the regulatory control of the CTC within a set of policy guide-lines that would continue the 'evolutionary process' toward greater but controlled competition.

Then, on May 10, 1984, Lloyd Axworthy, then Minister of Transport, released the government's 'New Canadian Air Policy'. While this policy statement lacked legal status, it essentially represented the first significant step in the regulatory relaxation of the Canadian airline industry. Thus, up until this point Canadian regulatory policies had remained essentially unchanged from those of the 1930s.

Finally, this policy is to be modified by the pending legislation of the National Transportation Act (Bill C-126) which was given its first reading in the House of Commons on June 26, 1986, and reintroduced in essentially the same form as Bill C-18 in November 1986. The bill has now passed the third reading in the House of Commons, and is merely awaiting Senate approval. Hence, it is expected to become law in late 1987. This act will complete the transition towards deregulation by bringing about some

changes along the lines proposed in the 'Freedom to Move' paper put forth by former Transport Minister Don Mazankowski in July, 1985.

The most salient changes include: First, the act allows for freer entry into the industry since "the test for public convenience and necessity (which placed the onus of proof of public convenience and necessity of a new service on the new entrant) will be replaced by a 'fit, willing and able' requirement"⁷ (under which carriers must demonstrate that they operate safely and have adequate insurance coverage). Licenses will no longer restrict carriers' routes, equipment, or type of service. Second, the new act allows for much easier exit (i.e. carriers will be able to discontinue service on a route after a maximum 60 days public notice). Third, carriers will be permitted to establish fare levels and to lower fares at will. However, fare increases, particularly on monopoly routes, will be subject to appeal to the National Transportation Agency (NTA), the new agency responsible to the Minister of Transport which replaces the CTC. Fourth, for Northern and remote areas "a special regime will ensure essential services are not disrupted for these thin, widely-dispersed markets"⁸. Fifth, "Federal funding will

⁷Burgess-Webb, R., "Canadian Airline Deregulation - An Overview of the Legislation", Pilot Magazine, August 1986, p. 6.

⁸Impacts of the New Transportation Legislation of June 26: Reviewed at CITL Conference", Transportation Info., July 4, 1986, p. 6.

be permitted to maintain essential services in cases of urgent necessity"⁹ . Finally, the act "allows investigation of mergers and acquisitions in transport against a 'public interest' test. Airlines will also be subject to the Combines Investigation Act (renamed the Competition Act as of June 19, 1986)"¹⁰(see Appendix A).

⁹Ibid., p. 7.

¹⁰French, T., "Canada: And Then There Two?", Airline Business, October 1986, p.15.

3) The Nature of Competition in the Regulated U.S.

Airline Industry

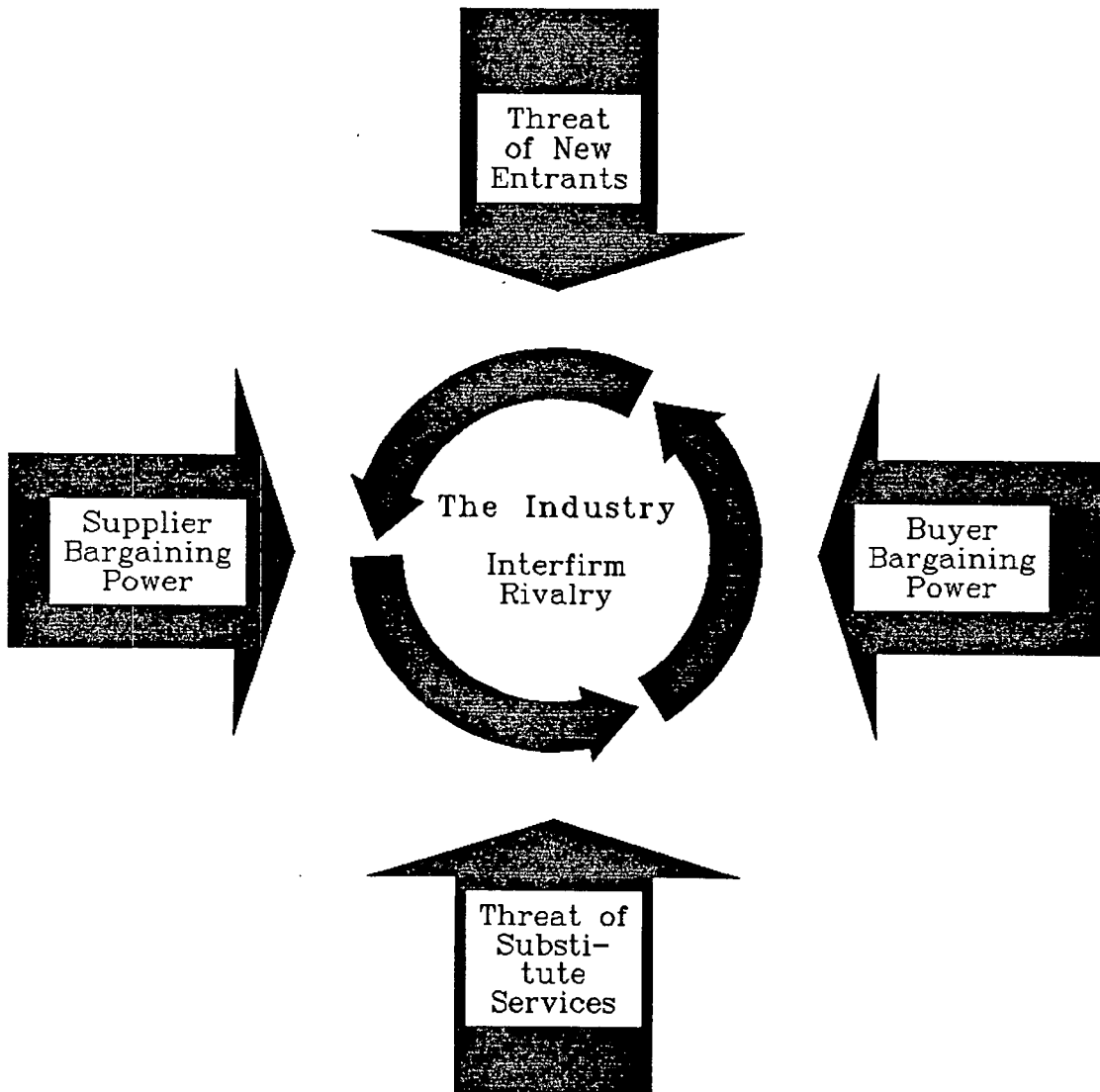
Throughout the forty years of regulation in the U.S., the objective of the Civil Aeronautics Board (CAB) had been to maximize airline service, while keeping the carriers in the industry financially healthy. This was achieved through cross-subsidy whereby returns earned on profitable routes were diverted into "uneconomical but politically desirable goals, such as service on sparse marginal routes and maintenance of weaker carriers."¹¹

However, the use of cross-subsidization necessitated controlling the competitive forces that would otherwise determine the profitability of firms in the industry. According to Porter (1979) there are five such forces: the threat of new entrants; buyer bargaining power; supplier bargaining power; the threat of substitute services; and rivalry among existing firms (see Figure 3-1). Hence, the CAB, through its use of entry, exit and rate regulation, created barriers to entry into, and exit from, the industry; overrode the intrinsic bargaining power of buyers and suppliers; and discouraged the inroads of substitute services, while limiting the rivalry among existing firms to the dimension of service competition.

¹¹Byrnes, J.L.S., (1985) Diversification Strategies for Regulated and Deregulated Industries: Lessons from the Airlines (Toronto: Heath Lexington Books), p. 4.

Figure 3-1

Forces Governing Competition In An Industry



Source: Porter, M.E. "How Competitive Forces Shape Strategy",
The Harvard Business Review, March-April, 1979, p. 90.

First, the CAB erected barriers to entry into the industry through certification controls, while limiting carrier mobility through route acquisition and abandonment proceedings. The former restrictions "ensured existing carriers of protection from the entry of more efficient new airlines"¹², while preventing the latter from "picking-off the high priced services from which cross-subsidies were drawn"¹³. Meanwhile, the barriers to mobility and exit prevented incumbent firms from "competing away the lush sources of cross-subsidy and from shedding the money-losing services that were being supported."¹⁴

Thus, despite the fact that "price-insensitive buyers on the prime routes (such as frequent business passengers) had more intrinsic economic bargaining power than the price-sensitive buyers on marginal services (such as infrequent passengers in outlying regions)"¹⁵, the barriers erected ensured that prices were kept artificially high in prime services and artificially low in marginal services. This was further facilitated by the fact that price-sensitive buyers in small communities had more political clout. That is, according to Byrnes (1985) "through their

¹²Bailey, E.E., D.R. Graham and D.R. Kaplan, (1985) Deregulating the Airlines, (Cambridge, Mass.: MIT Press), p. 96.

¹³Byrnes, J.L.S., p. 120.

¹⁴Ibid., p. 5.

¹⁵Ibid., p. 5.

representatives in Congress, numerous marginal buyers had pressured the CAB into providing inexpensive service on relatively sparse routes"¹⁶. Hence, under regulation, buyer bargaining power was determined by political influence rather than by economic strength.

Similarly, supplier bargaining power in the regulated industry rested primarily upon a political rather than an intrinsically economic basis. That is, while workers' negotiating leverage was augmented by the fact that air carriers operate in a service industry (i.e. "airlines cannot store output, so sales lost during a strike are lost forever"¹⁷), and that many of the employee groups are "highly skilled and highly specialized, thus limiting the availability of substitutes"¹⁸, the existence of CAB rate regulation appears to have been the main factor that placed airline unions in a strong bargaining position. This is because, under rate regulation, fares were set according to costs. Hence, "incentives for carrier management to resist union demands at the bargaining table were greatly

¹⁶Ibid., p. 57.

¹⁷Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 96.

¹⁸Ibid., p. 96.

diminished"¹⁹, and labour unions "benefited from large settlements that were passed through to price-insensitive customers."²⁰

For instance, Bailey, Graham and Kaplan (1985) have found that for the period 1957-1981 airline workers were paid substantially more than workers doing similar work in other industries. They cite various examples of pay differentials in jobs where no industry-specific skills are required. For example, in 1980 "keypunch operators who worked for the airlines earned 31 percent more than the average wage for all keypunch operators"²¹, while the pay differentials for typists, computer operators, and cleaners were "41 percent, 38 percent, and 82 percent"²², respectively.

Moreover, where skills are specific to the airline industry, wage rates seem to reflect the workers' success in capturing a share of the industry's productivity gains. For example, "pilots have succeeded in capturing a considerable share of the cost savings created by technological advances (i.e. larger and faster aircraft), and as a result pilot costs have not fallen as much as

¹⁹Blumestock, J.W. and E.A. Thomchick, "Deregulation and Airline Labour Relations", The Logistics and Transportation Review, December 1986, Vol. 22(4), p. 392.

²⁰Byrnes, J.L.S., p. 120.

²¹Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 102.

²²Ibid., p. 102.

technological change would have allowed. These gains were achieved not only through higher pay but also through changes in the work rules that increased the required number of employees."²³ In this connection, the authors stress that to the extent that restrictive work rules have been adopted under regulation (i.e. contracts that restrict the use of part-time employees), productivity growth has been held below the levels that could have been achieved.

The bargaining power of the other major suppliers to the airlines, equipment manufacturers and fuel suppliers, also appears to have benefitted from CAB rate regulation of the industry. That is, since fares were set according to costs, airlines had little incentive to control rising costs as these could simply be passed on to price-insensitive passengers by way of higher fares. Moreover, aircraft manufacturers, in particular, would appear to have benefitted from the service competition that regulation encouraged since this increased the demand for new jet aircraft (to be discussed later).

Next, the inroads of substitute services appear to have been effectively limited by the CAB's cross-subsidy policy. For instance, while it is unlikely that any substitute modes of travel pose a real threat in long-haul markets since "as market distance increases, surface travel

²³Ibid., p. 97.

becomes a poor substitute for air travel"²⁴, air service could potentially be replaced by rail and/or bus service on many short-to-medium-haul routes. However, as previously mentioned, fares on many such thin density routes were kept artificially low by the CAB in order to appease the politically influential price-sensitive travellers on such routes, thus countering the cost advantage of these potential substitutes. Furthermore, the railway industry was regulated as well, thereby limiting its pricing flexibility.

Next, since price competition was largely barred under CAB regulation of air fares, interfirm rivalry primarily took the form of service and capacity competition as well as jockeying for regulatory favors. In the mid-1960s, carriers began to acquire new jet aircraft and later wide-bodied jet aircraft since these appealed to passengers while lowering operating costs. However, under service competition, "carriers faced incentives to purchase a larger stock of equipment than they needed"²⁵, resulting in excess capacity in the industry.

This, in turn, caused large welfare losses to society. For instance, in a 1977 Report to Congress, the Comptroller General of the U.S. stated that airlines could have profitably operated at a lower cost per passenger, "resulting in

²⁴Ibid., p. 53.

²⁵Ibid., p. 62.

lower fares and therefore savings to domestic air travelers on the order of \$1.4 to \$3.8 billion a year."²⁶ Similarly, Senator Kennedy claimed that as a direct result of airline regulation "the public paid from 32% to 47% in excess air fares"²⁷, while Keeler's findings for 1972 suggest a markup of "45 to 84 percent"²⁸.

Toward the later 1960s, the carriers shifted their competition toward schedule and capacity contests. This was done in response to the s-curve effect, whereby "the market share of a dominant carrier tended to be more than proportional to the schedule frequency."²⁹ Hence carriers faced incentives to increase the frequency of their flights. This strategy, which required purchasing even more aircraft, exacerbated the problem of excess capacity in the industry until the airlines were finally limited by the "inability of manufacturers to supply more planes."³⁰

Finally, under the regime of regulation, carriers competed by trying to obtain favorable regulatory decisions

²⁶Civil Aeronautics Board (Report to Congress), (1977) Lower Airline Costs Per Passenger Are Possible In The U.S. And Could Result in Lower Fares, (Washington, D.C.: Civil Aeronautics Board), p. 38.

²⁷Davis, G.M., (1976) Transportation Regulation: A Pragmatic Assessment, (Illinois: Interstate Printers & Publishers Inc.), p. 213.

²⁸Keeler, T.E., "Airline Regulation and Market Performance", Bell Journal of Economics, Autumn 1972, p. 421.

²⁹Byrnes, J.L.S., p. 31.

³⁰Ibid., p. 31.

(i.e. such as prime route awards). In fact, according to Meyer and Oster (1984) "to the extent there was rivalry, under regulation, it was largely restricted to currying advantage from the highly legalistic and politicized regulatory process."³¹ One such strategy was to undertake what Byrnes (1985) refers to as Type 1 diversification: "siting hotels in an attempt to gain desirable routes"³², since the CAB's criteria for route development ability included a carrier's ability to provide accommodations.

All in all then, it would appear that CAB regulation was effective in limiting the collective strength of the industry's five competitive forces. However, under economic deregulation of the airline industry, one would expect the strength of these forces to be altered substantially from that which evolved throughout 40 years of regulation. Let us examine the a priori expected outcomes of deregulation, again using Porter's Competitive Forces Model as a general framework.

³¹Meyer, J.R. and C.V. Oster, (1984) Deregulation and The New Airline Entrepreneurs, (Cambridge, Mass.: MIT Press), p. 3.

³²Byrnes, J.L.S., p. 197.

4) A Priori Expected Outcomes of Airline Deregulation

To begin with, given the removal of regulatory barriers to entry into the industry and particular city-pair markets, new entrants could pose a real threat to the incumbents. That is, new carriers could be expected to enter the high-density profitable markets from which cross-subsidies were drawn thereby rendering the latter policy no longer viable. Nevertheless, the seriousness of this threat of entry would appear to be checked somewhat by the non-regulatory barriers to entry existing in the airline industry, as well as the potential reactions of existing carriers.

First, with respect to non-regulatory entry barriers, while it would appear that the industry is not subject to great economies of scale "with the limited exceptions of terminal operations and marketing"³³, it is characterized by differentiable services, sizeable capital requirements (i.e. expenditures on aircraft and up-front advertising, and the need to absorb start-up losses), and limited access to distribution channels (entrenched companies have developed sophisticated computer reservation systems that present biased information to travel agents).

Furthermore, the incumbents would appear to be prepared for sharp retaliation since the industry is characterized by both excess capacity and slow growth (i.e.

³³Ibid., p. 57.

"airline traffic has been growing at about 7% to 8% annually, while the airlines have boosted capacity 10% to 11% per year"³⁴). Thus, while the strength of the threat of new entrants will undoubtedly be augmented by deregulation, potential rivals could nevertheless entertain some second thoughts about barging into the industry.

Secondly, under the regime of deregulation one would expect buyer bargaining power to revert to an economic basis. That is, economically strong buyers (i.e. frequent business travellers) should gain more value in their transportation purchases, while economically weak buyers (i.e. price-sensitive buyers on marginal routes) could see service fall to economically supportable levels.

Similarly, under deregulation, supplier bargaining power can be expected to shift from a political basis to an economic one. That is, as new, more efficient carriers enter the industry, the incumbents could face pressure to lower costs. To this end, some suggest that "since most airline costs are relatively fixed (e.g. fuel taxes, interest, insurance) the full force of competition will fall on the labour component. They predict that collective bargaining will be tougher...and that there will be a shift from unionized to non-union labour."³⁵ Hence, there will

³⁴Labich, K., "Winners in the Air Wars", Fortune Magazine, May 11, 1987, p. 79.

³⁵Western Transportation Advisory Council, "A New Threshold for Canadian Air Transportation", WESTAC Briefing, October 1986, p. 23.

be considerable pressure on the older certificated airlines to move toward "competitive pay levels and more flexible work rules."³⁶

Nevertheless, it appears that labour will retain some bargaining power since, as aforesaid, many airline employees are highly skilled and highly specialized, thus limiting the availability of substitutes and building up employers' switching costs (i.e. training expenses).

With respect to the other major suppliers to the airlines, aircraft manufacturers and fuel companies, it would appear that deregulation will both increase the number of buyers, and place pressures on the airlines to obtain lower-cost fuel and aircraft. Therefore, while the aircraft manufacturing industry, in particular, is more concentrated than the airline industry it sells to, is dominated by a few companies, and its product has built-up switching costs (i.e. specialized ancillary equipment for the training of carrier personnel, such as flight simulators), it is nevertheless rendered vulnerable due to its being characterized by high sunk costs (up-front research and development expenses) and to its production of perishable goods (i.e. prone to technological obsolescence). Thus, on balance, these factors would appear to reduce the manufacturers' bargaining power.

³⁶Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 197.

Fourthly, while as mentioned earlier, it is unlikely that any substitute modes of travel pose a real threat in long-haul markets, deregulation, by allowing the upstart of low cost - low fare operations, would appear to further discourage the inroads of substitute services on short-to-medium-haul routes. Thus the threat of substitute services would not appear to be a very serious one.

Finally, under fare deregulation, it is likely that interfirm rivalry will shift from service and capacity contests to price competition. That is, pricing flexibility should allow efficient carriers to pass cost savings along to consumers by way of lower fares. Moreover, this rivalry is likely to be intense since, as previously mentioned, this maturing industry is characterized by high fixed costs, excess capacity, and slow growth. Furthermore, the carriers' product (i.e. a seat-mile) is perishable (it is consumed as it is produced and hence can not be stored as inventory), and non-regulatory exit barriers are high (aircraft are very specialized assets) thereby creating strong temptation to cut prices.

Thus, all in all, the expected outcomes of deregulation point to increased intensity in interfirm rivalry brought about by the threat of new entrants, price competition, and the increased buyer bargaining power of frequent business travellers.

