

THE UNIVERSITY OF MANITOBA  
THE ECONOMICS AND REGULATION OF COMMERCIAL AIR TRANSPORT  
WITH PARTICULAR REFERENCE TO MANITOBA  
AND 'THIRD LEVEL' CARRIERS

by

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## ABSTRACT

The study examines the economics and regulation of commercial air transport, with particular reference to those Manitoba-based air carriers generally regarded as 'third level', and with the basic objective of considering appropriate public policy in the regulation of such carriers.

At present, no universally recognized definition of 'third level' commercial air transport exists. Concomitantly, there has been no statement of public policy regarding the regulation of this sector. Hence, the setting of some terms of reference, in defining the norms of public policy, in considering the economic implications of alternative approaches, and in defining the industry, is the task of this analysis. In brief, it is only in examining the interaction of institutional, environmental, and operational variables that the devising of regulatory policy may be pursued.

The immediate need for a proper weighting of the objectives of public policy is evident. The study places emphasis on

developing concepts of:

1. productive efficiency in a static sense
2. dynamic efficiency
3. optimum allocative efficiency
4. the proper role of competition
5. service integration
6. stability of firm operation.

In conclusion, the public policy recommendations offered imply a consideration of all these norms; yet, in the final development of policy, the role of normative judgment cannot be ignored.

The thesis draws from this broad consideration of the theoretical implications of different regulatory approaches as well as from a consideration of actual Manitoba air transport experience, and a contrast of 'third level' and 'regional' air carrier situations. An interpretation of existing regulatory influence and of the 'third level' air carrier's distinctive problem is derived. In short, it is the problem of institutional inflexibility in a dynamically fluctuating environment. In the end, a change in the direction of regulation, away from the present case-by-case consideration of individual market requirements, or 'structuralist' approach, and towards a more flexible arrangement of licensing with some degree of investment guidance, is suggested.

As a generalization, 'third level' air carriers represent a 'fringe' of Canadian domestic air transport operating in thin markets suitable to small capacity aircraft, low frequency operation, and monopolistic seller concentration. Because of their monopolistic positions, these carriers gain an importance in public policy which significantly outweighs their size. At the same time, however, the prevalence of small owner-manager enterprises in this sector has led to ad hoc, short-run, and often opportunistic behaviour by these firms consistent with their lack of specialization and stability. A general tendency to heterogeneous fleets and excess capacity is thus attributed to the industry. The need for some form of regulatory control on expansions of capacity is undeniable.

Concurrently, the volatility of seasonal demand fluctuations and of temporary demands suggests a strong need for variability in the cost structures of these firms and flexibility in their abilities to reallocate resources as demands change. To some extent, these needs are met by the operational requirements of the licence authorities under which these firms are legally allowed to provide air services.

As a result, 'third level' commercial air carriers have not experienced the critical losses associated with 'regional' air carriers in the mid-1960's and reflected in present 'regional' policy. The requirement for a different regulatory approach relative to 'regional' policy is thus established.

The emphasis here is on 'dynamic efficiency', the ability to adapt to 'exogenous' change over time in a manner which avoids serious maladjustments in individual markets. The objective set, furthermore, is the maintenance of total capacity in a 'general' equilibrium with total demand rather than on any 'partial' or individual market basis.

Present regulation operates only ambiguously and inflexibly. In interpreting the 'public interest', regulators have seen fit to concentrate most particularly on seller concentrations and the licensing of entry to individual markets. As a result, inflexibilities in reallocating resources over a system of fluctuating markets has been observed. In combination with the over-expansionary and inconsistent investment policies of these smaller firms, a tendency toward merger and consolidation activity and a lack of ability to otherwise

integrate services is noted.

As a change in public policy, therefore, it is suggested that the present policy of licensing entry to specific points on an individual trial basis be altered in favor of a more flexible arrangement. A policy which allows greater freedom in reallocating capacity among specific points and, at the same time, regulates capacity in a general equilibrium sense, i.e. in relation to some total system of markets or demands, is advocated. Such a policy should remove the problems of excess capacity attributed to the 'third level' industry. Concomitantly, increased market-orientation by the regulatory authority and the individual firms, greater inter-line co-operation, and a greater integration and rationalization of route systems can be established.