5) Actual Outcomes of Deregulation: The U.S. Experience

While the jury is still out with respect to many of the 'effects' of the deregulation of the U.S. airline industry, several outcomes have now been accepted by all as fact. For the most part, these results appear to be consistent with the aforementioned expected outcomes which were derived using Porter's Competitive Forces paradigm. That is, we have witnessed increasing interfirm rivalry, primarily in the form of price competition, brought about by the increased freedom of entry into the industry, and the shift of supplier and buyer bargaining power from a political to an economic basis. Let us examine this experience in greater detail.

I) The Threat of New Entrants

To begin with, the threat of new entrants initially proved to be very real. That is, as regulatory barriers to entry and mobility were removed, incumbents faced increased route competition as airlines revised their route structures (i.e. dropping unprofitable routes and entering profitable ones) and as new carriers entered the market. According to Jordan (1986) "starting with 27 airlines in 1978, the total number of airlines operating jet aircraft increased each year until 63 such airlines provided scheduled passenger service in 1984."³⁷

³⁷Jordan, W.A., "Results of U.S. Airline Deregulation: Evidence from the Regulated Canadian Airlines", The Logistics and Transportation Review, Vol. 22(4), December

Furthermore, as predicted, these new carriers attacked the "heavily travelled pleasure and business routes (whose prices had been kept artificially high under CAB fare regulation) by drastically cutting prices."³⁸ Hence, while deregulation "has resulted in lower fares on higher density routes"³⁹, fares "increased more on short 'thin' routes, with some higher in absolute dollar terms than for heavily-travelled routes four times the mileage."⁴⁰

Nevertheless, as a group the new entrants have had substantial impact on the airline industry. According to Bailey, Graham and Kaplan (1985) "average fares are substantially lower in markets they serve"⁴¹, and the new entrants have encouraged the formerly regulated carriers to become more efficient in order to respond competitively to their fares. Thus, under the threat of new entrants, the general rate level of passenger fares either declined or rose at a rate well below the inflation rate. For example, "in 1979 air fares increased by 5.3 percent over the previous year but the Consumer Price Index jumped by 11.3

1986, p. 301.

³⁸Thornton, R.L., "Airlines and Agents: Conflict and the Public Welfare", *Journal of Air Law and Commerce*, Vol. 52(2), Winter 1986, p. 380.

³⁹Call, G.D. and T.E. Keeler, (1985) "Airline Deregulation, Fares, and Market Behaviour: Some Empirical Evidence", in Analytical Studies in Transport Economics, (Cambridge University Press), p. 235.

⁴⁰WESTAC Briefing, p. 20.

⁴¹Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 108.

percent. In 1980 air fares rose by almost 7 percent, but again the Consumer Price Index increased by 12.2 percent."⁴² Hence there was a net decline in real fares.

The ability of the new carriers to charge lower fares can be attributed to their lower operating expenses. This, in turn, can be attributed in large part to "higher employee productivity relative to the original U.S. airlines."⁴³ In this connection, according to Morrison and Winston (1986), the threat posed by these new entrants has resulted in a general welfare gain to consumers. Moreover, Bailey, Graham and Kaplan (1985) stress that the competitive pressures of open entry have caused all carriers to "use their resources more efficiently"⁴⁴ - increased utilization of aircraft, standardization of fleets, increased seating density, accelerated retirement of fuel inefficient aircraft and, hence, reduced fuel use, rationalization of routes, and a higher growth rate in productivity.

For example, in 1982, "United Airlines operated at 96.4% of its 1978 capacity, as measured in available seat-miles, with 21% fewer workers. The entire industry provided 19% more output with fewer than 1% more

⁴²Rose, W., "Three Years After Airline Passenger Deregulation in the United States: A Report Card on Trunkline Carriers", Transportation Journal, Winter 1981, p. 57.

⁴³Jordan, W.A., (1986), p. 308.

⁴⁴Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 67.

employees."⁴⁵ Similarly, Meyer and Oster (1981), reporting on the early experience of deregulation, concluded that "as a result of productivity gains from technical, operating and marketing efficiencies, the average airline fare is perhaps 8% to 25% lower than it would have been without deregulation."⁴⁶ Thus, all in all, it would appear that the threat of new entrants was indeed initially successful in limiting the profit potential of the industry.

However, in the longer run, according to Byrnes (1985) "the removal of regulatory barriers to entry forced the airlines to take steps to construct new entry barriers that were capable of protecting their competitive positions and insulating them against destructive direct price competition."⁴⁷ These included: hub and spoke feeder systems, computer reservation systems, and frequent flier programs.

First, while most major airlines employed some type of hub and spoke operation prior to 1978 (i.e. Delta and Eastern had major hubs in Atlanta, United in Chicago, American in Dallas, and US Air in Pittsburgh), deregulation substantially accelerated their use (see Figure 5-1).

⁴⁵"Deregulating America. The Benefits Begin to Show In Productivity, Innovation, and Price", Business Week, November 28, 1983, p. 86.

⁴⁶Meyer, J.R. and C.V. Oster, (1981) Airline Deregulation: The Early Experience, (Boston, Mass.: Auburn House Publishing Company), p. 89.

⁴⁷Byrnes, J.L.S., p. 56.

Figure 5-1

Dominant Carrier's Percentage of Departures at Large Air
Traffic Hubs, 1977 Versus 1984

Large Hubs	Departures (%)	
	1977	1984
Pittsburgh	50	80
Newark	27	46
Dallas-Fort Worth	36	50
Chicago (O'Hare)	26	39
St. Louis	35	46
Denver	26	36
New York (Kennedy)	14	20
Atlanta	41	45
Miami	37	40
Minneapolis/St. Paul	38	41
Houston (Intercontinental)	40	42

Source: Phillips, L.T. "Structural Change in the Airline Industry: Carrier Concentration at Large Hub Airports and its Implications for Competitive Behavior", Transportation Journal, Vol. 25(2), Winter 1985, p. 25.

The essence of these hub and spoke route networks is the consolidation of sparsely traveled, low-density feeder routes (spokes) at specific points (hubs) in order to achieve higher load factors, and to enable the use of larger aircraft with lower unit costs on the carriers' fewer long-haul routes.

The benefits to the airlines arise from economies of scope. That is, according to Morrison and Winston (1986) "economies of aircraft size derive from more efficient use of labor and fuel associated with larger aircraft."⁴⁸ The benefits to consumers arise from the fact that, according to Carlton, Landes and Posner (1980), passengers much prefer single-carrier service over having to change airlines in midjourney. This is because a connecting flight on the same airline "allows passengers to transfer more easily to another flight and reduces the likelihood of potential service problems (i.e. lost or damaged luggage)"⁴⁹. Hence, while in 1977 "the percentage of total revenue passenger-miles provided by single carrier service was 75.4 percent, by 1983 that figure climbed to 89.1 percent."⁵⁰

⁴⁸Morrison, S. and C. Winston, (1986), The Economic Effects of Airline Deregulation, (Washington, D.C.: The Brookings Institution), p. 7.

⁴⁹Phillips, L.T., "Structural Change in the Airline Industry: Carrier Concentration at Large Hub Airports and its Implications for Competitive Behavior", *Transportation Journal*, Vol. 25(2), Winter 1985, p. 19.

⁵⁰Morrison, S. and C. Winston, pp. 8-9.

However, as asserted by Thornton (1986), ideally, at the hub city, all of the small and large spokes are centered in a small gate area of the airport. Yet "smaller carriers cannot amass enough adjoining gates in sufficient amounts of airports"⁵¹. Thus the limited availability of adjoining gates represents a substantial barrier to entry to smaller carriers, and a competitive advantage for the entrenched airlines who secured prime gate space while the industry was still regulated. Moreover, according to Morrison and Winston (1986), a well-developed hub-and-spoke network can discourage potential competitors by increasing the scale of entry required to compete effectively at a given hub city.

Second, several airlines developed their own computer reservation system (CRS) in order to provide better information to passengers via travel agents (i.e. due to the proliferation of fares and schedules that arose under deregulation). However, these systems "have a history of presenting biased information, listing the carrier-owner's flights so prominently that travel agents are less likely to ticket passengers on competing carriers."⁵² This bias could have serious repercussions for the latter since "almost 90 percent of all domestic airline revenues are now generated by travel agents who use carrier-owned computer

⁵¹Thornton, R.L., p. 382.

⁵²Morrison, S. and C. Winston, p. 69.

systems."⁵³ Two such systems, American Airlines' Sabre and United Airlines' Apollo, have come to dominate the industry with 1986 market shares of U.S. travel agent locations of "39.3% and 27.4%"⁵⁴, respectively. Moreover, while the CAB has directed remedial action to de-bias reservation displays, according to Thornton (1986) "it is unlikely that these steps will succeed because the pay-off of bias is high and the ways to achieve it are subtle."⁵⁵

Besides lessening competition through information-bias, these CRS systems constitute a significant barrier to entry since "a newly formed airline would not have the resources to create its own airline-owned reservation system."⁵⁶ Furthermore, the high costs of developing and maintaining a CRS have been sufficient thus far to "discourage the development of competing systems by non-carriers."⁵⁷ Finally, and perhaps most importantly, according to Byrnes (1985) "the reservation systems required in a feeder system provided both absolute capital barriers against new entrants and the ability to implement sophisticated, flexible price discrimination schemes based

⁵³Ibid., 69.

⁵⁴Gaudin, P., "Reserving Judgment", Airline Business, March 1987, p. 19.

⁵⁵Thornton, R.L., p. 378.

⁵⁶Ibid., p. 383.

⁵⁷Morrison, S. and C. Winston, p. 70.

on the demand patterns for individual flights."⁵⁸ (The latter will be discussed in a later section).

Third, under deregulation carriers adopted frequent flier programs. These essentially provide free flights anywhere in an airline's system in proportion to the number of cumulative miles flown by a particular passenger on that airline. While the original frequent flier program, the 'AAdvantage', was developed by American Airlines in the spring of 1981, today "most of the larger airlines have developed similar types of programs."⁵⁹

According to Thornton (1986) "their principal advantage is that their saving goes, not to the person who paid for the flight, but to the passenger. For business travellers the benefits from the program amount to a pay increase."⁶⁰ Thus, frequent flier programs give frequent flying businessmen an incentive to fly a particular airline rather than its competitors. Therefore, they represent one means for airlines to build up switching costs and hence to foster 'brand loyalty' for their service.

However, frequent flier programs would also appear to constitute a barrier to entry of significant proportions. According to Thornton (1986) "the schemes tend to prevent entry into the system and to endanger the profitability of

⁵⁸Byrnes, J.L.S., p. 56.

⁵⁹Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 60.

⁶⁰Thornton, R.L., p. 384.

the smaller operators."⁶¹ This is because "a small carrier would be forced to offer a reward with significantly fewer flights in order to attract passengers....thereby raising smaller rivals' costs."⁶² Hence the conclusion of Bailey, Graham and Kaplan (1985), "all else equal, the airline that serves the most markets has a competitive advantage with a given frequent flier program: the more markets a carrier serves, the greater the chance that a given passenger will be able to travel on that airline in a particular market."⁶³

All in all then, in the longer run, it would appear that the airlines have indeed successfully erected non-regulatory barriers to entry into the industry. In addition to these barriers, however, the threat of new entrants has been contained somewhat by U.S. airport capacity constraints, and environmental restrictions. That is besides the shortage of gate space in key terminals and landing slots at major airports, airline operations have also been limited by environmental regulations, such as noise restrictions.

⁶¹Ibid., p. 384.

⁶²Gillen, D.W., W.T. Stanbury and M. Tretheway, "Analysis of the Takeover of Canadian Pacific Air Lines by Pacific Western Airlines", Working Paper #1223. Faculty of Commerce and Business Administration, the University of British Columbia, January 1987, p. 15.

⁶³Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 6.

Noise restrictions have had "particularly adverse consequences for air carriers that seek to maintain a competitive advantage on the basis of low fares and costs (i.e. low cost new entrants), which in turn require high aircraft utilization."⁶⁴ However, perhaps more serious has been the shortage of landing slots. According to Ellison (1981) "the difficulty of newly entering carriers in obtaining slots at some airports has caused to diminish the threat of competition. This lack of ready access has occurred at the popular airports in New York, Chicago, and Washington."⁶⁵

Hence it would appear that substantial barriers to entry now exist in the deregulated industry, raising the possibility that potential competition in the industry could be significantly constrained. In this connection, the crucial question for the U.S. market is whether it has proven contestable. In other words, "whether competitive forces under deregulation have been sufficient to displace the controls of regulation, by permitting new entrants to enter and exit the market freely, effectively posing a threat of entry sufficient to keep fares down."⁶⁶

⁶⁴Phillips, L.T., p. 20.

⁶⁵Ellison, A.P., (1981) "U.S. Airline Deregulation: Implications for Canada", (Ottawa: Economic Council of Canada, Regulation Reference Technical Report No, 11, June), pp. 126-127.

⁶⁶ McGowan, F., "Europe Ponders U.S. Lessons", Airline Business, March 1987, p. 16.

While there have been differing views on the matter, the balance of evidence suggests that, in the long run, the airline industry does not satisfy the contestable markets hypothesis. That is, it is unlikely that air fares will fall to perfectly competitive levels (i.e. zero profits) due to the absence of absolutely free entry into, and costless exit from, city-pair markets.

For instance, while Carlton, Landes and Posner (1980) stress that "the extreme flexibility of airline capital enables any airline within a region to enter a new city-pair should competition fail to contain prices to the competitive level"⁶⁷, Bailey and Panzar (1981) argued that city-pair markets were perfectly contestable, and Meyer and Oster (1984) concluded that "new entrants have proved that they can enter and exit markets relatively inexpensively and quickly, almost exactly as hypothesized to provide the contestability needed to create a reasonably competitive market outcome"⁶⁸, the majority of more recent studies have found that the contestable markets hypothesis does not hold.

For example, Graham, Kaplan, and Sibley (1983) found a positive relationship of fares to market concentration which goes against the contestability hypothesis. Hence

⁶⁷Carlton, D.W., W. Landes and R. Posner, "Benefits and Costs of Airline Mergers: A Case Study", Bell Journal of Economics, Vol. 11(1), Spring 1980, p. 80.

⁶⁸Meyer, J.R. and C.V. Oster, (1984), p. 223.

they concluded that "potential competition was not working as hypothesized by the contestability theory"⁶⁹.

Similarly, Bailey and Baumol (1984), and Bailey, Graham, and Kaplan (1985) concluded, respectively, that "the contestability benchmark does not fully hold sway in the first years after deregulation"⁷⁰, and that "carriers in concentrated markets have the ability to price above cost"⁷¹. In this connection, Phillips (1985) claims that from the evidence gathered to date "it appears that airline markets are not perfectly contestable. Indeed many air fares are not only higher in concentrated markets, but within concentrated markets the leading firms have higher fares than do smaller firms."⁷²

Finally, according to Morrison and Winston (1986) "perfect contestability is not present in the airline industry because new carriers require time and must absorb sunk costs to obtain gate space and establish patronage. Establishing patronage can be particularly difficult when competing against carriers that offer frequent flier programs, which effectively increase the cost of switching

⁶⁹Sinha, D., "The Theory of Contestable Markets and U.S. Airline Deregulation: A Survey", The Logistics and Transportation Review, Vol. 22(4), December 1986, p. 417.

⁷⁰Bailey, E.E., and W.J. Baumol, "Deregulation and the Theory of Contestable Markets", Yale Journal on Regulation, Vol. 1(2), 1984, p. 130.

⁷¹Bailey E.E., D.R. Graham and D.R. Kaplan, p. 171.

⁷²Phillips, L.T., p. 224.

carriers, and that develop computer reservation systems that bias information in favour of their flights."⁷³

Perhaps of greater concern, with respect to the degree of market contestability, is the re-emergence of an oligopoly in the airline industry. That is, since 1984 "an accelerated trend toward merger and acquisition has led to concerns that a few airlines could exclude others from contesting some airline markets"⁷⁴. For instance, during the second half of 1986 "mergers on an unprecedented scale involved 45 percent of the U.S. industry's capacity and 43 percent of employees"⁷⁵.

This wave of merger activity (see Figure 5-2), which includes Texas Air's 1982 acquisition of Continental, and its recent (1986) acquisitions of Eastern and People Express (including Frontier), as well as Delta's 1986 merger with Western, and Northwest's merger with Republic, has resulted in the dominance of five megacarriers (i.e. Texas, United, American, Northwest and Delta) who "now control well over 70% of all U.S. air traffic."⁷⁶

Nevertheless, the #6 carrier TWA (run by Carl Icahn), and the smaller US Air (formerly Allegheny) are also

⁷³Morrison, S and C. Winston, p. 61.

⁷⁴WESTAC Briefing, p. 21.

⁷⁵Page, K., "Action Now On CRS", Airline Business, March 1987, p.5.

⁷⁶Labich, K., p. 69.

Figure 5-2

Airline Takeovers/Mergers In The United States, 1979-1986

- 1979: - North Central and Southern merge to become Republic
- 1980: - Pan American acquires National
 - Republic acquires Hughes Air West
 - (Texas Air creates New York Air)
- 1981: - (People Express enters the industry)
- 1982: - Texas Air acquires Continental
- 1983: - (Continental enters Chapter 11 bankruptcy but Texas Air retains control)
- 1984: - none
- 1985: - United Airlines acquires Pan Am's Pacific routes
 - People Express acquires Frontier
- 1986: - Continental (Texas Air) acquires Eastern
 - Continental (Texas Air) acquires People Express (including Frontier*)
 - Delta acquires Western
 - Northwest acquires Republic
 - TWA acquires Ozark
 - American acquires Air Cal**
 - US Air merges with PSA**

* People Express put Frontier into Chapter 11 bankruptcy shortly before the takeover by Continental (which is owned by Texas Air)

** Pending

Source: Gillen, D.W., W.T. Stanbury and M. Tretheway, "Analysis of the Takeover of Canadian Pacific Air Lines by Pacific Western Airlines", Working Paper #1223, Faculty of Commerce and Business Administration, the University of British Columbia, January 1987, p. 48.

important competitive players in the industry, and should not be underestimated despite their smaller market shares.

As stated by Murphy (1987), it seems obvious that with reduced competition and hub or market dominance, carriers will be able to extract higher fares from passengers in the cities and markets which they dominate. In fact, according to a recent issue of the Economist (November 15, 1986), "for the first time since the shakeout began, a truce in the price war has been tacitly agreed. All of them (i.e. the Big 5) started raising fares uniformly at the beginning of October."⁷⁷ Moreover, according to Thornton (1986), "the probability of the development of an airline cartel so narrow as to threaten the consumer's best interest is reasonably high."⁷⁸

As a result of these mergers, the degree of concentration in the industry, as reflected by the two-firm concentration ratios (the percentage of total scheduled enplanements at an airport by the two largest carriers -see Figure 5-3) increased significantly at certain hub airports between 1977 and 1984. For example, in terms of enplanements, the two-firm concentration ratio "increased at Atlanta from 88 percent to 93 percent; at Chicago

⁷⁷"Schools Brief - Open Skies Over America", The Economist, November 15, 1986, p. 91.

⁷⁸Thornton, R.L., p. 392.

Figure 5-3

Two-Firm Concentration Ratios Based on Domestic
Enplanements at Large Air Traffic Hubs, 1977 versus 1984

Large Hubs	Enplanements	
	1977	1984
Chicago (O'Hare)	48	72
Atlanta	88	93
Dallas-Fort Worth	64	83
Los Angeles	45	37
Denver	54	65
Newark	50	60
San Francisco	57	52
New York (LaGuardia)	58	45
Boston	47	41
St. Louis	61	86
New York (Kennedy)	33	41
Washington (National)	40	36
Pittsburgh	67	84
Minneapolis/St. Paul	62	79
Miami	59	66
Houston (Intercontinental)	56	60

The two-firm concentration ratio is the percentage of total scheduled enplanements at an airport by the two largest carriers.

Source: Phillips, L.T., "Structural Change in the Airline Industry: Carrier Concentration at Large Hub Airports and its Implications for Competitive Behavior", Transportation Journal, Vol. 25(2), Winter 1985, p. 23.

(O'Hare) from 48 percent to 72 percent; at Dallas-Fort Worth from 64 percent to 83 percent; at St. Louis from 61 percent to 86 percent; and at Minneapolis/St. Paul from 62 percent to 79 percent."⁷⁹

Moreover, as of 1987, these concentration levels have increased even further as reflected in the dominant firm's share of enplanements. For example, "the Northwest-Republic merger will increase Northwest's market position at Minneapolis from 43.1 to 79.6 percent of enplanements...while Texas Air's acquisitions pushed its share of Houston traffic to over 70 percent."⁸⁰ Similarly, Delta "now has a lock on over 75% of Salt Lake City traffic as well as over half of Atlanta's business, while American now enjoys better than a 60% market share at its base (i.e. Dallas-Fort Worth)."⁸¹ This degree of concentration at large hubs could have serious repercussions for consumers when one considers the results of a recent study which show that a carrier's hub markets "produced average fares ranging from 9.4 to 26.8 percent higher than its other markets in the same distance category."⁸²

Furthermore, the high levels of concentration in hub-markets are exacerbated by the marketing alliances (i.e.

⁷⁹Phillips, L.T., p. 21.

⁸⁰Murphy, R.J., "Fares Take a Back Seat", Airline Business, April 1987, p. 33.

⁸¹Labich, K., p. 78.

⁸²Murphy, R.J., p. 37.

feeder and code-sharing agreements - whereby the allied commuter's service is recorded under the jet airline's two-letter code in the CRS) between the trunks and commuter airlines. According to Thornton (1986), the trunks "co-opted the commuters, first by gratefully abandoning their routes to the commuters and then by each of them enlisting as many minor operators as they could into segments of each trunk's hub and spoke system."⁸³ Whereas, in January 1985 only 17 such marketing alliances existed, "by May 1, 1986 there were nearly 60 such agreements"⁸⁴ (see Figure 5-4 for those of the 5 megacarriers). This could have serious repercussions since, according to Oster and Pickrell (1986), a code-sharing agreement "helps tie commuter feed traffic to a particular carrier, and, as a result, raises further barriers to entry into the carrier's hub."⁸⁵

Hence, all in all, it would appear that while the threat of new entrants was initially effective in lowering industry fare levels, more recent findings tend to point to increasing barriers to entry into the industry, both in the form of airport capacity constraints, and carrier erected barriers (such as hub and spoke systems, computer reserva-

⁸³Thornton, R.L., p. 380.

⁸⁴Oster, C.V. and D.H. Pickrell, "Marketing Alliances and Competitive Strategy in the Airline Industry", The Logistics and Transportation Review, Vol. 22(4), December 1986, p. 371.

⁸⁵Ibid., p. 382.

Figure 5-4

Marketing Alliances of the Five Megacarriers
(Agreements in effect or announced as of June 1, 1986)

Major Jet Carrier	Marketing Alliance Partner
American	AVair (formerly Air Virginia) Air Midwest Chapparral Airlines Command Airways Metro Airlines Simmons Airlines Wings West Airlines
Continental (Texas)	Pioneer Airlines Royale Airlines
Delta	Atlantic Southeast Airlines Business Express Comair Rio Airways
Northwest	Big Sky Fischer Brothers Mesaba
United	Air Wisconsin Horizon Air

Source: Oster, C.V and D.H. Pickrell, "Marketing Alliances and Competitive Strategy in the Airline Industry", The Logistics and Transportation Review, Vol. 22(4), December 1986, p. 373.

tion systems, and frequent flier programs, as well as increasing merger activity and the increased use of marketing alliances), which, in turn, threaten the feasibility of the contestable markets hypothesis, and thus could lead to fare increases in the future.

II) Interfirm Rivalry

As predicted, under deregulation of the industry, interfirm rivalry primarily took the form of price competition. That is, according to Rose (1981), "price rather than service appears to be the new competitive norm in the industry."⁸⁶ This shift in focus has greatly benefitted consumers. For instance, in 1979 the year after the Airline Deregulation Act was passed, the CAB estimated that "consumers saved over \$1.5 billion because of competitive pricing."⁸⁷ Let us examine the new pricing strategies adopted by the airlines. These include: restricted discount and capacity-controlled fares; peak-load pricing; reduced connecting fares; volume discounts; airpasses; coupon pricing; and the aforementioned frequent flier programs.

To begin with, the ability of the carriers to separate travellers into two market segments according to their price elasticity of demand (i.e. time-sensitive business travellers with $|E| < 1$, and price-sensitive pleasure travellers with $|E| > 1$)⁸⁸, and to ensure that "the customer

⁸⁶Rose, W., p. 54.

⁸⁷Cohen M.S., "Airline Deregulation: A Model for the 80's", Journal of Contemporary Business, October 1980, p. 45.

⁸⁸These elasticity figures are consistent with the findings of Ghoshal (1981), that the price elasticity of standby passengers, who are presumably pleasure travellers, is -2.22, indicating that a one percent increase in the standby fare relative to the regular fare would decrease the number of standby passengers relative to regular passengers by 2.22 percent.

willing to pay the higher air fare not get access to the low fare"⁸⁹, has allowed the airlines to engage in third degree price discrimination (i.e. "differences in rates not based on cost"⁹⁰). This, in turn, has resulted in the main new pricing strategy: the use of restricted discount fares. This new strategy has proven extremely popular since "discount travel grew from 39% of total revenue passenger miles in 1977 to 81% in 1984."⁹¹ Moreover, as a result of discount fares, in 1981 "only 25 percent of all U.S. travellers travelled at full coach fare."⁹²

In order to explain this pricing strategy of air carriers under the threat of entry, Call and Keeler (1985) developed their 'Fat Cat' model, which hypothesizes that incumbent carriers "will try to 'match' the fare of the new entrant not perfectly, but by adding restraints attempting to make the fare reduction applicable only to the tourist market...in the business market, the established firm would continue to act like a monopolist"⁹³ .

⁸⁹Kraft, D.J.H. T.H. Oum and M.W. Tretheway, "Airline Seat Management", The Logistics and Transportation Review, Vol. 22(2), 1986, p. 111.

⁹⁰Davis, G.M. and L.J. Combs, "Some Observations Regarding Value-of-Service Pricing in Transportation", Transportation Journal, Spring 1975, Vol. 14(3), p. 50.

⁹¹WESTAC Briefing, p. 20.

⁹²Call, G.D. and T.E. Keeler, p. 275.

⁹³Ibid. p. 230.

Thus, in order to prevent business travellers from purchasing the 'discount fares', carriers have attached various restrictions to these fares ranging from advance booking and purchase requirements, to minimum length of stay, and Saturday night stayover requirements. Such requirements are obviously attempts to facilitate price discrimination rather than being determined by cost-based differences, since "it is impossible to believe that a round trip with a minimum stay is cheaper to produce than an unrestricted round trip."⁹⁴ For example, American Airlines' 'Supersaver' fares between New York, Los Angeles and San Francisco "were subject to a thirty day advance purchase requirement and limited to round trips of seven to forty five days."⁹⁵

A slight variation to the above pricing strategy is that of capacity-controlled discount fares (i.e. they are available for only a limited number of seats on each flight). By limiting the number of 'discount' seats on each flight the fares essentially achieved the same above mentioned objective of ensuring that the dilution of existing business or regular coach fares was minimized. For instance, Eastern Airlines' 'Supercoach' fare was a "capacity-controlled discount fare that matched the fare of

⁹⁴Keeler, T.E. and M. Abrahams, (1981), "Market Structure, Pricing, and Service Quality in the Airline Industry under Deregulation", in Applications of Economic Principles in Public Utility Industries, p. 114.

⁹⁵Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 43.

new entrant People Express."⁹⁶ Further examples included: TWA's 'Super-Jackpot' fares, and Allegheny's (now US Air) 'Simple Saver' fares.

The most significant feature of these discounts is that the fares are capacity controlled on a flight-by-flight basis (i.e. yield management). That is, "carriers with a sophisticated computerized reservation system could even alter the number of seats on an individual flight basis, perhaps even making fewer discount seats available on a particular flight in response to a higher than normal number of advance full-fare bookings, and vice versa."⁹⁷

Nevertheless, the ability of carriers to price discriminate is not perfect. That is, "some business travellers are able to meet super-saver restrictions, whereas some discretionary travel does not occur because the travellers cannot meet these restrictions."⁹⁸ In other words, according to Kraft, Oum and Tretheway (1986), there is "a nonzero cross-price elasticity between the two products. Some of the high fares or unrestricted passengers will divert to the low fare category."⁹⁹

Furthermore, there has been much debate regarding the long-term viability of this pricing strategy. According to

⁹⁶Meyer, J.R. and C.V. Oster, (1984), p. 134.

⁹⁷Ibid., p. 35.

⁹⁸Call, G.D. and T.E. Keeler, p. 230.

⁹⁹Kraft, D.J.H., T.H. Oum and M.W. Tretheway, p. 117.

Meyer and Oster (1981), while the extensive use of discounts "allowed the airlines to fill some unused capacity in the first stage of deregulation, the further attractiveness of this strategy is less clear... excess capacity is likely to be reduced and existing capacity to be used more profitably. In consequence, price discounts and fare variations may become less important."¹⁰⁰ On the other hand, according to Kraft, Oum and Tretheway (1986) while the use of restricted fares is dismissed by some industry observers as being a 'temporary phenomenon', "these discount fares seem here to stay. In fact, the number of restricted fares continues to increase."¹⁰¹

Finally, while the trunk airlines have used discount fares extensively under fare deregulation, their use in the commuter industry has been limited thus far. Nevertheless, according to Meyer and Oster (1984) "although discount fares have not been widely used by commuters, some tendency toward increased use of discounts and capacity-controlled fares is discernible, as increased use of larger aircraft has attracted more discretionary travel."¹⁰²

All in all, by limiting the number of discount passengers on a given flight, "restricted discounts may achieve the same effect as peak-load pricing: passengers

¹⁰⁰Meyer, J.R. and C.V. Oster, (1981), p. 57.

¹⁰¹Kraft, D.J.H., T.H. Oum and M.W. Tretheway, p. 115.

¹⁰²Meyer, J.R. and C.V. Oster, (1984), p. 163.

traveling during periods of high demand will, on average, pay higher fares."¹⁰³ We now turn to a discussion of the latter type of pricing, which constitutes the third new pricing strategy adopted by U.S. carriers under deregulation.

The demand for air travel varies by the season, by the day, and by the hour. The key problem then, given pricing flexibility, is to decide how to price the service during peak periods when capacity may be fully utilized, and during off-peak periods, when it may be substantially underutilized. The solution, as adopted by U.S. carriers is peak-load pricing. This pricing strategy essentially entails charging "different prices to consumers depending on when they use the service. This smooths out demand because some travellers would be willing to change their desired departure time if they could travel at a reduced fare on a different flight."¹⁰⁴

For instance, Bailey, Graham and Kaplan (1985) give the following example: suppose a vacationing student and a salesman both want to depart at 5 P.M.. The student, however, might gladly delay his departure 3 hours for a 20% reduction in his fare, whereas the salesman would not. The institution of such a fare differential between 5 P.M. and 8 P.M. flights would increase the load factor on the later

¹⁰³Bailey E.E., D.R. Graham and D.R. Kaplan, p. 47.

¹⁰⁴Ibid., p. 56.

flights while reducing the number of travellers demanding service on the peak flight. Hence the 'smoothing' of demand.

Many of the new entrant jets (i.e. People Express, Southwest, New York Air, and Midway Airlines) adopted this pricing strategy. For instance, "off-peak weekend fares averaged only 34 percent of the Standard Industry Fare Level (SIFL) for People Express, and 42 percent of the SIFL for Southwest"¹⁰⁵, while New York Air's off-peak fares "averaged about 45 percent of SIFL"¹⁰⁶.

Finally, it would appear that this pricing strategy is not merely a short-lived phenomenon, but rather is here to stay. For instance, Ellison (1981) cites an "increasing use of off-peak pricing by the carriers"¹⁰⁷ under the regime of deregulation.

The fourth pricing strategy adopted by the airlines under deregulation of the industry is that of 'reduced connecting fares'. This strategy, arising as a complement to the adoption of hub-and-spoke route systems, induces passengers "to make an intermediate stop in markets where convenient nonstop services are offered by a rival carrier. Since connecting in such markets takes longer than nonstop service, passengers would prefer it only at a lower

¹⁰⁵Meyer, J.R. and C.V. Oster, (1984), p. 126.

¹⁰⁶Ibid., p. 126.

¹⁰⁷Ellison, A.P., p. 119.

price."¹⁰⁸ For example, Piedmont, which provides service in the mid-Atlantic States, "promotes 'Hop-Scotch' fares to Chicago from Washington and New York"¹⁰⁹.

These fares essentially serve the same objective as the aforementioned restricted discount fares: they enable carriers to accomodate passengers travelling between two large cities at a reduced rate in order to help fill otherwise empty seats.

The fifth new pricing strategy arising from the elimination of price controls is that of offering discounts to major commercial users of air travel and to travel agents (i.e. second degree price discrimination). That is, "carriers are now free to offer corporations volume discounts on air transportation... This is roughly equivalent to the volume discounts that are prevalent in many industries."¹¹⁰ Furthermore, carriers have established special deals with individual travel agents whereby the latter receive discounts for purchasing large blocks of seats.

The sixth innovative pricing tool adopted under deregulation consists of American Airlines' 'AAirpass' -"a pay now, fly later plan that guarantees a certain number of

¹⁰⁸Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 59

¹⁰⁹Ibid. p. 59.

¹¹⁰Ibid., p. 59.

flight miles at a set price."¹¹¹ This strategy has the added advantage of helping the carrier raise capital - essential to the operations of an airline.

The seventh pricing tool adopted by U.S. carriers in the new deregulated regime consists of coupon pricing. While United Airlines was the first to use coupon pricing to reduce flight prices in 1979 (i.e. it issued a coupon which gave customers a fixed percentage off the list price of any of its U.S. flights), since then, many other carriers have copied this technique. For instance, "Hughes Air West issued coupons in the winter of 1980, Eastern Airlines in the summer of 1980, and Western Airlines in the winter of 1982."¹¹²

LaCroix (1984) concludes that the use of coupon pricing by United achieved a wide variety of goals: "coupon pricing not only allowed the firm to discriminate in pricing, the coupon pricing plan also reduced the cost to the firm of temporarily adjusting the transaction prices of its products, publicising the new prices, switching back to the previous list prices, and maintaining its brand name capital."¹¹³

¹¹¹"American Rediscovered Itself", Business Week, August 23, 1982, p. 67.

¹¹²La Croix, S.J., "Airline Coupons and Pricing Adjustments", Journal of Transport Economics and Policy, Vol. 18(3), September 1984, p. 253.

¹¹³Ibid., p. 261.

Finally, the eighth pricing tool adopted by air carriers consists of the aforementioned frequent flier programs. These programs, as seen, enable carriers to attract and keep loyal passengers by rewarding them with free flights.

All in all then, we find that a wide variety of pricing strategies have been employed by U.S. carriers under the new deregulated regime. However, recent reports suggest the return of quality of service competition. For instance, according to Brummer (1987) top management at TWA have stated their intentions of becoming a quality low-cost airline. To this end, there will be "better food and better service, and every long distance TWA flight will carry a service manager."¹¹⁴

Similarly, Murphy (1987) stresses that "renewed emphasis is being placed by the industry on quality of service competition, with the service elements including everything from the choice of destinations offered, and the speed and convenience of schedules to customer services in the reservations and sales area."¹¹⁵ In fact, according to Labich (1987) "People Express failed in part because many passengers would no longer suffer the indignities heaped on them by People's no-frills approach."¹¹⁶

¹¹⁴Brummer, A., "TWA Will It Survive The Rescue?", Airline Business, March 1987, p. 46.

¹¹⁵Murphy, R.J., p. 33.

¹¹⁶ Labich, K., p. 79.

Nevertheless, it seems highly likely that fares will still remain an important element of competition among airlines. That is, according to Labich (1987), since the factors that have kept fares down are not going away (i.e. all the megacarriers have aggressive growth plans, and they are better off filling a seat with a passenger who pays a laughably small fare than flying it empty) "the best guess is that ticket prices on many routes will remain relatively low - at least for a while."¹¹⁷

¹¹⁷Ibid., p. 79.

III) Buyer Bargaining Power

As expected, under deregulation, buyer bargaining power does appear to have shifted from a political to an economic basis. That is, while some early industry observers claimed that economically strong buyers (i.e. frequent business passengers) did not gain more value in their transportation purchases, for the most part, recent studies conclude the opposite.

For instance, according to Rose (1981) "business travelers quickly discovered that they received few price benefits and that service deterioration was much in evidence."¹¹⁸ Similarly, Meyer and Oster (1981), reporting on the early experience, claimed that "price inelastic business travellers may actually be paying higher fares than they would have without deregulation"¹¹⁹... Hence they concluded that there may be implicit income redistributions created by deregulation "mainly from business travelers to tourist and individual travelers"¹²⁰. Likewise, Ellison (1981) concluded that "travellers paying the normal coach fares, many of whom are travelling for business reasons, have experienced relatively limited fare reductions, yet at

¹¹⁸Rose, W., p. 57.

¹¹⁹Meyer, J.R. and C.V. Oster, (1981), p. 89.

¹²⁰Ibid., p. 269.

the same time they have been faced with travelling on flights with inconveniently high load factors"¹²¹.

More recently, however, Byrnes (1985) concludes that "price-insensitive buyers - with substantial, real economic bargaining power - were better able to make deals with the companies competing for their business than were the infrequent marginal buyers."¹²² In this connection, as mentioned earlier, "major corporations are starting to contract for capacity on very favorable terms, much as major tour operators have done traditionally"¹²³, and according to Thornton (1986) "a big customer can expect to get big price breaks"¹²⁴. Moreover, a travel agent operating in all of the customer's markets and consolidating a set of several big corporate customers could "place enormous price pressure on the airlines."¹²⁵

Secondly, "frequent flier programs also increased the value received by this particularly desirable segment"¹²⁶, since, as previously mentioned, for business travellers the benefits from the programs amount to a pay increase.

¹²¹Ellison, A.P., p. 124.

¹²²Byrnes, J.L.S., p. 121

¹²³Ibid., p. 57.

¹²⁴Thornton, R.L., p. 385.

¹²⁵Ibid., p. 385.

¹²⁶Byrnes, J.L.S., p. 57.

Finally, Morrison and Winston (1986) conclude that "the absolute values of the welfare changes pertaining to business travelers are far greater for every hub classification than the absolute value of the corresponding changes for each class of pleasure travelers. Indeed the net welfare gain to travelers from airline deregulation can be largely attributed to the substantial gains by business travelers from increased flight frequency."¹²⁷

Thus, all in all, with respect to this competitive force, it would appear that the a priori expected outcomes of deregulation have been realized.

¹²⁷Morrison, S. and C. Winston, p. 31.

IV) Supplier Bargaining Power

Once again, it would appear that the expected outcomes of deregulation have materialized. That is, supplier bargaining power has reverted to an economic basis marked by reduced bargaining power on the part of both labour and the other major suppliers to the airlines (i.e. aircraft manufacturers, and oil companies).