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## INTRODUCTION

An economic examination of third level air carrier operations in Manitoba is, at the outset, hampered by the fact that no universally accepted or comprehensive definition of this sector of the Canadian commercial aviation industry has yet been recognized. 'Third level' is merely a notion or concept of those commercial air carriers involved both in unit toll and charter operations, whose size was not sufficient for them to be recognized as regional carriers. Recognition as 'third level' carriers has derived simply from generally held opinions by those intimately connected with the commercial air carriers.

The approach to the analysis suffers from this limitation, and, as an expedient, a close examination of the areas of only those operations in Manitoba widely recognized as third level has been undertaken. The carriers are:

1. Lambair Ltd.
2. Ilford-Riverton Airways Ltd.
- and, 3. Midwest Airlines Ltd.

The operations of these carriers are examined mainly in regard to the theoretical considerations brought forward in economic theory, in regard to existing public policy in Canadian commercial aviation, in regard to the approaches implied, and finally, in regard to those aggregative average features which are suggestive of economic conditions faced nationally by all third level carriers.

At the outset, a broad examination of economic theory is presented to identify the areas of economic analysis which apply to the operations of commercial air services. In particular, identification of those standards suggested as relevant in conceiving what the ideal third level system, from a public interest standpoint, would involve, and the forms of regulation necessary to derive such conditions, merit greatest attention.

In contrast to these theoretical standards, and in contrast to the various regulatory approaches suggested, actual Canadian commercial aviation regulatory principles are examined. The rationales for public intervention are established and corresponding legislation is examined for its consistency with such rationales. In brief, the relevant institutional framework of regulation is presented. Examination of regional

policy developments set precedents and terms of reference against which to examine third level policy requirements. As will be suggested, there are parallels in the nature of regional and third level operating circumstance and, therefore, an examination of the role of regional carriers will necessarily precede identification of the scope of third level activities. Finally, the nature of present institutional determinants of third level behaviour are examined and certain conclusions drawn as to those implicit and explicit variables which, in the presence of regulation, influence third level performance.

Following the inferences drawn from a specific examination of the named carriers' activities in meeting the requirements of the Manitoba transportation system, an extension into a more general discussion of third level economics is attempted. It is from the combinations of institutional, environmental, and operating variables, based on certain functional relationships, that the problems and choices of the regulatory authority in devising public policy to achieve optimum performance from the third level sector may be drawn.

In essence, the examination attempts to bring into the areas of discussion the relevant theoretical considerations.

In doing so, the similarities in the regional operators requirements and third level carrier operation remains an important theme. Yet, in the final result, it is the dissimilarities which suggest a different public policy approach to third level operations.

Chapter I

THEORETICAL DISCUSSIONS



## A) Approaches:

'Optimum resource allocation', elusive as that concept may be, is that state towards which public policy ideally presses. In practice, however, devising the regulations or criteria which will guide the specific industry to such a standard presents a task difficult for any economist. The task set is to find ". . . the best means of allocating resources, of enhancing efficiency in the production of goods and services and of transmitting the benefits of efficiency to the public."<sup>1</sup> The state of 'optimum resource allocation' is defined adequately in the models or abstractions of economic theory; adapting the analysis into empirical terms, of use to public policy administrators, is the particular problem at hand. As such, however, all the relevant considerations must be brought forward. Theories are abundant; correct applications will, therefore, always require measures of discretion and judgment as to their appropriateness to the situation.

Hence, two problems in public policy may be recognized:

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<sup>1</sup>The preamble, Bill C-256, presented in the House of Commons of Canada, June 29, 1971.

1. The adaptation of the theoretical abstractions of economic analysis into 'workable' norms or standards by which to guide decision-makers in public policy; and
2. The recognition of all pertinent or relevant areas of theory in connection with the particular problem.

Although emphasis is placed on the identification of relevant theories, this present section is directed towards these two aspects of public policy in the regulation of commercial air services.

i) General Equilibrium Aspects

The significant contribution of a general equilibrium approach to questions of public policy in air transport is that it relates the 'partial' activities of sectors, industries, or markets to some designated total of overall economic performance. In transportation, such an approach implies examining the contributions of each transport mode in the satisfaction of the network of various demands, or markets, which constitute the designated transportation 'system'. Indeed, in this respect, commercial aviation may represent only a particular sector of

the transportation industry, and is to be employed, therefore, only where its basic characteristics (in cost and service dimensions) give it advantage or make it a useful alternative to other modes.