To begin with, under deregulation, labour lost ground because it became less feasible to pass on high costs with the new, low-cost entrants (non-union operations with lower wages and less restrictive work rules) seeking prime business. However, the "relatively slow pace of established carrier labor cost adjustments gave the new entrants an important temporary competitive cost advantage."¹²⁸

Nevertheless, in an effort to reduce labour costs, incumbent airlines have utilized a variety of techniques which have resulted in a reduction in labour's bargaining power. These include: lay-offs and early retirement; the negotiating of new collective agreements, including the use of two-tier wage scales; and the start of double breasted operations as well as filing for bankruptcy under the Bankruptcy Code.

First, between 1980 and 1982, "the U.S. scheduled airlines fell \$1.4 billion short of covering their operating costs. For most carriers the immediate solution

¹²⁸Byrnes, J.L.S., p. 18.

became layoffs. Hence in the first four years of deregulation, sixty thousand employees lost their jobs."¹²⁹ Moreover, early retirement packages were employed to reduce both management and union employment.

Second, when this proved insufficient to close the gap in cost structures, most airline managements turned to the bargaining table to make adjustments in labour contracts. According to Blumestock and Thomchick (1986), "concession bargaining spread throughout the industry."¹³⁰ That is, airlines began negotiating new collective agreements with their employees for more modest wage settlements and more flexible work and hiring practices (e.g. a two-tier structure establishing lower starting salaries for new employees, and increasing use of part-time workers).

Furthermore, according to Morrison and Winston (1986) "because bargaining is carrier-specific, there is no mechanism to prevent a union associated with one carrier from undercutting other carriers' labor costs."¹³¹ This has substantially reduced labour's bargaining power.

For instance, in 1983 "American Airlines broke new contract bargaining ground when it won the right from its three major unions to hire new employees at 30 to 50 percent below old wage rates...This use of a two-tier wage

¹²⁹Blumestock, J.W. and E.A. Thomchick, p. 395.

¹³⁰Ibid., p. 397.

¹³¹Morrison, S. and C. Winston, p. 43.

scale was to start a trend which spread among the other major carriers. Delta, United, Pan American, Republic, Western and Frontier have since established similar two-tier wage scales with one or more of their unions."¹³² Moreover, this innovative wage formula has since been copied "in diverse industries throughout the U.S."¹³³.

According to Morrison and Winston (1986), because of their limited alternatives, "pilots made more contract concessions than all other airline work groups combined... Pilots' real income in 1984 (i.e. \$47 720) was lower than it was in both 1975 (i.e. \$48 216) and 1980 (i.e. \$50 284)."¹³⁴ More recently, pilots at TWA "on the average, took \$30 000 in pay cuts in 1986, the first year of their contract with Icahn. For some junior captains that represented a 40% whack"¹³⁵. Meanwhile, United Airlines and Western "were able to reduce the crew complement of B-737 aircraft from three to two pilots... and at a number of carriers there has been a liberalization of work rules to allow carriers to increase the flying hours of their flight personnel."¹³⁶

¹³²Blumestock, J.W. and E.A. Thomchick, p. 398.

¹³³Labich, K., p. 74.

¹³⁴Morrison, S. and C. Winston, p. 46.

¹³⁵Loomis, C.J., "Icahn's Juggle: TWA, USX, SEC", Fortune Magazine, May 11, 1987, p. 82.

¹³⁶ Bailey, E.E., D.R. Graham and D.R. Kaplan, p. 144.

The reasons why pilots' bargaining power is relatively low are that "their skills are not transferable, their seniority only exists at the airline for which they work, and they must continue to fly to retain their licenses."¹³⁷ Moreover, there are an excessive number of qualified pilots on the market (i.e. supply exceeds demand). Hence, not surprisingly, the pilots union, the Airline Pilots Association (ALPA), has been the most cooperative during deregulation.

Third, "the threat of starting an alter ego airline, or double breasted operation, has emerged as another bargaining chip for airline management, since Texas International began the operation of New York Air, a non-union subsidiary airline in 1981."¹³⁸ In this connection, as Texas Air chief Lorenzo enters contract negotiations with the unions of newly acquired Eastern Airlines in the spring of 1987, in attempts to "reduce labour costs by 29 percent"¹³⁹, his ultimate threat is that "he could shift all assets to non-union Continental Airlines... As a warning shot over the union bows, six of Eastern's 34 Airbus A300s were transferred to Continental in February (1987)"¹⁴⁰.

¹³⁷Blumestock, J.W. and E.A. Thomchick, p. 399.

¹³⁸Ibid. p. 398.

¹³⁹Gaudin, P., "Lorenzo Takes On Eastern's Unions", Airline Business, April 1987, p. 10.

¹⁴⁰Ibid., p. 10.

In response to this threat many rank and file employees are signing agreements to cooperate with management in the opening of union contracts "most of which are not due for renegotiation for another year to 18 months"¹⁴¹. Hence the labour unions' collective bargaining power is clearly being eroded.

Fourth, perhaps the ultimate threat to labour bargaining power occurred in September 1983, when Lorenzo "declared Continental bankrupt, then immediately reopened it (i.e. 3 days later) as a non-union carrier, with its labor costs sliced neatly in half"¹⁴².

Finally, the strength of airline unions "has also been weakened by the over-supply of employees since 1979, and the airlines' displayed ability to recruit replacements quickly as a contingency against potential strikes."¹⁴³

Next, with respect to the bargaining power of aircraft manufacturers and fuel suppliers, it would appear that it has also been weakened under deregulation. To begin with, aircraft manufacturers saw deregulation drastically reduce their bargaining power as carriers entered the new regime with an excess supply of aircraft.

As a result of this glut of aircraft on the market, "carriers have been cancelling orders for new equipment and

¹⁴¹Ibid., p. 10.

¹⁴²Labich, K. p. 70.

¹⁴³Blumestock, J.W. and E.A. Thomchick, p. 401.

deferred deliveries."¹⁴⁴ For example, Duffy (1983) points out that since 1978 there have been "93 cancellations while in the four years previous to deregulation there were only 20"¹⁴⁵. Furthermore, "jet aircraft orders dropped precipitously from their 1979 peak of 354, to only 131 in 1981. By 1982 only 88 new aircraft were ordered by U.S. airlines."¹⁴⁶ At this point, it is important to note that the prolonged economic slump between 1980 and 1982, with the resulting downturn in the demand for air travel, was likely a strong contributing factor to this decline.

Furthermore, airlines have been "renegotiating contracts with aircraft builders to change orders"¹⁴⁷ (i.e. to lower-cost aircraft). According to Byrnes (1985) "this will likely lead to longer production runs of more standardized aircraft. At the same time the market for lower-cost, used and relatively fuel-efficient aircraft will likely rise... The net effect will likely be to improve the bargaining power of large, wide-service carriers that can ensure economic production runs of new generation aircraft and can sell their aircraft on an active second-hand market. American's recent very

¹⁴⁴Bailey E.E., D.R. Graham and D.R. Kaplan, p. 63.

¹⁴⁵Duffy, H. "Deregulation Five Years Later", Frequent Flyer Magazine, October 1983, p. 58.

¹⁴⁶Ibid., p. 58.

¹⁴⁷WESTAC Briefing, p. 15.

favorable purchase of MD-80 aircraft provides an example of this."¹⁴⁸

Second, it would appear that fuel suppliers' bargaining power has been reduced by the growing concentration of buyers in the deregulated airline industry, as well as the growing adoption of fuel-efficient fanjet engines. With respect to the former, it would appear that widely diversified airlines such as United (i.e. it purchased both the Hilton International Hotel chain, and the Hertz car rental company) can apply substantial pressure in order to receive significant volume discounts. For instance, "the scale of buying commodities such as liquid fuels and even coffee (of which UAL claims to be the world's largest private corporation buyer) gives UAL an excellent negotiating position."¹⁴⁹

Moreover, the airlines would appear to gain bargaining power relative to the fuel suppliers since these 'buyers' pose a credible threat of integrating backward to make the industry's product. For instance, Albert Casey, Chairman of American Airlines (AA) "felt that being in the oil and gas business (AA Energy Corp. was set up in 1977) gave AA an inside track for airline fuel procurement."¹⁵⁰

¹⁴⁸Byrnes, J.L.S., p. 58.

¹⁴⁹Gaudin, P., "Wall Street Blows Cool On UAL's Hilton Deal", Airline Business, March 1987, p. 8.

¹⁵⁰Byrnes, J.L.S., p. 97.

Hence, all in all, it would appear that supplier's bargaining power was reduced in the deregulated regime.

V) The Threat of Substitute Services

As predicted, it appears that no substitute mode of transport has posed a real threat to the airlines in longer-haul markets under the regime of deregulation. Moreover, the upstart of low cost - low fare carriers has indeed limited the inroads of substitute services on short-to-medium-haul routes, effectively placing a ceiling on the prices they can charge. In fact, it would appear that the airlines have become a threat to some of the other modes on such routes.

For instance, according to Morrison and Winston (1986), "although the response to airline deregulation by intercity passenger bus and rail carriers has not been large, in some travel corridors, such as the Northeast, bus and rail fares have been lowered in response to increased competition from deregulated air carriers."¹⁵¹ Moreover, Pacific Southwest Airlines' low cost service on its Nevada routes, where fares are about one third under the standard level, "have enticed people out of their automobiles"¹⁵².

Therefore, it does not appear that the threat of substitute services has materialized.

¹⁵¹Morrison, S. and C. Winston, p. 51.

¹⁵²Feldman, J.M., "Deregulation's First Year Brings Benefits to PSA", Air Transport World, April 1980, p. 69.

VI) Conclusions

In summary, the deregulated U.S. airline industry saw an increase in interfirm rivalry (primarily in the form of price competition) due to the threat of new entrants, and the increased bargaining power of frequent business travelers. On the other hand, supplier bargaining power appears to have declined, while the threat of substitute services is perhaps weaker than it was under regulation of the industry.

Under the collective strength of these competitive forces, several new key success factors have emerged. These include: the strengthening of hub and spoke operations (which includes acquiring traffic feed from other carriers, and the use of CRS); the ability to control costs (i.e. increasing aircraft utilization, acquiring more fuel-efficient planes, and increasing employee productivity); and the application of marketing expertise (i.e. developing innovative pricing strategies such as frequent flier programs, and yield management systems).

Finally, under deregulation, at first glance it would appear that these forces have successfully limited the profit potential of the airline industry. That is, many airlines recorded deficits "totalling \$6.6 billion for the industry between 1979 and 1983"¹⁵³, while 27 airlines

¹⁵³WESTAC Briefing, p. 23.

including two majors (i.e. Braniff and Frontier Airlines) declared bankruptcy or ceased operations.

Moreover, as seen in Figure 5-5, the trunk carriers' average operating profit margins (i.e. operating profit as a percentage of operating revenue) based on the five years prior to deregulation (1973-1977), and the five years following passage of the ADA (1979-1983), decline substantially for all of the megacarriers except American Airlines, which experienced a slight increase. For instance, Continental-Texas Air's average operating profit margin fell from 7.2% to -6.6%, while Delta's, Northwest's and United's dropped from 8.98% to 1.58%, 10% to 1.46%, and 3.9% to -2.06%, respectively.

However, the dramatic fuel price increases between 1978 and 1981, as well as the major recession (service industries like the airlines are generally among the first segments of the economy to suffer) at that time, contributed substantially to the industry's poor financial performance during the early 1980's. According to Morrison and Winston (1986), "it would have been worse had regulation still been in effect"¹⁵⁴.

Furthermore, more recent findings show that U.S. airlines' operating profit margins have increased substantially since those of the early 1980's. For instance, Texas Air had a 1986 operating profit margin of

¹⁵⁴Morrison, S. and C. Winston, p. 2.

Figure 5-5

Operating Profit Margins (OPM) of the Five Megacarriers

American Airlines	OPM
1973	-3.3
1974	1.9
1975	-2.5
1976	3.1
1977	2.8
Average OPM (1973-1977)	0.4
1978	3.1
1979	-0.3
1980	-3.5
1981	1.2
1982	-0.6
1983	5.9
Average OPM (1979-1983)	0.54

Continental Airlines (Texas Air)	OPM
1973	4.4
1974	10.8
1975	6.6
1976	6.9
1977	7.3
Average OPM (1973-1977)	7.2
1978	5.9
1979	0.2
1980	-5.2
1981	-5.0
1982	-4.5
1983	-18.5
Average OPM (1979-1983)	-6.6

Note: Texas International merged with Continental in November 1982. Data for Texas Air for 1982 were included with Continental.

* OPM = Operating Profit as a Percentage of Operating Revenue.

Delta Airlines	OPM
1973	11.0
1974	12.1
1975	4.8
1976	7.7
1977	9.3
Average OPM (1973-1977)	8.98
1978	9.6
1979	4.9
1980	5.4
1981	2.4
1982	-2.7
1983	-2.1
Average OPM (1979-1983)	1.58

Northwest Airlines	OPM
1973	8.1
1974	12.3
1975	6.1
1976	12.4
1977	11.1
Average OPM (1973-1977)	10.0
1978	9.0
1979	5.0
1980	2.1
1981	0.3
1982	-2.4
1983	2.3
Average OPM (1979-1983)	1.46

United Airlines	OPM
1973	7.7
1974	8.0
1975	-0.2
1976	1.3
1977	2.7
Average OPM (1973-1977)	3.9
1978	8.2
1979	-7.3
1980	-1.6
1981	-3.3
1982	-1.5
1983	3.4
Average OPM (1979-1983)	-2.06

Source: Bailey, E.E., D.R. Graham and D.R. Kaplan, (1985), Deregulating the Airlines, (Cambridge, Mass.: MIT Press), Appendix Table C, pp. 208-213.

3.15%, while those of the other megacarriers, American, United, Delta, and Northwest increased to 7.9%, 6.83%, 5.65%, and 5.72%, respectively.¹⁵⁵(see Figure 5-6).

Hence, in the longer run, it appears that rather than limiting industry profitability, deregulation has increased industry profits. In fact, Morrison and Winston (1986) conclude that "under deregulation travelers have saved \$6 billion annually through lower fares... and that airlines have improved their earnings by \$2.5 billion annually"¹⁵⁶. For a comparison of aggregate data for the industry prior to and following deregulation, see Figures 5-7, 5-8, and 5-9.

¹⁵⁵Labich, K., pp 70-79.

¹⁵⁶Morrison, S. and C. Winston, p. 2.

Figure 5-6

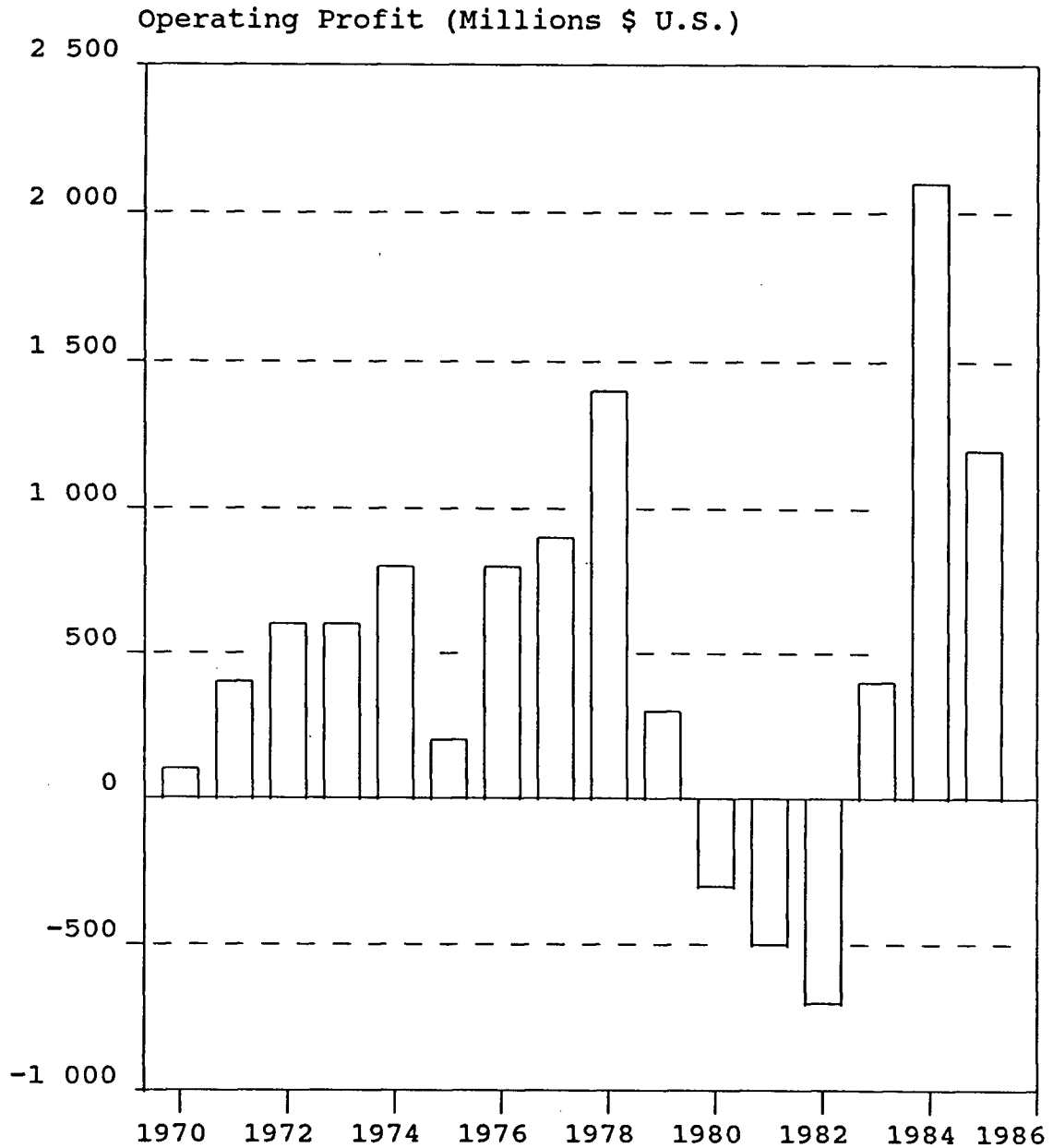
Operating Profit Margins of the Five Megacarriers
(1984-1986)

	1984	1985	1986
American Airlines	6.7	8.6	7.9
Continental Airlines (Texas Air)	9.0	9.0	3.15
Delta Airlines	6.4	4.9	5.65
Northwest Airlines	3.9	2.9	5.72
United Airlines	9.0	-6.7	6.83

Source: ALPA, "Negotiator's Factbook of Selected Economic and Financial Statistics" Majors and Nationals 1985, p. 67.

Figure 5-7

Aggregate Operating Profit
All U.S. Scheduled Airlines
(1970 to 1985)



Source: Andriulaitis, R.J., Frank D.L., T.H. Oum and M.W. Tretheway, (1986), Deregulation and Airline Employment: Myth Versus Fact, (Vancouver, B.C.: University of British Columbia Centre for Transportation Studies), p. 49.

Figure 5-8

Aggregate Data
1977 versus 1984

	1977	1984
Revenue Passengers (millions)	240	350
Scheduled Revenue Passenger Miles (billions)	141.3	305.9

Sources: Jordan, W.A., "Results of U.S. Airline Deregulation: Evidence from the Regulated Canadian Airlines", The Logistics and Transportation Review, Vol. 22(4), December 1986, p. 300.

Western Transportation Advisory Council, "A New Threshold for Canadian Air Transportation", WESTAC Briefing, October 1986, p. 20.

Figure 5-9

Passenger Revenue per Revenue Passenger Mile
Domestic Trunks' Scheduled Operations
Yield (cents) 1976-1986

Year	Yield
1976	7.79
1977	8.24
1978	8.08
1979	8.50
1980	10.96
1981	12.37
1982	11.60
1983	11.61
1984	12.40
1985	11.65
1986	10.75

Sources: Air Transport Association of America (ATA), Yield and Cost Indices, 1984-1986.

Bailey, E.E., D.R. Graham and D.R. Kaplan, (1985) Deregulating the Airlines, (Cambridge, Mass.: MIT Press), p. 205.

6) General Differences Between The Canadian and U.S.

Airline Industries

Prior to deriving implications for Canada from the U.S. experience under deregulation, it is important to acknowledge the significant differences that exist between the two countries' airline industries, and how these might affect the relevance of that experience to Canada. These differences include: the number of carriers each market can support; the market size and traffic levels attainable; the route structures and patterns of traffic flow that have evolved; the degree of the industries' dependence on international traffic; the existence of a dominant Crown carrier in the Canadian industry; the financial conditions of the countries' carriers; and the levels of concentration in the respective markets.

First, while U.S. carriers have benefitted from substantial economies of traffic density, traffic levels in Canada are insufficient to allow many new entrants to achieve the minimum efficient size. In fact, Gillen, Stanbury, and Tretheway (1987) predict that "cost minimizing forces will dictate that many if not most markets can support, at best, two efficient carriers"¹⁵⁷. In contrast, with respect to U.S. markets, economists predict that "by 1990 there will be four or five giant airlines"¹⁵⁸. This

¹⁵⁷Gillen D.W., W.T. Stanbury and M. Tretheway, p. 9.

¹⁵⁸"Deregulating America. The Benefits Begin To Show in Productivity, Innovation, and Price", Business Week, November 28, 1983, p. 83.

trend is already apparent since, as of May 1987, as mentioned above, "five megacarriers dominate U.S. skies: Texas Air, American, United, Delta, and Northwest"¹⁵⁹.

Hence, it is unlikely that the threat of new entrants into the Canadian industry under deregulation will be as serious as that which occurred in the U.S..

Second, the U.S. system is much larger than its Canadian counterpart. For instance, in 1984, whereas Canada's seven largest carriers combined earned C \$4.2 billion in operating revenues, "the four largest U.S. carriers each had over US \$4.7 billion in operating revenues"¹⁶⁰.

Furthermore, in 1985, "American and United each carried twice the traffic of the entire Canadian industry, and U.S. growth alone was greater than Canada's thirteen million domestic passengers"¹⁶¹. In fact, the traffic on our top three routes "would be 5th, 17th, and 62nd, respectively, if they were in the U.S."¹⁶², and "passenger traffic has climbed a paltry 10% in eight years"¹⁶³.

¹⁵⁹Labich, K., p. 68.

¹⁶⁰WESTAC Briefing, p. 23.

¹⁶¹French, T., p. 14.

¹⁶²House of Commons, Ninth Report by the Standing Committee on Transport, Domestic Air Carrier Policy, Ottawa, Ont., March 30, 1982, p. 20.

¹⁶³Gherson, G., "U.S. Air Deregulation Turns Sour", The Financial Post, May 18, 1987, p. 10.

Thus, the Canadian incumbents can be expected to retaliate strongly against new entrants given the Canadian industry's more limited ability to absorb the new arrivals. Hence, this would tend to limit the threat of new entrants.

Third, the patterns of traffic flow differ substantially in the two countries. For instance, "the Canadian industry flies about one-fifteenth of the traffic miles of U.S. carriers, and 97% of Canada's domestic traffic is confined to a narrow band of Southern city-pairs."¹⁶⁴ That is, while the U.S. is "more densely and evenly populated, with traffic in all directions, most Canadians live close to the border and domestic traffic has an East-West focus."¹⁶⁵

Therefore, according to French (1986) "the market militates against US-style hub-and-spoke networks."¹⁶⁶ Hence, the economies arising from the establishment of several hub-and-spoke route systems in the U.S. are less likely to materialize in Canada since the linear pattern of traffic flows found in this country do not easily lend themselves to such systems. Nevertheless, Canada's existing hub-and-spoke systems would appear to be playing an increasing role in the industry. For example, "the

¹⁶⁴French, T., p. 14.

¹⁶⁵WESTAC Briefing, p. 23.

¹⁶⁶French, T., p. 15.

Vancouver-Victoria route, the busiest and oldest 'spoke' route in Canada, is now served by up to 59 propeller-driven commuter flights, most of them tied into Air Canada and CAIL schedules."¹⁶⁷

Fourth, Canadian airlines are more dependent on international traffic than their U.S. counterparts. For example, with respect to Canada, "international passengers account for 20% of the total number carried compared with 7% for the U.S."¹⁶⁸ Hence, with the coming 'liberalisation' of European carriers, Canadian airlines could face heightened competition from abroad.

Fifth, Canada has a large Crown airline which "earned 46% of the industry's total 1984 operating revenues. In the U.S. there are no government-owned scheduled airlines, and the largest private sector airline earned 14% of total 1984 operating revenues"¹⁶⁹. This dominant carrier could use its size to obtain significant volume discounts over and above those obtained by other Canadian carriers, thus resulting in a competitive advantage for Air Canada. Moreover, the sheer size of Air Canada could serve to limit supplier bargaining power.

¹⁶⁷French, C., "New Deal in Skies May Be Old Hat When It Arrives", *Globe and Mail* (Report on Business), December 8, 1986, p. c5.

¹⁶⁸WESTAC Briefing, p. 23.

¹⁶⁹*Ibid.*, p. 23.

Sixth, "the financial conditions of Canadian carriers are very different from those of the U.S. airlines in 1978, when they entered deregulation on a wave of record profits. Canada's airline profit records are patchy, and balance sheets generally weak, reducing competitive and equipment options"¹⁷⁰. For instance, CAIL has a heavy debt burden as reflected in its "debt/equity ratio of 5.4 to 1"¹⁷¹, whereas that of competitor Air Canada for the year ended December 31st 1986 was 3.19 to 1.¹⁷²

Moreover, it would appear that Canadian airlines are subject to higher government-imposed costs than are their American counterparts. For instance, while the government represents economic deregulation as leading to cheaper fares, it imposes more regulations and costs in other areas (i.e. user charges for airports, employment equity rules, statistical record keeping, and safety and security) which raises airlines' costs. Furthermore, "Canadian airlines have been unable to get the fuel price cuts experienced in other countries, facing prices exceeded only by those in India... The airlines are concerned that fuel taxes in Canada will continue to rise, and that prices charged by

¹⁷⁰French, T., p. 15.

¹⁷¹Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 20.

¹⁷²Air Canada Annual Report, 1986, p. 24

oil companies in Canada are not competitive with those charged by oil companies in the U.S."¹⁷³.

Thus, given the above, it seems fair to conclude that, even under an identical regime of deregulation, airline costs will likely not be as low in this country as they are in the U.S.. From this it follows that price discounts are unlikely to reach the levels attained in the U.S..

Finally, the level of concentration is much higher in the Canadian airline industry, with Air Canada and CAIL now accounting for "over 90% of scheduled domestic revenue passenger miles, and over 80% of the revenues of domestic carriers"¹⁷⁴. In contrast, the 8-firm concentration ratio in the U.S. ,based on traffic in the first seven months of 1986, was "87% of the national market"¹⁷⁵. Moreover, while the largest U.S. carrier, the Texas Air group, had a "1986 market share of 20%"¹⁷⁶, the dominant Canadian airline, Air Canada, captured "more than 60% of scheduled RPMs"¹⁷⁷. Hence, the degree of contestability in Canadian city-pair markets is likely to be much less than that of U.S. routes.

¹⁷³WESTAC Briefing, p. 23.

¹⁷⁴Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 16.

¹⁷⁵Ibid., p. 6.

¹⁷⁶Labich, K., p. 70.

¹⁷⁷Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 1.

Thus, all in all, while Jordan (1982) claims that "the basic performance similarities of federally-regulated Canadian and U.S. airlines imply that the U.S. experience under deregulation would be generally duplicated in Canada if similar policy changes were implemented in this country"¹⁷⁸, in light of the above differences, it would appear that the deregulated Canadian airline industry, in contrast to that of the U.S., will be characterized by: a weaker threat of new entrants due to the more limited market size and traffic levels attainable in Canada and hence, the stronger expected retaliation of incumbents; and higher average fares due to the higher government-imposed costs, the lesser degree of contestability of Canadian city-pair markets, and lesser economies from the more limited development of hub and spoke route systems.

¹⁷⁸Jordan, W.A., (1982), Performance of Regulated Canadian Airlines in Domestic and Transborder Operations, Bureau of Competition Policy, Consumer and Corporate Affairs Canada, p. 2.

7) Strategic Interaction in the Canadian Airline Industry

As previously mentioned, the recent takeover of Canadian Pacific Air Lines (CPAL) by Pacific Western Airlines (PWA) has created a virtual duopoly in the Canadian airline industry (i.e. CAIL and Air Canada). While some observers, including the investment community, have welcomed the takeover as creating an effective competitor for Air Canada, others, such as the Consumers Association of Canada, predict "less competition and more cooperation between Canada's two major airlines."¹⁷⁹ In this chapter we explore the potential competitive results of duopoly (i.e. the possible forms of strategic interaction in the industry), using the Prisoner's Dilemma paradigm as a general framework.

7a) Potential Forms of Strategic Interaction in a Duopoly

The existence of a duopoly in an industry lends itself well to analysis by means of the 2-person Prisoner's Dilemma Model. That is, while the abstraction of the Prisoner's Dilemma paradigm is a major simplification of the range and scope of decisions facing two interacting parties, we feel its basic insights are useful in that they allow us to recognize the basic possibilities for strategic interaction in a duopolistic industry. In essence, according to this paradigm each player has two choices,

¹⁷⁹McArthur, D., "Deregulation: Not What Was Expected", The Globe and Mail, December 8, 1986, p. C2.

namely cooperate or defect.¹⁸⁰ In a business context, 'cooperate' would constitute coordinating behaviour so as to lessen competition whereas 'defect' would be understood to mean increasing competition.

According to the basic Prisoner's Dilemma paradigm, the defecting choice is the individually optimal choice (i.e. the dominant strategy) for each duopolist to make, because this choice (i.e. to lower prices) provides the company a higher payoff (i.e. higher market share) than the cooperative choice regardless of its counterpart's choice. The dilemma is that if both defect (i.e. touching off a price war), both do worse (i.e. lower profit levels) than if both had cooperated. Hence Axelrod's conclusion that "what is best for each person individually leads to mutual defection, whereas everyone would have been better off with mutual cooperation."¹⁸¹

Samuelson and Scott (1971) provide an excellent example of the basic Prisoner's Dilemma: Suppose that Black and Brown are two prisoners who have been caught in a joint crime. The Crown prosecutor informs each separately that he has enough evidence to send him to jail for a year. However, he also tells each that if he alone confesses to

¹⁸⁰An excellent discussion of the Prisoner's Dilemma abstraction appears in Luce, R.D. and H. Raiffa (1957), Games and Decisions: Introduction and Critical Survey, (New York: Wiley).

¹⁸¹Axelrod, R., (1984), The Evolution of Cooperation, (New York: Basic Books Inc.), p. 9.

the 10-year crime (i.e. chooses to 'defect'), his sentence will be reduced to 3 months while that of his accomplice will be 10 years. On the other hand, he informs them that if both confess, both must serve 5 years (see the payoff matrix in Figure 7-1a). Hence, Black wishes to confess in order to reduce his sentence from 1 year to 3 months. Moreover, he realizes that Brown is faced with the identical set of incentives. Thus, if Black doesn't confess and Brown does, he stands to get 10 years. He concludes it is better to confess and get no worse than 5 years. Thus, selfishness leads inevitably to long prison terms - 5 years for each (i.e. cell D in Figure 7-1a), whereas if neither had confessed (i.e. both had 'cooperated') the maximum sentence for each would have been 1 year.

Similarly, in a business context, Black and Brown can be seen as two firms in a duopolistic industry. By cooperating and charging the common monopoly price, they can maximize their joint profits (i.e. \$6 000 in cell A, Figure 7-1b). However, both face incentives to 'defect', resulting in a lower joint profit level (i.e. \$2 000 in cell D, Figure 7-1b).

An extension of the basic Prisoner's Dilemma Model which allows for a series of static games is the repeated Prisoner's Dilemma Model. As will be seen later, given the

Figure 7-1a

The Prisoner's Dilemma Payoff Matrix

		Brown	
		Not Confess (Cooperate)	Confess (Defect)
Black	Not Confess (Cooperate)	A 1 Year Reward for mutual cooperation 1 Year	B 3 Months 10 Years
	Confess (Defect)	C 10 Years 3 Months	D 5 Years Punishment for mutual defection 5 Years

Source: Samuelson, P.A. and A. Scott, (1971), Economics, (Toronto: McGraw-Hill Ltd.), p. 609.

Figure 7-1b

Profit Payoff Matrix

		Brown	
		Cooperate	Defect
Black	Cooperate	A \$ 3 000 Reward for mutual cooperation \$ 3 000	B 0 \$ 5 000
	Defect	C \$ 5 000 0	D \$ 1 000 Punishment for mutual defection \$ 1 000

Source: Samuelson, P.A. and A. Scott, (1971), Economics, (Toronto: McGraw-Hill Ltd.), p. 609.

possibility of repeated interaction, defection is no longer the dominant strategy for the duopolists to adopt. Rather, there is no dominant strategy.

However, this model is based on various simplifying assumptions some of which represent a clear departure from reality. First, whereas in real interactions, two companies may face several dimensions along which competitive decisions must be made (i.e. pricing, output, advertising, service quality, acquisitions, etc.), the abstraction of the Prisoner's Dilemma reduces these to one decision: cooperate or defect. Yet it is quite plausible for firms not engaging in price competition (i.e. cooperating with respect to the price variable) to be fierce competitors in the area of service-quality competition (i.e. to defect with respect to the quality of service variable).

Second, while in reality decision outcomes can be continuous in nature (i.e. a matter of degree), the Prisoner's Dilemma paradigm assumes that they are discrete (i.e. cooperate or defect completely). Hence the possibility of the duopolists agreeing to set prices within a given range is eliminated.

Third, the abstraction assumes that there is no mechanism available to the parties to make enforceable threats or commitments. Rather, it assumes that the parties can communicate with each other only through their behaviour. Yet both verbal and written communication are a reality in modern industry, albeit illegal if collusive in nature.

Finally, according to Axelrod (1984), the abstraction of the model ignores other important features of strategic interactions, such as "the direct influence of third parties, and the problems of implementing a choice"¹⁸² (such as the influence of institutional and legal barriers to be discussed later).

Nevertheless, the repeated Prisoner's Dilemma Model captures one essential element of reality in that it allows for the possibility of indefinite future interactions between the two duopolists. That is, if the duopolists interact a known finite number of times, they will have no incentive to cooperate. "On the next-to-last move neither player will have an incentive to cooperate since they can both anticipate a defection by the other player on the last move."¹⁸³ However, as Axelrod (1984) points out, in most realistic settings, the duopolists cannot be sure when the last interaction between them will take place, and since they might meet again, the future can affect the current strategic situation. Hence, with an indefinite number of interactions cooperation can emerge.

Let us now examine the possible outcomes of strategic interaction in a duopoly in greater detail.

¹⁸²Axelrod, R., p. 19.

¹⁸³Ibid., p. 10.

Non-Cooperative Models

To begin with, the non-cooperative or defecting outcome is embodied in Cournot's Duopoly Model. According to this model, duopolists using quantities as their strategic variables choose their outputs simultaneously resulting in the Cournot Equilibrium (i.e. a Nash Equilibrium in quantities), from which no firm would unilaterally wish to deviate. However, prior to making their output decisions, each duopolist engages in a rational thought process which resembles an iterative procedure in which each sequentially attempts to maximize its own profits. Corresponding to each output choice by one firm is a profit maximizing output choice by the other (i.e. one firm's optimal output choice is a function of its rival's choice). This is demonstrated by the reaction curves in Figure 7-2, which show the profit-maximizing output choice for each firm given each possible output choice by the other. Given any output q_1 , firm 2 will choose the corresponding output q_2 on its reaction curve R_2 , and given any output q_2 , firm 1 will choose the corresponding output q_1 on its reaction curve R_1 .

To show how this thought process arrives at an equilibrium, Gravelle and Rees (1981) use the following heuristic: If firm 1 chooses output q_{11} , firm 2 then chooses q_{21} . This causes firm 1 to revise its choice to q_{12} , since this corresponds to q_{21} on its reaction curve R_1 .

However, the choice of q_{12} by firm 1 will then induce firm 2 to choose q_{22} , since this is the output corresponding to q_{12} on its reaction curve. This in turn induces firm 1 to choose q_{13} , and so on. Thus firm 2 moves along its reaction curve through the points a_1, a_3, a_5, \dots , while firm 1 moves through the points a_2, a_4, \dots . Hence, both converge on e , the equilibrium point (i.e. the intersection point of the reaction curves with associated output pairs (q_1^*, q_2^*))¹⁸⁴.

As seen in Figure 7-3, this equilibrium point corresponds to industry price and output, P_A, Q_A , respectively. "The Cournot price is below and output above the joint profit maximizing levels (i.e. at PM, QM where the marginal revenue and marginal cost curves intersect) because of independent non-cooperative behaviour."¹⁸⁵ More precisely, the Cournot Equilibrium price (i.e P_A) is somewhere in between the competitive equilibrium price (i.e. P_B) and the monopoly solution (i.e. PM) - see Figure 7-3.

Moreover, firms in the industry produce output not at the level at which the cost of producing each additional unit equals the revenue received therefrom, but rather, to

¹⁸⁴Gravelle, H. and R. Rees, (1981), Microeconomics, (Essex, U.K.: Longman Group Ltd.), p. 315.

¹⁸⁵Green, C., (1985), Canadian Industrial Organization and Policy, (Toronto: McGraw-Hill Ryerson Ltd.), p. 152.