In fact, such an approach is implicitly recognized in the Federal regulation of transportation in Canada, which describes this aspect of the public interest as ". . . an economic system making the best use of all available modes of transportation . . ." <sup>1</sup>

Indeed, regulatory agencies have often been suspect of an overly 'endogenous' concern with the financial welfare of their constituent industry members to the neglect of outside or exogenous interests. As Caves notes, "There are . . . aspects of the Board's (CAB) decisions that suggest a friendly attitude toward the regulated carriers and an unfriendly one toward their enemies." <sup>2</sup> A more 'general' approach in policy might serve to reveal to regulators the entirety of the economic process, which overemphasis on partial analysis may

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<sup>1</sup>Section (3), The National Transportation Act, 1967, Statutes of Canada 1967, chapter 69.

<sup>2</sup>Caves, R. E., Air Transport and Its Regulators: An Industry Study, (Harvard University Press, Cambridge, Mass., 1962) p. 275.

obscure to policy-makers.

In short, general equilibrium approaches to public policy are useful in that they indicate the wholeness of the economic process. Specifically, the following aspects are realized:

1. The public interest in allocating resources to each mode to the extent that its advantages, in cost and service dimensions, effectively suit it to service particular markets.
2. The interrelationships between markets, and between developments in substitute and complementary services.
3. The interdependencies between related sectors.

These aspects are possibly overlooked in policy formations which adhere too closely to the dictates of strictly 'partial' analysis.

#### ii) Paretian Welfare Aspects

Paretian welfare economics, as commonly presented, involves the stating of certain marginal conditions to derive a social welfare optimum in utility space, and, as a corollary, shows how the market structure of free competition derives such an ideal.

The concept of the optimum is the starting point in Paretian Welfare Analysis. The optimum in general equilibrium welfare economics has come to refer to three basic aspects of the performance of the economy:

1. productive efficiency.
  2. distributive efficiency.
- and, 3. allocative efficiency.

It is this third aspect which has proved so elusive, for it implies an economic condition which is the optimum from a social welfare or utility standpoint. As a result, 'Paretian optimum'<sup>1</sup> has generally been modified to a standard which refers to the successful achievement of the first two aspects of performance as above. However, it is important to note that there is a range of theoretical positions in utility

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<sup>1</sup>It is assumed the reader is familiar with the basic model. The marginal requirements, therefore, are only summarized:

- (a) the marginal rates of substitution between commodities must be the same for every pair of individuals (no "gains from trade" are possible).
- (b) the technical rates of substitution must be the same for all factors and commodities.
- (c) the marginal rates of transformation and the equivalent marginal rates of substitution between any two goods must be equal.

space (as represented in theory by the utilities possibilities frontier) which may satisfy these modified Paretian conditions; the social welfare optimum represents only one point on that frontier.

Public policy which moves simply to derive greater productive and distributive efficiency may succeed in meeting the requirements of the 'lesser' Pareto optimum, but it will also reflect the status quo in income distributions. It may, therefore, be far removed from the social welfare optimum as defined in utility space.<sup>1</sup>

The particular problem in designating the welfare function, and in directing allocations towards its maximization, is the impossibility of making objective interpersonal comparisons of utility. What is therefore required is a normative

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<sup>1</sup>Such a statement deserves comment. It assumes:

- (1) that the social objectives of society can possibly be distilled through the political process from the multitude of conflicting interests - i.e. that there is some means to group consensus on ordered preferences.
- (2) that the social welfare function is an independent function; distinct from a severe social belief in the justice of initial ownership and the rights of private property to remain as accumulated.

judgment as to income distributions; and this decision, in a political environment, is often avoided. Indeed, there often seems a strong desire among North-American policy-makers to avoid such explicit value judgments, and place emphasis rather on the aspects of productive and distributive efficiency. Still, the public interest in maximizing social welfare will be difficult to attain without first placing greater effort and emphasis in attempting to detail social consensus on industrial objectives.

The application of Paretian welfare analysis to problems of regulating specific industry behaviour invariably leads to the marginal cost - pricing rule. It has also lent the competitive market more credence as the ideal market structure, or policy norm, than is perhaps warranted, ". . . there is at work a powerful disposition to favor market situations which are perfect . . . the prejudice in its favor has not altered greatly."<sup>1</sup>

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<sup>1</sup>Hunter, A., ed., Monopoly and Competition, (Penguin Books Ltd., Middlesex, England, 1969), pp. 32-33.