Figure 7-2
Reaction Curves

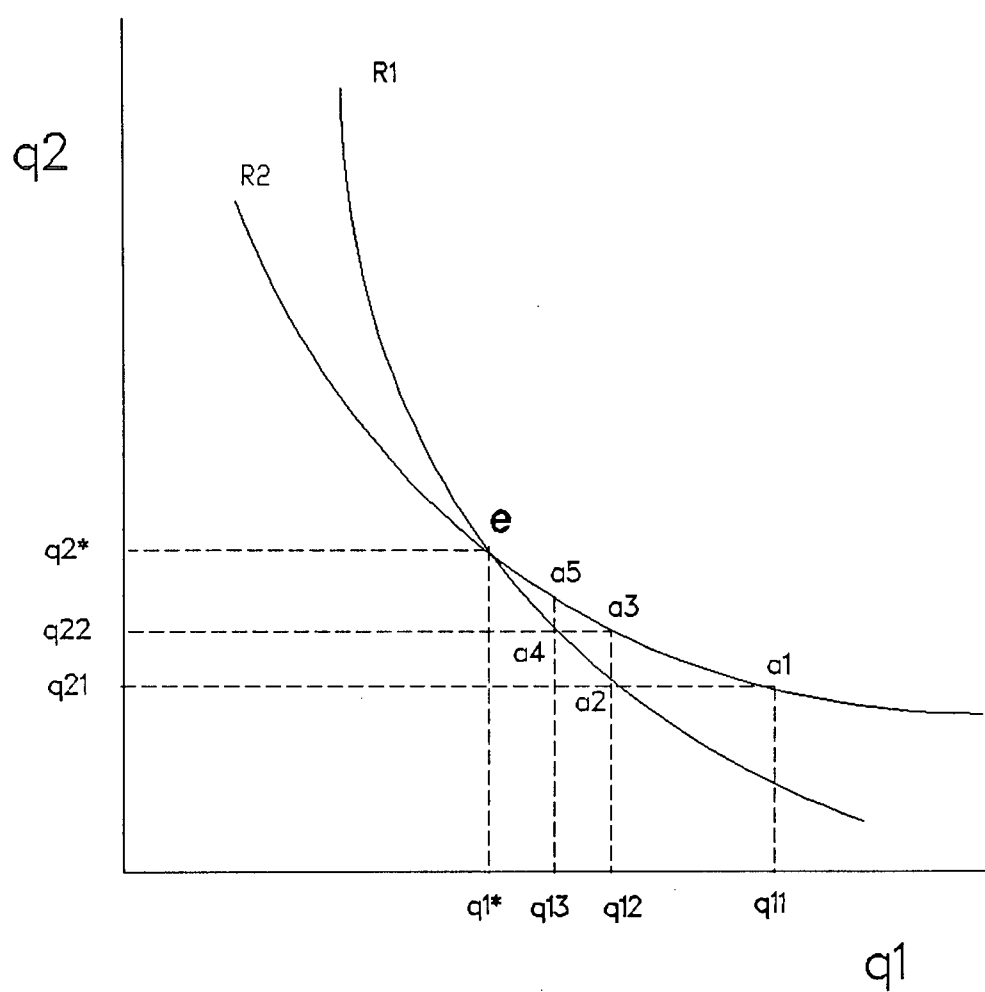
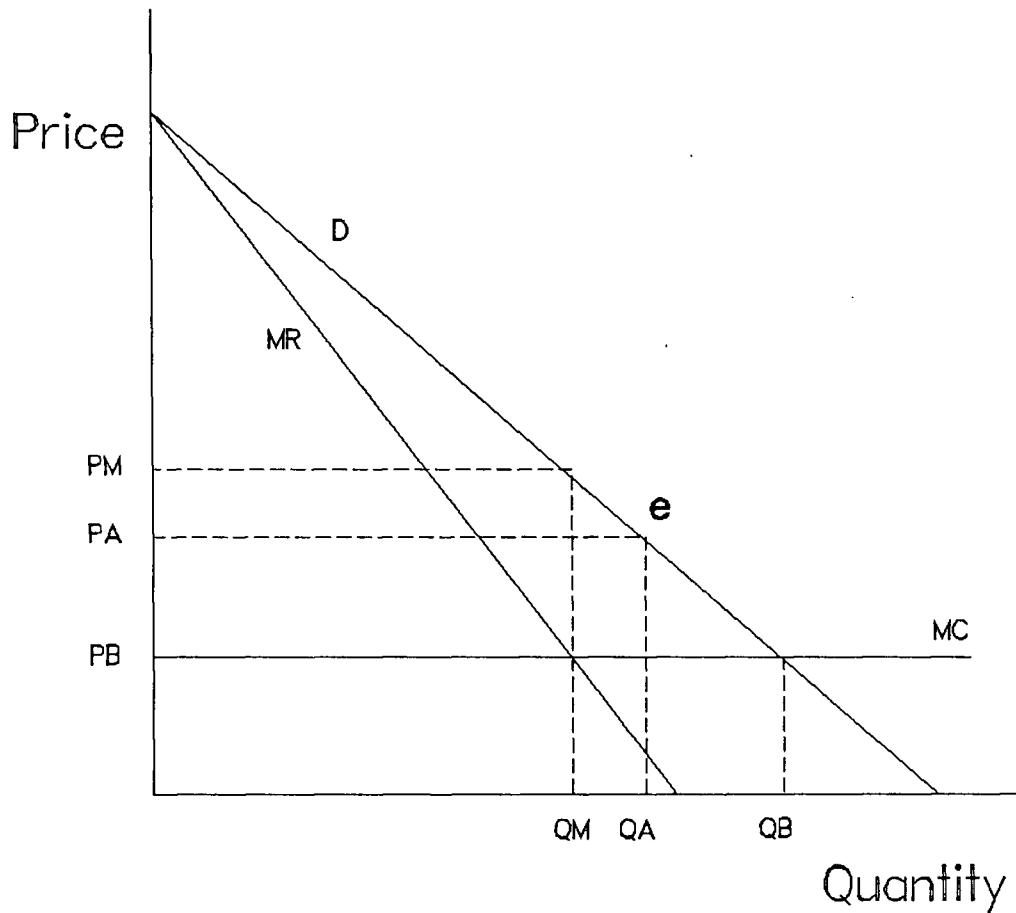


Figure 7-3

Models of Duopoly



PM = Profit maximizing price for the industry
 QM = Profit maximizing output for the industry

PA = Cournot equilibrium price
 QA = Cournot equilibrium output

PB = Bertrand equilibrium price
 QB = Bertrand equilibrium output

MC = Marginal cost curve
 MR = Marginal revenue curve

the point where the marginal cost exceeds marginal revenue (i.e. $MC > MR$). Hence, the Cournot Equilibrium is not Pareto Optimal from either the point of view of the firms or that of consumers.

That is, "with each firm maximizing its own profits, given its rival's output, the result cannot be maximal overall profits, since increases in a single firm's output have a (negative) effect on its rival's profits."¹⁸⁶ Hence the Cournot Equilibrium neither maximizes duopoly profits nor consumers' welfare.

According to Shapiro (1987), a natural objection to Cournot's model is that "in practice businesses choose prices rather than quantities as their strategic variables"¹⁸⁷. Hence the second non-cooperative or 'defecting' model: the Bertrand Oligopoly Model.

Bertrand pointed out that "with prices as strategic variables, each of two rival firms would have a strong incentive to undercut the other's price in order to capture the entire market."¹⁸⁸ Thus, given the assumptions of equally efficient firms, constant marginal costs, and

¹⁸⁶Shapiro, C., "Theories of Oligopoly Behaviour", Discussion Papers in Economics, Woodrow Wilson School of Public and International Affairs, Princeton University Discussion Paper #126, Princeton University, Princeton, New Jersey, March 1987, p. 9.

¹⁸⁷Ibid., p. 16.

¹⁸⁸Ibid., p. 16.

homogeneous products, Bertrand hypothesizes that in equilibrium each firm will price at marginal cost (i.e. at price PB in Figure 7-3).

Thus, unlike the Cournot Equilibrium point (i.e. at price PA and output QA in Figure 7-3), industry output is produced at least cost at the Bertrand Equilibrium. This is because "with quantity competition, each firm realizes that the other is committed to producing its announced quantity; with pricing competition, in contrast, each firm recognizes that it can take the entire market from its rival if it offers a lower price. This awareness leads to more aggressive behaviour in the case of pricing competition."¹⁸⁹

However, according to Shapiro (1987), the prediction of marginal cost pricing is not in accord with the bulk of the empirical evidence on oligopoly. This, in turn, is due to the unrealistic assumptions upon which the Bertrand model's prediction is based.

First, with homogeneous goods, "Bertrand Equilibrium in pure strategies typically fail to exist absent the special assumption of constant marginal cost. In the case of increasing returns to scale, 'destructive competition' drives prices down to marginal cost, but this cannot be an equilibrium as prices then fail to cover average cost. Adding even a small fixed cost to the basic Bertrand Model

¹⁸⁹Ibid., p. 22.

of constant marginal costs causes non-existence of equilibrium."¹⁹⁰

Second, allowing for product/service differentiation (i.e. the absence of perfect substitutes) the aforementioned Bertrand Equilibrium no longer holds, rather prices exceed marginal costs "since each firm retains some market power by virtue of product heterogeneity."¹⁹¹

Third, according to Shapiro (1987) "pricing competition with unlimited capacities would not seem feasible if production is invariably subject to capacity constraints."¹⁹²

Finally, the assumption implicit in Bertrand's model, "that one firm can capture all of its rival's sales simply by offering a lower price, lacks realism. It is exactly in such a situation that the rival could be expected to respond most rapidly and vigorously, but reactions are ruled out entirely in this static theory."¹⁹³

A third non-cooperative model which predicts marginal cost pricing (i.e. point PB in Figure 7-3) can be derived from the Contestability Theory. According to Bailey and Baumol (1984), a market is defined to be perfectly contestable if no price in that market can be in equilibrium when

¹⁹⁰Ibid., p. 17-18.

¹⁹¹Ibid., p. 20.

¹⁹²Ibid., p. 22-23.

¹⁹³Ibid., p. 25.

its magnitude is such as to enable an entrant to undercut it and nevertheless earn a profit. Therefore, price will be in equilibrium only if it equals marginal cost.

According to this theory the threat of new entrants precludes pricing above marginal costs, and the existence of both excess profits and inefficient firms in the long run. Thus, even a duopolistic industry can be perfectly contestable if it is characterized by complete freedom of entry and exit. Hence, unlike the requirements for perfect competition, according to this theory there need not be a very large number of firms (suppliers), or homogeneous products in the industry for it to be 'competitive'.

However, in reality many industries are characterized by sunk costs (i.e. an outlay that cannot be recouped without substantial delay) which constitute significant barriers to entry, as well as violating the requirement that absolutely costless exit exists.

Cooperative Model

Perhaps more convincing than the above mentioned non-cooperative models, is the cooperative or collusive duopoly model to which we now turn. The incentive for duopolists to collude stems from the observation that the maximum profit which the firms can jointly earn would result if they acted as a monopolist. That is, according to Samuelson and Scott (1971), "the two might collusively raise prices to the monopoly level that maximizes joint profits and represents $p > mc$ "¹⁹⁴, (i.e. produce at a rate of output at which marginal revenue and marginal cost are equal, which implies that price exceeds marginal cost - price PM and output QM in Figure 7-3). Hence, Axelrod's finding that "a business firm in an industry with only one other major company charges high prices with the expectation that the other firm will also maintain high prices - to their mutual advantage and at the expense of the consumer."¹⁹⁵

However, since collusive agreements are illegal under the Competition Act , most attempts at agreement are covert or tacit rather than overt. In this connection, Gillen, Stanbury and Tretheway (1987) stress that "duopolists can

¹⁹⁴Samuelson, P.A. and A. Scott, (1971), Economics, (Toronto: McGraw-Hill Ltd.), p. 607.

¹⁹⁵Axelrod, R., p. 5.

and do communicate by their actions and their reactions - they don't need words or even a 'wink and a nod'."196

Moreover, according to Stigler (1964), what limits cooperative behaviour in a collusive agreement, aside from the legal considerations, are the costs to the colluding firms of monitoring, detecting and preventing cheating. More precisely, once a collusive arrangement is in existence, each firm has a profit incentive to break away from the agreement by secretly undercutting the agreed-upon price. Moreover, each firm is likely to recognize that its competitor has similar incentives to deal secretly, so for self-protection, a firm may attempt to 'cheat' first. The outcome of this chiselling is an increase in industry output and hence, lower industry prices and profits in the longer run. Note the Prisoner's Dilemma structure of the problem: each firm has an incentive to defect from the collusion by producing more output, and both firms end up with lower profits due to these defections.

Nevertheless, even in the absence of such cheating behaviour, there are a number of factors that tend to either prevent the realization of a collusive agreement or to undermine duopolistic coordination once such an agreement has been reached. First, in reality, firms may have incomplete information with respect to profits and costs, and different expectations and beliefs about market

196Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 25.

conditions. Hence, according to Gravelle and Rees (1981) "it pays each firm to overstate the amount of profit it would get in the absence of collusion, in order to increase its profit share under the collusive agreement. The case might arise therefore, where no agreement could satisfy the (inflated) profit demands of the sellers."¹⁹⁷

Second, the duopolists might fail to agree on terms (i.e. the choice of a specific set of outputs and prices). This is further complicated by the fact that, in the real world, the agreement may have to extend beyond prices and outputs to include product/service quality, advertising expenditures, acquisition plans, etc..

Third, given that a collusive agreement is reached, "falls in demand and the development of excess capacity (arising out of the profitability of such an agreement which induces firms to invest in greater capacity) may induce firms to act irrationally, and compete ('some fool always panics'), the pressures to do so being greater, the lower are average variable costs relative to total costs, and the less elastic is market demand."¹⁹⁸

Fourth, the existence of non-price competition may place strains on the collusive agreement. That is, firms may attempt to increase their sales at the collusive price by advertising and sales promotion, as well as through

¹⁹⁷Gravelle, H. and R. Rees, p. 326.

¹⁹⁸Ibid., p. 328.

product/service quality variations and innovations. The problem, as stated by Gravelle and Rees (1981), is that if each firm attempts to increase its sales in this manner, there is a cancelling out of each other's efforts (since overall market demand is relatively unaffected), and thus firms may find they are dissipating their profits in trying to keep up with the general level of marketing activity.

Finally, Green (1985) lists several powerful forces tending to undermine collusive agreements. These include: "a) the bargaining power of big buyers: *ceteris paribus*, cheating is much more likely where buyers are large (i.e. price cuts become gossip among buyers, who, if possessing bargaining power, will in turn demand similar treatment from their suppliers); b) easy entry conditions: in the absence of entry barriers there is little or no market power (i.e. in the absence of barriers to entry into the market, the existence of 'supernormal profits' - profits in excess of all opportunity costs - will attract new entrants, thus "lowering the market price or the cluster of prices as industry output increases"¹⁹⁹; c) the number of sellers, including the relative importance of the 'competitive fringe' - the firms usually not included among the industry leaders; d) cost differences among firms: low-cost firms may have little reason to reach agreements

¹⁹⁹Leftwich, R.H. and R.D. Eckert (1985), The Price System and Resource Allocation, (Chicago: The Dryden Press), p. 411.

acceptable to high-cost firms; e) a high degree of product heterogeneity: differentiation increases the incentives to, and the likelihood of non-price forms of competition; and f) a high ratio of fixed to total costs, which makes price cutting tempting when a cyclical decline in demand produces a substantial amount of unused capacity."²⁰⁰

All in all then, we find that the potential results of duopoly are consistent with the potential outcomes of the Prisoner's Dilemma: cooperate or defect. As seen, the cooperative outcome is embodied in the collusive duopoly model, while the defective outcome is reflected in both the Cournot (i.e. quantity competition) and Bertrand (i.e. price competition) models, as well as in that derived from the Contestability Theory. While these models are not perfect, but rather limited due to their simplifying assumptions, they nevertheless provide useful insights for exploring the possible forms of strategic interaction in the duopolistic Canadian airline industry.

²⁰⁰Green, C., p. 157.

7b) Application to the Canadian Airline Industry²⁰¹

In order to apply the insights of the foregoing discussion to the duopolistic Canadian airline industry, it would appear that an injection of reality (i.e. a departure from some of the assumptions of the abstract formulation of the Prisoner's Dilemma and other Duopoly models) is now required. To this end, we shall consider: the nature of competition in the airline industry (i.e. the key success factors and strategic variables involved); the relevance of government policy (i.e. the potential effects of prior regulation of the industry, and competition policy); and several additional relevant factors which tend to point to either one or the other of the two potential competitive outcomes. Nevertheless, at this point it should be noted that while consideration of these factors allows the formulation of arguments in favour of either increased or decreased competition as potential outcomes of the strategic interaction in this duopoly, it does not lead one to conclude in favour of either outcome.

To begin with, the U.S. experience under deregulation has revealed several key success factors for firms competing in the airline industry, as well as the many

²⁰¹The following discussion is based largely on Gillen, D.W., W.T. Stanbury and M. Tretheway, "Analysis of the Takeover of Canadian Pacific Air Lines by Pacific Western Airlines", Working Paper #1223, Faculty of Commerce and Business Administration, The University of British Columbia, January 1987.

variables along which competitive decisions must be made. As mentioned above, the former include: the ability to strengthen hub and spoke operations, the ability to control costs, and the application of marketing expertise. These, in turn, point to several dimensions along which strategic decisions must be made. Besides pricing (i.e. fares) and output decisions (i.e. capacity levels and fleet composition), carriers must make decisions regarding: the level of service quality to offer; the level of expenditures on advertising, the development and maintenance of computer reservation systems, and frequent flier programs; as well as acquisition plans (i.e. acquiring traffic feed from other carriers whether through marketing alliances or outright takeovers).

As Gillen, Stanbury and Tretheway (1987) point out "the larger the number of competitive variables and/or the greater the range over which they may be used, the harder it is for firms in a duopoly to coordinate their behaviour so as to raise prices above the competitive level. More variables also increase the level of uncertainty, which makes coordination more difficult."²⁰² Hence, the multidimensional and continuous decision variables existing in the industry would tend to point to the increased competition outcome (i.e. 'defection' in the language of the Prisoner's Dilemma).

²⁰²Ibid., p. 20.

Secondly, government policy (i.e. the influence of third parties) would appear to play a key role in contributing to the competitive outcome of the emergence of a duopoly in the industry. According to Gillen, Stanbury and Tretheway (1987) "coordination may be easier in an industry which previously had been regulated than in an industry which has never been regulated. Firms shared data and learned quite a bit about each other (beyond that which is obtainable through the history of firm interaction) through documents and hearings associated with regulation."²⁰³ Furthermore, they point out that "this is an industry where carrier officials regularly meet to discuss technical matters, such as interlining of baggage, safety, etc.. Over two hundred years ago Adam Smith reminded us that when men of the same trade meet, even for merriment or diversion, the talk soon turns to ways of restricting competition."²⁰⁴ Thus, the influence of government regulation of the industry would appear to point to the decreased competition outcome (i.e. 'cooperation').

However, on the other hand, while the Supreme Court of Canada ruled in the 'Eldorado Nuclear' case that Crown Corporations (i.e. such as Air Canada) were exempt from the Combines Investigation Act, "officials of the Bureau of Competition Policy believe that anti-competitive behaviour

²⁰³Ibid., p. 25.

²⁰⁴Ibid., p. 25.

by the airlines will be subject to the new Competition Act once Bill C-18 (The National Transportation Act) is enacted."²⁰⁵ In fact, the new Competition Act (as of June 19, 1986) does apply to Crown Corporations as well as to private enterprise.

Moreover, "it appears that with a duopoly firms are more vulnerable to conviction under the Competition Act, if the court finds they formed an agreement to lessen competition...because with their very high joint share of the market, competition will almost certainly be lessened 'unduly' as that word has previously been interpreted by the courts."²⁰⁶

In this connection, the new act replaces the word 'unduly' with 'substantially' thereby increasing the likelihood of conviction since the former required proving both the existence of a collusive agreement and the intent to restrict competition. In contrast, the Crown need now only prove that the accused firms intended to and did enter an agreement to manipulate prices, not that they intended that their agreement unduly lessen competition.

Thus, the influence of Competition Policy would appear to point to the increased competition outcome (i.e. 'defection'), since the duopolists' apparent increased

²⁰⁵Ibid., p. 38.

²⁰⁶Ibid., p. 26.

vulnerability to conviction under the new Competition Act could prove an effective deterrent to collusive behaviour.

Thirdly, there are various considerations which would appear to point towards cooperation between the duopolists in the industry, while others would suggest increased competition or 'defection' between the duopolists. With respect to the former, according to Gillen, Stanbury and Tretheway (1987), "the possibility of coordination so as to lessen competition may be enhanced by the recent history of cooperation between PWA and Air Canada. Although there was never any written agreement, the two carriers cooperated in the following ways. i) PWA altered its schedules to provide feed for Air Canada in western Canada. ii) PWA was hosted on Air Canada's computer reservation system rather than on CPAL's system, and iii) PWA often followed Air Canada's lead in pricing and other aspects of marketing; e.g. it joined Air Canada's Frequent Flyer program not CPAL's."²⁰⁷

Moreover, whereas PWA executives emphasized in January of 1987 that the airline's 'cozy' relationship with Air Canada was a "temporary marriage of convenience"²⁰⁸, more recently, on June 1, 1987 Air Canada and CAIL entered into a new high technology joint venture to integrate the computer reservations and electronic distribution systems

²⁰⁷Ibid., p. 25.

²⁰⁸Ibid., p. 26.

of both carriers. This new company will "combine the existing computer communications systems, resources, and appropriate personnel of Air Canada and Canadian Airlines International Limited."²⁰⁹

Second, the cooperative outcome would appear to be enhanced by the existence of substantial barriers to entry into the Canadian airline industry. As in the U.S. airline industry (discussed in Chapter 5, Section I), the presence of sunk costs (i.e. historical advertising expenditures, and investments in computerized reservation systems and frequent flier programs as barriers to entry) makes Canadian city-pair markets less likely to be contestable. Furthermore, according to Gillen, Stanbury and Tretheway (1987), "the merger of PWA and CPAL will create an (additional) entry barrier because it will extend the duopoly out of the trunk markets and into the third-level carrier markets...The barrier is created because the major third-level carriers have already been aligned with one of the two airline camps (see Figures 1-1 & 1-2). Therefore, it will be difficult for a new turboprop carrier to enter since it cannot offer the same service quality."²¹⁰

Moreover, as previously mentioned, cost minimizing forces indicate that many if not most Canadian city-pair markets can support, at best, two efficient carriers.

²⁰⁹Perspective, The Air Canada Supervisor's Newsletter, No. 5, April 30, 1987, p. 1.

²¹⁰Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 14.

Hence, given the absence of a serious threat of new entrants, one could expect to see supracompetitive prices in the Canadian airline industry.

Third, whereas the development of excess capacity was cited as one of the factors tending to undermine collusive agreements, the merger of CPAL with PWA will reduce over-capacity and hence the pressure to offer discount fares. This points to increased cooperation in the industry.

On the other hand, with respect to the increased competition or 'defecting' hypothesis, according to Gillen, Stanbury and Tretheway (1987), one factor which suggests that the acquisition might not result in cooperation between the two duopolists is the high debt/equity ratio of CAIL (i.e. 5.4 to 1 at the time of the merger). They state that "should traffic fall off, the need to service this debt burden will undoubtedly tempt CAIL to maintain or increase cash flow by lower prices, or other forms of competition, rather than risk bankruptcy."²¹¹

Moreover, given that air travel is quite sensitive to economic conditions (i.e. demand is cyclical), while being characterized by high fixed costs, the problem is exacerbated by the current weakness in the commodity-based economy of western Canada. Hence the authors predict that

²¹¹Ibid., p. 20.

CAIL is likely to act aggressively (i.e. to cut fares) in order to maintain its cash flow.

Second, CAIL has publicly "indicated that it intends to increase its domestic market share by about seven percentage points. This by itself (an unambiguously visible commitment in the words of Schelling (1960)) suggests that CAIL intends to compete rather than let Air Canada set a price umbrella."²¹²

Third, according to Gillen, Stanbury and Tretheway (1987), Wardair, the 'competitive fringe', and the only carrier of any size that is not aligned with either Air Canada or CAIL, could act as an important constraint in the exercise of market power by the two large carriers, as long as it continues to be a cost leader, and it is capable of moving in and out of markets when the duopolists' prices are supracompetitive.

Fourth, the emergence of buyer bargaining power among economically strong buyers in the U.S. (i.e. frequent business passengers) under the regime of deregulation, points to the greater likelihood of competition in the deregulated Canadian airline industry since, as mentioned above, the cheating behaviour that undermines collusive agreements is more likely to occur where buyers are powerful.

²¹²Ibid., p. 22.

Finally, it appears that the extensive media coverage surrounding the takeover and its continuing developments has contributed additional pressure to the carriers to compete (i.e. it leaves no opportunity for the airlines to lead the 'quiet life'). Furthermore, government officials, along with various lobby groups concerned with deregulation, will be monitoring the carriers' pricing behaviour now and in the near future in order to determine whether deregulation was a 'success'. Thus, the addition of further reality to the potpourri (i.e. the influence of these third parties) would appear to support the increased competition or 'defection' hypothesis.

To complicate matters further, one could introduce additional possible outcomes (i.e. such as the possibility that the duopolists might agree to divide up the Canadian market, with CAIL effectively acquiring monopoly power in Western Canada and Air Canada obtaining it in the East - although this type of market sharing agreement appears unlikely given the recent takeovers of 'feeder' airlines that have resulted in two carriers with nationwide capacities (see Figures 1-1 & 1-2)). However, preferring to avoid further complication, the existence of such additional potential outcomes will merely be acknowledged and not addressed further.

All in all then, it would appear that strong arguments can be made for the emergence of either increased or decreased competition as rational outcomes of the recent

creation of a duopoly in the Canadian airline industry.
Let us now make recommendations to Canada's duopolists
regarding what form of strategic interaction to engage in.

8) Recommendations to Canadian Airline Management

Having examined both the U.S. airline industry's experience under a regime of deregulation, and the possible outcomes of a duopoly, several implications can be drawn with respect to the recommended form of strategic interaction in the Canadian airline industry. That is, recommendations can be made to Canada's two major airlines, Air Canada and CAIL, regarding what pricing, service quality and network strategies to adopt. Let us examine these recommendations using Porter's Competitive Forces Paradigm as a general framework.

I) The Threat of New Entrants

As previously mentioned, the Canadian airline industry is characterized by substantial non-regulatory barriers to entry. That is, the presence of sunk costs (i.e. the historical advertising expenditures needed to establish recognition and reputation among a significant number of customers, and investments in computerized reservation systems, frequent flier programs - such as Air Canada's 'Aeroplan' and CAIL's 'Canadian Plus' - and hub and spoke route networks) makes Canadian city-pair markets less likely to be contestable. Moreover, as mentioned above, these barriers have effectively been extended into third-level carrier markets as a result of the consolidations which saw all of the carriers in Canada, with the exception of Wardair, aligned with one of the two major carriers.

Secondly, the incumbents would appear to be prepared for sharp retaliation since the industry is characterized by both excess capacity and slow growth (i.e. "passenger traffic has climbed a paltry 10% in eight years"²¹³), thus limiting the industry's ability to absorb new arrivals. The extent of over-capacity and minimum passenger growth also makes it difficult to raise the capital needed by would-be new entrants since there is not the supply of good, inexpensive aircraft in the second-hand market that there was in 1978 when the U.S. deregulated.

Thirdly, as mentioned above, cost minimizing forces indicate that most Canadian city-pair markets can support, at best, two efficient carriers. Thus, the entry of a third major airline into the Canadian airline industry would appear to be highly unlikely.

All in all then, given that the threat of new entrants is not likely to materialize, the duopoly models discussed in the previous chapter are indeed relevant in deriving recommendations for Air Canada and CAIL.

²¹³Gherson, G., p. 10. (see footnote #163)

II) Interfirm Rivalry

While, given the U.S. experience under deregulation, one might expect that interfirm rivalry would shift from service to price competition, prices in Canadian city-pair markets are unlikely to be contained to the 'competitive level' (i.e. point PB in Figure 7-3). Rather, in light of the limited threat of new entrants, one can expect prices to exceed marginal cost, and for service quality to remain a feasible dimension for competition. Moreover, while CAIL has indicated it intends to increase its domestic market share by about seven percentage points, and the takeover (i.e. CPAL by PWA) has "freed up from 5 to 10 aircraft"²¹⁴ that have been shifted to serve the lucrative Central Canada market (i.e. Montreal-Ottawa-Toronto) which has traditionally been dominated by Air Canada, and 14 new Boeing 767s are on order for delivery in mid 1988, "aggressive competition in a duopoly can have severe consequences, such as price or capacity 'wars', and periods in which both firms earn less than their opportunity cost of capital."²¹⁵ Thus, while CAIL has the potential strength to compete actively with Air Canada, and vice versa, recognition of their interdependence gives Air Canada and CAIL an incentive to cooperate. That is, according to Gillen, Stanbury and Tretheway (1987), both carriers are likely to strive

²¹⁴Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 22.

²¹⁵Ibid., p. 18.

to avoid intense competition (i.e. price or capacity wars) since "both are certain to be hurt"²¹⁶.

A look at the U.S. experience confirms this. For example, when ailing Braniff slashed its prices on all tickets by 45% in November 1981, American - with 42% of its flying in Braniff markets - had to match Braniff, at an estimated cost of \$12 million a month in lost revenues.²¹⁷ Meanwhile, Braniff cut its fares by as much as 50% on several shorter runs where it was challenged by low-cost competitors. As a result of this fare slashing (and its rapid overexpansion since the passage of the Airline Deregulation Act) Braniff went bankrupt in May 1982. Similarly, World Airways lost \$15 million on 1981 sales of \$370 million due to its price-cutting activities. Analysts agreed that World's course of cut-rate flights on routes important to the major airlines was ill-advised from the start because it was inevitable that the entrenched carriers would fight back despite the heavy losses they incurred.²¹⁸

Therefore, the recommendation to Air Canada and CAIL is to avoid destructive cutthroat competition. Rather, the optimal strategy for the two carriers to adopt on routes

²¹⁶Ibid., p. 24.

²¹⁷"American Rediscovered Itself", Business Week, August 23, 1982, p. 67.

²¹⁸"How Two Airlines Lost their Way", Business Week, September, 1982, p. 65.

they both serve, appears to be that of 'tit for tat'. That is, as discussed in Axelrod (1984), each carrier should cooperate on its first move, and then duplicate the other carrier's previous move (i.e. price-service offering). Thus, if both carriers' management are rational, and both are aware of the possibility of indefinite future interaction between themselves, both will have an incentive to cooperate. This would lead to the optimal outcome (i.e. joint profit maximization, price and output PM and QM, respectively, in Figure 7-3) for the duopolists.

However, given the strengthened conspiracy provisions of the Competition Act, as mentioned earlier, the duopolists are more vulnerable to conviction if an agreement (i.e. with respect to prices or market shares) is found to exist. Hence, to avoid being perceived as having entered a collusive agreement, Air Canada and CAIL should set fares on routes they both serve below the monopoly level. Thus, given the reality of competition policy, this pricing strategy would constitute the optimal one for the carriers to adopt since it would be sustainable in the face of the Competition Act, whereas setting fares at the profit maximizing level would likely result in conviction and hence, lower profits in the long run.

Furthermore, this cooperative pricing behaviour would appear to be reinforced by the reduction in excess capacity, and the ease with which 'cheating' can be detected in this duopolistic industry. With respect to the

former, according to PWA spokesman Jack Lawless "one of the other benefits of the merger (i.e. PWA and CPAL) is that it will reduce over-capacity and hence the pressure to offer lots of discount fares."²¹⁹ In his view, there are too many deep discount seats offered in the domestic airline industry. This strongly suggests to Air Canada that although the continued sale of a limited number of restricted discount seats is welcome, CAIL wishes to avoid fare wars.

Secondly, while both carriers face incentives to secretly undercut the 'cooperative' price level, in a duopoly protected by substantial barriers to entry such actions are immediately detectable. Moreover, information regarding prices is readily available through travel agents and the carriers' own ticket sales offices. Hence, such 'cheating' behaviour is unlikely to take place.

On the other hand, there are several factors that threaten the feasibility of this 'cooperative' behaviour. These include: the existence of non-price competition (i.e. service differentiation); a high ratio of fixed to total costs; and the growing importance of the 'competitive fringe'. First, Canada's two major carriers compete through service quality variations and innovations, as well as by means of price. For instance, while both Air Canada and CAIL charge \$481 for a full-fare one-way economy seat

²¹⁹Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 21.

from Toronto to Vancouver, Air Canada also offers a Nightflight special for \$399, while both carriers offer a 3-day advance booking fare of only \$379. Furthermore, both have three different service offerings (i.e. economy, business, and first class) on board.

More recently, Air Canada has introduced non-smoking flights on service between Toronto, Ottawa and Montreal, and on the Vancouver-Calgary route, as well as low calorie meals "NutriCuisine" for its business class service in North America. These product/service variations represent attempts to differentiate what is essentially a perishable, homogeneous good (i.e. a seat from point A to point B), with price differences being justified on the basis of differences in passenger convenience. On the other hand, while this form of non-price competition may place strains on the carriers' 'cooperative' behaviour, it also provides the airlines with a means of defense against allegations of collusion (i.e. the product/service offerings are not identical).

Second, the airline industry is characterized by a high ratio of fixed to total costs, which, as mentioned earlier, makes price cutting tempting when a cyclical decline in demand produces a substantial amount of unused capacity. This temptation may be exacerbated by the weak balance sheets of Air Canada and CAIL (i.e. high debt/equity ratios).

Third, the ability of the duopolists to engage in cooperative behaviour (i.e. to coordinate their price--service offerings on routes they both serve) could be limited by the growing importance of the 'competitive fringe' - Wardair. Wardair, which began offering scheduled service in Canada in May of 1986 (i.e. it now offers limited scheduled service between Toronto, Montreal, Calgary, Edmonton and Vancouver, whereas formerly it offered only charter flights to 32 international destinations including Britain and Puerto Rico), has now captured 7 per cent of the domestic market.

Furthermore, Wardair has announced it is acquiring 12 A-310-300 medium-range aircraft - three will be delivered in November and December 1987, while the balance will be received in 1988. With the addition of these new aircraft, Wardair's total capacity will increase by 26%.²²⁰ Moreover, these medium-range aircraft are well suited to the domestic market, particularly the lucrative Vancouver-Toronto-Montreal corridors. Hence the two major carriers can expect to see increased competition on these routes where prices are supracompetitive.

Moreover, while Wardair's offerings on these routes (i.e. Vancouver-Toronto-Montreal) are currently limited to two daily and one daily flight, respectively, (Wardair plans to increase its flight frequencies once the new

²²⁰Ibid., p. 23.

aircraft are delivered), they nevertheless act as a potential constraint on pricing. For instance, while Air Canada and CAIL charge \$481 and \$144 for a one-way, economy seat from Toronto to Vancouver, and Toronto to Montreal, respectively, Wardair sets its fares at only \$399, and \$109, respectively.

On the other hand, Wardair's ability to act as an important constraint in the exercise of market power by the two larger carriers may be limited by the fact that business travellers are less price sensitive than its usual leisure passengers, and hence price is not the most important factor. Rather, the key to attracting business passengers is to offer high flight frequencies coupled with a frequent flier program, neither of which Wardair has at present (i.e. although the carrier is currently developing a frequent flier plan, and planning to increase flight frequencies in the Toronto-Montreal corridor). Hence, despite its lower fare, Wardair is currently experiencing very limited success in the Toronto-Montreal business corridor (i.e. average load factors are estimated to be about 20%).

Secondly, Wardair has no feeder system to help generate passengers for its medium and longer haul routes, and as previously noted, all the major third-level or regional carriers are owned or aligned with Air Canada or CAIL.

Thirdly, while Wardair is widely believed to be a low-cost carrier, Gillen, Stanbury and Tretheway (1987) suggest that this is attributable, in part, to the nature of the markets it has traditionally served (i.e. discretionary/leisure travellers on long-haul flights), and that "as a domestic scheduled airline, Wardair's cost advantages are likely to be reduced"²²¹. Nevertheless, the growing potential threat posed by Wardair should not be overlooked by the duopolists.

Therefore, given that Wardair is substantially expanding its domestic capacity, and that CAIL wishes to increase its presence in Central Canada, the first recommendation to Air Canada with respect to its network strategy is to continue expanding its international offerings. That is, Air Canada, which now serves 34 international destinations, and derives "46 per cent of its revenues from its international services"²²², should seek growth on the profitable overseas routes.

To this end, Air Canada has ordered four new Boeing 767 jet aircraft (i.e. the backbone of Air Canada's medium and long-range fleet) and a Boeing 747 Combi, and has undertaken initiatives to promote its aspirations over the Pacific, through detailed discussions with representatives

²²¹Ibid., p. 23.

²²²Foster, C., "CAIL Launches its Challenge to Air Canada", The Globe and Mail, Report on Business, April 27, 1987, p. B11.

from a number of countries in the Far East, including: Japan, South Korea, Malaysia and the People's Republic of China. Furthermore, the carrier's route system within Europe has been modified and extended to include service to Vienna, Munich, Frankfurt and Manchester. Meanwhile in the Carribean, service was inaugurated to the Dominican Republic in 1987. According to Pierre Jeannot, President and Chief Executive Officer of Air Canada, "Air Canada's new routes are following new immigration patterns now from the Pacific Rim and the Arab countries... Cairo is on next year's agenda."²²³

These international routes are attractive since there is a "measure of monopoly power available in international markets... which can be expected to lead to higher profits."²²⁴ Moreover, according to Gellman (1987) these markets provide carriers with an opportunity to take advantage of economies of scope. For instance, Air Canada could establish an international hub and spoke network and link overseas feed into its domestic network, thereby increasing average traffic densities with a resulting drop in unit costs.²²⁵ Already, at Tokyo, both Northwest and

²²³Won, S. "Why Air Canada Wants To Fly Own Way", The Montreal Gazette, July 11, 1987, p. D1.

²²⁴Gellman, A.J., "New World Turns on the Old", Airline Business, May 1987, p. 19.

²²⁵Oum, T.H. and M. Tretheway, "Airline Hub and Spoke Systems", Faculty of Commerce and Business Administration, University of British Columbia, Draft 21 May, 1987, p. 6.

United operate in a hub-like manner, while Pan Am operates a mini-hub at London's Heathrow Airport, and TWA is preparing to do the same in Switzerland.²²⁶

Furthermore, Air Canada could capitalize on the economies of scale associated with enlarged maintenance facilities and operations, crew and staff training, marketing (i.e. CRS) and finance, and the benefits of increased aircraft utilization.

Likewise, the recommendation to CAIL with respect to its international network strategy (i.e. CAIL serves 21 international destinations, including the South Pacific - Australia and New Zealand - Hong Kong, Tokyo, Shanghai, Beijing, Bangkok, Mexico, several South American destinations, and the European cities of Rome and Amsterdam) is to continue expanding its service on these routes due to the above mentioned benefits of serving international markets.

In response to the potential threat posed by Air Canada in the Pacific, CAIL should strive to increase its presence and service offering (i.e. increase the number of flights and the capacity available). In this connection, it is widely believed that CP Air's limited frequency service (i.e. the lack of daily flights) was partially responsible for the successful growth of Cathay Pacific in Pacific markets, and the frequently cited statistic that

²²⁶Gellman, A.J., p. 21.

90% of Canadian passengers travelling in the Pacific must fly by foreign airlines.

Moreover, CAIL should strive to strengthen its presence in Europe by inaugurating scheduled service to London - the gateway to Europe. To this end, since CAIL is unable to renegotiate the bilateral treaty between Canada and England, the carrier should enter into negotiations with Wardair to purchase its London (Gatwick) route authority. This would provide CAIL with overseas feed for its domestic network, while helping Wardair raise the capital needed for its domestic expansion. Meanwhile, Wardair could continue to serve the London market via its successful charter flights.

At this point it should be noted that both carriers face significant competition from non-US carriers on all these international routes, and that U.S. carriers are increasingly looking to international markets as a source of growth. Thus, Air Canada and CAIL can expect heightened competition on these routes in the near future, and hence must ensure that their price/service offerings are competitive.

With respect to domestic network strategies, as seen in Figures 1-1 & 1-2, both Air Canada and CAIL have the capacity to offer full transcontinental service. That is, through their alliances with regional feeder carriers (including Air Canada's proposed feeder in Quebec, and CAIL's new commuter airline in Ontario 'Ontario Express'

which was granted CTC approval on June 15, 1987), and their use of multiple hubs (i.e. Vancouver, Toronto and Halifax), both airlines will be able to offer extensive service in Canada.

However, at present Air Canada is still dominant in the lucrative Toronto-Ottawa-Montreal triangle, as well as in the rest of Ontario through its feeder 'Air Ontario'. Moreover, while CAIL has acted to increase the frequency of its flights in the Toronto-Montreal corridor (i.e. on June 1, 1987, CAIL increased the number of daily flights between Montreal and Toronto from 10 to 28), according to Russ MacCormack, Air Canada's Director of Market Development for North America, "we have yet to be matched by a single product, and until that happens we will not be threatened by any other business service".²²⁷

It does indeed appear that Air Canada has yet to feel the impact of CAIL's increased capacity offering in this corridor, since the average load factor on its 31 daily flights between Montreal and Toronto actually rose to over 90% in July of 1987. According to industry insiders, this is partially due to Air Canada's superior gate location in Montreal, and its use of Terminal 1 in Toronto (i.e. Terminal 2, where CAIL is presently located, is extremely congested causing flight delays, etc.). However, the latter disadvantage could be overcome by CAIL through a

²²⁷French T., (1986), p. 18.

relocation to Terminal 3 once it is completed (the Government is currently taking bids for its construction).

Furthermore, the fear of Wardair eroding Air Canada's earnings on this bread and butter route is dissipated by Brian Walker, Senior Vice President Sales and Marketing at Wardair, who states "we cannot yet afford to go to a high-cost business fare offering".²²⁸ Hence, French's (1986) conclusion that while Air Canada's domestic market share may diminish, the frequency and quality of business-class service will maintain high-yield traffic.

Thus, the recommendation to Air Canada is to continue offering its high quality and frequent service to business passengers in this market, as well as introducing further innovations that cater to business travellers (i.e. such as its successful Aeroplan Frequent Flyer Program, and the low-calorie 'NutriCuisine' meals, and non-smoking flights introduced in 1986).

In contrast, CAIL presently dominates the markets in Western Canada, and the rest of Quebec outside the Montreal area. That is, while Air Canada has been mounting an attack through its Western feeder, Air BC, CAIL still dominates the Vancouver hub, and the profitable Edmonton-Calgary corridor with its shuttle service, as well as the Saskatchewan market, where Air Canada has no ally. Furthermore, until its proposed Quebec feeder is operational,

²²⁸Ibid., p. 19.

Air Canada will continue to lose ground to CAIL, which acquired feeders Nordair and Quebecair.

In this connection, in order to capitalize on its Quebec 'feed' and its strength in the West, CAIL is planning to increase the number of direct flights from Montreal to Western Canada (i.e. with no stopover in the Toronto hub) next summer when it starts getting delivery of its six Boeing 767 jets.²²⁹

However, as Gillen, Stanbury and Tretheway (1987) point out "it will take some time for CAIL to become a smooth-running system. CPAL has not yet fully 'digested' its earlier acquisitions (EPA, Nordair, and Quebecair)",²³⁰ and one of the most difficult challenges still before CAIL is meshing the labour forces (including sorting out seniority and union allegiances) of four different airlines (i.e. CPAL, PWA, EPA and Nordair).

Nevertheless, CAIL should continue expanding its service on both transcontinental, and Central Canada (i.e. Montreal-Ottawa-Toronto) routes in order to capitalize on its solid network of feeder carriers in both Western Canada and Quebec. CAIL should also strive to increase the presence of its feeder 'Ontario Express' in the Ontario market. Moreover, through its Western feeders, CAIL should strive to dominate the high density route between Vancouver

²²⁹Won, S., "The New Kid on Block Has High Hopes", The Montreal Gazette, July 18, 1987, p. C1.

²³⁰Gillen, D.W., W.T. Stanbury and M. Tretheway, p. 17.

and Victoria, as well as the highly profitable Northern B.C. and Yukon markets, and the high yield Arctic routes (traditionally flown by Nordair).

Finally, on the Atlantic coast, both carriers are presently fairly evenly matched with Air Canada's feeder, Air Nova, offering service from Halifax to points in Nova Scotia and Newfoundland (and soon to New Brunswick), and CAIL's feeder, Air Atlantic, serving Nova Scotia, Newfoundland, and New Brunswick from Halifax - the Eastern 'hub'. The recommendation regarding price-service offerings on routes served by both carriers in this market is the same as that regarding service in the Toronto-Montreal and the Toronto-Vancouver corridors: cooperate.

III) Buyer Bargaining Power

Given the U.S. experience since the passage of the Airline Deregulation Act in 1978, under a regime of deregulation in the Canadian airline industry, one would expect the bargaining power of Canadian travellers to also revert to an economic basis. That is, economically strong buyers (i.e. frequent business travellers) should gain more value in their transportation purchases, such as increased flight frequency, while economically weak buyers (i.e. buyers on thin, marginal routes) could expect to see service fall to economically supportable levels. However, the Canadian legislation will retain a degree of regulation to protect travellers in thin and remote markets (see Appendix A). Hence, in the Canadian case it would appear that travellers from small communities will retain a degree of political bargaining power.

Thus, while Air Canada and CAIL should continue to fine-tune their price-service offerings to the needs of economically strong buyers on routes they fly (i.e. by continuing to offer business class service and frequent flier programs, and by introducing volume discounts for major corporations), the needs of small community travellers must not be ignored. Rather, through their feeder carriers (i.e. that service such passengers), Air Canada and CAIL should continue to provide high quality service, despite the absence of substitute services in such markets, since the Federal Government will provide subsidies if a

service deemed essential cannot be provided on a purely commercial basis.

Furthermore, by providing 'feed' for the carriers' interprovincial and/or transcontinental flights, these passengers allow Air Canada and CAIL to achieve higher load factors and hence lower unit costs than would otherwise be attainable. Thus, the provision of traffic feed from the carriers' various 'spokes', together with the continued use of the airlines' yield management systems (i.e. offering a limited number of restricted discount fares in order to fill otherwise empty seats) should allow the carriers to achieve a higher level of profits.

IV) Supplier Bargaining Power

As previously mentioned, under a regime of deregulation supplier bargaining power in the U.S. airline industry reverted to an economic basis, marked by reduced negotiating power on the part of both labour and the other major suppliers to the airlines (i.e. aircraft manufacturers and oil companies). While one would expect the bargaining power of Canadian airline industry suppliers to follow in the same direction under a similar regime, there are various factors which tend to maintain it.

First, with respect to Canadian labour's bargaining power, the absence of a Chapter 11 bankruptcy refuge, and the lack of low-cost new entrants leave Canadian airline managements very little leverage to gain union concessions. Moreover, while Canadian airlines are now beginning to enjoy small benefits from less restrictive work rules, and two-tier wage structures (won in damaging strikes in 1985 at Air Canada and PWA), labour costs in the Canadian airline industry are still substantially higher than those in the U.S..

In this connection, Jordan (1987) finds that U.S. carriers have been able to achieve lower operating expenses per revenue ton-mile, due primarily to higher labour productivity. For example, "in 1978, the US carriers' employee productivity was 15.9 percent above that of the

Canadian carriers...in 1984, it was 31.6 percent higher."²³¹ This could have serious implications for Canadian airlines' competitiveness on international routes flown by competing U.S. carriers. Thus, Air Canada and CAIL must strive to lower their labour costs by raising employee productivity, and by greater use of two-tier wage scales, and part-time employment.

Second, with respect to aircraft manufacturers' bargaining power, as mentioned above while there is not the supply of inexpensive aircraft in the second hand market that there was in 1978 when the U.S. airline industry was deregulated, the Canadian airline industry is characterized by over-capacity and concentrated buyers tending to diminish suppliers' bargaining power. Nevertheless, relatively speaking the Canadian airline industry is not an important customer of aircraft suppliers, hence Air Canada and CAIL's negotiating power is somewhat limited.

Third, the opportunities for Canada's major carriers to take large cost-cutting benefits are limited by the previously mentioned existence of high government imposed fuel taxes. According to French (1986) "Federal fuel taxes mean Canadian carriers pay up to 40 per cent more for fuel than U.S. airlines."²³² Nevertheless, Canadian carriers can gain buyer bargaining power vis a vis fuel suppliers by

²³¹Jordan, W.A. (1986), p. 317.

²³²French, T., (1986), p. 22.

entering into large volume, long-term fuel supply contracts. These long-term contracts have the added advantage of ensuring the carriers a guaranteed supply of fuel - a benefit in times of uncertain fuel supplies.

Moreover, in order to minimize their fuel use, Air Canada and CAIL should further consolidate their operations (i.e. to ensure that more fuel efficient feeder aircraft serve shorter-haul thin routes), and replace older fuel inefficient aircraft with new generation ultra-high bypass planes to be delivered in the early 1990's. It is expected that these aircraft will reduce carrier operating costs by about 45%, which translates to 15% lower seat costs.

In this connection, Crown-owned Air Canada must raise \$2.5 billion by the end of the next decade to renew its aging fleet of wide-bodied Lockheed 1011s, and its short-to-medium range fleet of fuel-inefficient DC9s.²³³ To this end, the carrier welcomes privatization which would give it the necessary flexibility to raise the needed capital. However, the Federal Government appears to have stalled in pursuing the matter (i.e. the introduction of the privatization bill has been delayed) despite the advice of

²³³Foster, C., "Air Canada Looks at \$2.5 Billion for New Fleet", The Globe and Mail, Report on Business, June 23, 1987, p. B11.

Privatization Minister Barbara McDougall.²³⁴ Hence the fate of Air Canada remains to be seen.

²³⁴Stewart-Patterson, D., "Decision on Air Canada Sale Expected This Week", The Globe and Mail, July 8, 1987, p. A5.

V) The Threat of Substitute Services

While, as mentioned earlier, it is unlikely that any substitute modes of travel pose a real threat to Air Canada and CAIL in long-haul markets, the same does not hold true on short-haul routes. That is, given the substantial barriers to entry that will remain in the deregulated Canadian airline industry, the upstart of low cost - low fare airlines that would discourage the inroads of substitute services (as occurred in the U.S.) is unlikely to materialize. Hence, the existence of a nonzero cross-price elasticity (i.e. a degree of substitution) between modes of travel has implications with respect to price-service strategies in short-haul markets. Specifically, Air Canada and CAIL must ensure that their service offerings (i.e. comfort and amenities) on these routes exceed those of substitute services in order to 'justify' their higher fares.

For instance, in the Montreal-Toronto business corridor, while Air Canada and CAIL charge \$144 for a one-way economy seat, City Express (a turboprop operator with downtown Toronto to downtown Montreal service) charges a fare of only \$69-\$109, while Via Rail and Voyageur Bus Lines charge a mere \$49 and \$35.70, respectively (see Figure 8-1). However, since this corridor is travelled primarily by time-sensitive business passengers, the rail and bus modes pose no real threat due to the time and comfort advantages of air travel versus surface transport.

Figure 8-1

Montreal-Toronto Corridor

	One-Way Fare	Departure Frequency	Travel Time (hr. min.)	
Air Canada	\$144	31/day	1	10
CAIL	\$144	28/day	1	10
City Express	\$69-109*	8/day	1	15
Via Rail	\$49	6/day	4	30
Voyageur Bus	\$35.70	5/day	7	00

* Depends on day and hour.

For example, the flight from Montreal to Toronto has a duration of 1 hour and 10 minutes versus the 4 hours and 30 minutes, and 7 hours required to complete the same trip by rail and coach, respectively.

On the other hand, in competing with the turboprop carrier, City Express, whose downtown to downtown service gives it an overall time advantage despite its flying time of 1 hour and 15 minutes, the two majors should stress their second and third advantages which appeal to business travellers - their higher departure frequencies and hence greater convenience (Air Canada and CAIL offer 31 and 28 flights per weekday, respectively, whereas City Express offers only 8 daily flights - see Figure 8-1), and their frequent flier plans (with a greater selection of destinations due to their larger networks). Nevertheless, to minimize the time disparity, CAIL and Air Canada should strive to maximize their on-time performance by maintaining a high percentage of on-time departures and arrivals (i.e. according to industry standards, the objective is to ensure that 80% of flights depart within 5 minutes of their scheduled departure time).

With respect to longer-haul routes, while no viable substitute modes of travel exist, Canada's major carriers nevertheless face competition from substitute airline services. For instance, charter airlines (i.e. such as Worldways, Nationair and Wardair) as well as nearby U.S. carriers pose a potential threat to Canada's duopolists

because of the low fares they charge. Thus, CAIL and Air Canada should ensure that their price-service offerings are competitive with those of these carriers on common routes (i.e. if the duopolists' fares exceed those of U.S. carriers by more than 10%-20%, Canadian travellers will be induced to head South of the Border as occurred during the early years of U.S. deregulation due to the rock-bottom fares of start-ups like People Express).

Finally, as the U.S. experience has shown, a low service - low fare economy offering on longer-haul flights will attract price elastic passengers who otherwise would not travel.²³⁵ Hence, on long-haul flights (such as the transcontinental route from Toronto to Vancouver) service offerings (i.e. departure frequencies, and on-board amenities) need not be emphasized as much since price becomes the key strategic variable. Thus, Air Canada and CAIL should engage in more innovative pricing strategies (aside from offering discount fares) in order to attract more price-elastic passengers. For example, as the U.S. experience has shown, the use of airpasses (i.e. pay now,

²³⁵In their book (1985), Canadian Airline Deregulation and Privatization: Assessing Effects and Prospects, Gillen, D.W., T.H. Oum and M. Tretheway show that price elasticities are significantly higher for travellers on vacation routes, than those on business routes, and that they are positively related to distance (i.e. travellers on short distance routes are less sensitive to air fares than those on long distance routes). Furthermore, the average price elasticity of Canadian travellers is -1.1 to -1.3, with first class travellers having price elasticities smaller than -1, and discount fare travellers nearer to -2.

fly later plans that guarantee a certain number of flight miles at a set price) can be instrumental in stimulating further demand for air travel, particularly among price-sensitive pleasure travellers.

VI) Summary of Recommendations

All in all, in light of the competitive forces that are likely to characterize the deregulated Canadian airline industry, we make the following recommendations regarding price, service, and network strategies.

A) Recommendations to both Air Canada and CAIL

1. Set fares on common routes below the monopoly level.
2. Strive to minimize fuel use (i.e. consolidate feeder carriers and replace fuel inefficient aircraft with the new generation planes), and enter into long-term fuel supply contracts to ensure fuel availability.
3. Ensure that the carriers' service offerings on short-haul routes exceed those of substitute services (i.e. stress the carriers' higher departure frequencies).
4. Strive to maximize on-time performance.
5. Ensure that their price/service offerings are competitive with those of substitute airlines on common long-haul routes, while stressing their greater choice of departure times.
6. Ensure that price/service offerings are competitive with those of the other carriers serving international

markets. To this end, strive to lower labour costs by increasing employee productivity, and by greater use of two-tier wage scales and part-time employment.

B) Recommendations to Air Canada

1. Avoid destructive cutthroat competition (i.e. fare wars) with CAIL.
2. Continue developing Air Canada's yield management system, but also adopt new innovative pricing strategies, such as the use of airpasses.
3. Retain a degree of service differentiation (i.e. product/service variations and innovations, such as 'NutriCuisine').
4. Continue offering high quality and frequent service to business passengers in the lucrative Montreal-Toronto corridor in response to the threat posed by CAIL, while maintaining Air Canada's successful 'Aeroplan' Frequent Flyer Program in order to build and sustain customer loyalty.
5. Through its feeder carriers, Air Canada should continue to provide high quality service to travellers in small communities. This necessitates filling its network gaps in Quebec and Saskatchewan with efficient commuter carriers.

6. Continue expanding international offerings in Europe, the Far East, and over the Pacific to take advantage of significant economies of scope.

C) Recommendations to CAIL

1. Avoid destructive cutthroat competition (i.e. fare wars) with Air Canada.
2. Continue developing CAIL's yield management system, but also adopt more innovative pricing strategies in order to maximize load factors.
3. Strive to maintain a degree of service differentiation by introducing product/service innovations.
4. Expand service on both transcontinental, and lucrative Central Canada routes (i.e. Montreal-Ottawa-Toronto) in order to capitalize on its solid network of feeders in both Western Canada and Quebec. Furthermore, CAIL should improve the quality of service offered to business passengers in the Montreal-Toronto corridor (i.e. including relocating to Terminal 3 in Toronto once it is completed).
5. Continue providing high quality service to travellers in small communities through its feeder carriers. This necessitates strengthening the presence of CAIL's feeder 'Ontario Express' in Ontario markets.

6. Strive to dominate the high density route between Vancouver and Victoria, as well as the highly profitable Northern B.C., Yukon, and Arctic routes.
7. Continue its profitable shuttle service between Calgary and Edmonton - a route that Air Canada does not fly.
8. Continue developing 'Canadian Plus' its frequent flier plan in an attempt to build passenger loyalty.
9. Continue expanding service offerings on Pacific and South American routes (i.e. increase its capacity and the frequency of its flights on Pacific routes in response to the potential threat posed by Air Canada).
10. Initiate negotiations with Wardair to purchase its London (Gatwick) route authority.

By adopting these strategies, Canada's two major airlines will be well on their way to fulfilling the three key success factors that emerged in the deregulated U.S. airline industry. That is, by strengthening their hub and spoke operations (i.e. consolidating feeder carriers, and offering a high quality of service network-wide), controlling costs (i.e. reducing labour and fuel costs, while capitalizing on economies of scope and increasing aircraft utilization), and applying marketing expertise (i.e. continuing to develop their yield management systems, and frequent flier programs, as well as adopting innovative, new pricing strategies), Air Canada and CAIL will be in a better position to face the final stage of deregulation, and hence, it is hoped, to avoid the fate that befell many of their U.S. counterparts.

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Appendix A

The National Transportation Act (Bill C-18)

1) The Controlling Body:

The Canadian Transport Commission (CTC) is to be replaced by a smaller, streamlined National Transportation Agency (NTA) which will be bound by directives of the Governor in Council, through Parliament. With up to nine members appointed to five-year terms by the government, the NTA may conduct inquiries as requested by the Minister of Transport and is empowered to hear applications or complaints on licensing, fares, and safety. Agency decisions are appealable to the Courts, and may be varied or rescinded by the government.

2) Regulation of Entry:

Under the 'public convenience and necessity' test, carriers wishing to begin a service had to prove that the service was economically viable and show it had the support of the communities to be served. This test is to be replaced by a 'fit, willing and able' test under which carriers must simply demonstrate that they operate safely and have adequate insurance coverage. Licenses will no longer restrict carriers' routes, equipment, or type of service.

3) Regulation of Exit:

Exit from markets or significant service reduction will not be impeded, except by an advance public notice requirement of 60 days.

4) Tariff Regulation:

The new bill allows carriers to set fares and reduce them without approval or filing. Increases, particularly on monopoly routes, will be subject to appeal to the NTA.

5) Northern and Remote Areas:

Services to remote areas will remain subject to a degree of regulation to protect a thin, highly dispersed and fragile, yet essential market. Any party (including communities and carriers) will be able to appeal to the NTA against the granting of a new licence, but will have to prove that a new service will lead to "a significant decrease or instability in the level of domestic service".

Licence conditions will still limit aspects such as the type of service (charter or scheduled), routes, points to be served, and schedules. Fare levels, as well as increases, will be appealable and can be disallowed. The federal government may provide direct or indirect subsidy if a service deemed essential cannot be provided on a purely commercial basis. These special conditions apply only to those parts of Canada beyond the limit of regular road access, including the northern tip of Newfoundland,

all of Labrador, most of the northern regions of Quebec, Ontario and Manitoba, the northern halves of Saskatchewan, Alberta and British Columbia, and all of the Yukon and Northwest Territories. The demarcation line starts at the 50th parallel on the Atlantic coast and gradually reaches the 55th parallel in Alberta and B.C..

6) Mergers and Acquisitions:

The Act allows investigation of mergers and acquisitions in transport against a 'public interest' test. Moreover, the NTA must be advised of any proposed acquisition of 10% or more of the voting shares of such companies that have assets or annual sales in Canada of \$20 million or more.

* Sections 2-4 apply only to Southern Canada (i.e. to those parts of Canada located south of the line that stretches from the 50th parallel on the Atlantic coast to the 55th parallel in Alberta and B.C.).

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