The theory of Second Best,<sup>2</sup> however, has sufficiently shaken any theoretical connection between marginal cost-pricing and increased social welfare in the less-than-competitive economy. Arguments for such pricing behaviour have thus retreated into the partial analysis of Marshall and Pigou based on the loss of consumer surplus.

In short, examinations of the Paretian system reveal these two important considerations:

- (a) without proper designation of social objectives or, in theoretical terms, "the social welfare function", policy-makers will be unable to distinguish positively movements toward more socially optimal states, and
- (b) there is no necessity for employing competitive standards as ideal policy norms.

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<sup>2</sup>"... the attainment of a Paretian optimum requires the simultaneous fulfillment of all the optimum conditions. If there is introduced into a general equilibrium system a constraint which prevents the attainment of one of the Paretian conditions, the other Paretian conditions, although still attainable, are, in general, no longer desirable." - from Lipsey, R. G., and Lancaster, K. "The General Theory of Second Best" Review of Economic Studies, vol. 24, p. 11.



These observations should by no means invalidate the usefulness of competitive market pressures for securing incentives to production efficiency and the passing of those gains on to consumers. It is merely to place the standard of perfect competition in a position of neutrality where it appears to have had strong exercise as the ideal.

Furthermore, stated objectives must be defined, policies suggested, and, then analysis employed. Hicks notes, "When the ends of the society are certain, . . . co-ordinating plans as firmly and directly as possible, has a strong case on grounds of efficiency, . . . in the ordinary pursuit of . . . economic welfare, immediate ends are likely to be much less certain . . ." <sup>1</sup> Proper regulation of air transport will therefore require proper goal-definition.

The process, however, seems to have been used in reverse; an analytically ideal state is described, policy implications devised, and standards imposed. However, as Winch notes,

"What is the best policy in any instance depends upon the objective, the welfare function . . . and that function consists entirely of value judgments. The

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<sup>1</sup>Hicks, J. R., Value and Capital, (Oxford University Press, Oxford, England, 1946), p. 137.

value of applied welfare economics rests on its ability to deduce appropriate policies for any particular set of social objectives, not on its inability to obviate the need for the making of value judgements for society through the political process."<sup>1</sup>

Arguments for the optimality of competition and the minimization of the political process may therefore have to be reconsidered.

Bator observes, "It is the central theorem of modern welfare economics that under certain strong assumptions . . . the equilibrium conditions which characterize a system of competitive markets will exactly correspond to the requirements of Paretian efficiency."<sup>2</sup> Free markets, however, may not be able to obtain Paretian optimality because of:

(1) market imperfections.

and, (2) market failures.

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<sup>1</sup>Winch, D. M., Analytical Welfare Economics, (Penguin Books Ltd., Middlesex, England, 1971), pp. 29-30.

<sup>2</sup>Bator, F. M., "The Anatomy of Market Failure" Quarterly Journal of Economics, (August, 1958), p. 351.

In the commercial air transport industry, it is evident that many of these elements<sup>1</sup> exist, notably:

- (1) immobile and indivisible factors of production.
- (2) direct and indirect subsidies to air carriers.
- (3) externalities.
- (4) public good characteristics.

The existence of market failure is the primary concern of welfare analysis.

Given the existence of such failures, the case for extra-market activity may be presented. A quantitative measure of the net increase in social benefit resulting from the operations of the regulatory authority<sup>2</sup> over what the free market would provide<sup>3</sup>, could give a clearer picture of the welfare gains from regulation. However, such data are

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<sup>1</sup>Plus, the possibility of areas of 'excessive' competition developing under conditions of free entry and fluctuating demands.

<sup>2</sup>i. e. The Canadian Transport Commission.

<sup>3</sup>Coase, J. "The Problem of Social Cost", Journal of Law and Economics, vol. III, 1966.

virtually impossible to obtain<sup>1</sup> and such judgment must remain in question.

The principal failure of the market obviously surrounds its inability to cope with externalities, or conditions where one individual's satisfaction is affected by another's activities. While these effects take the form of economies or diseconomies, of main interest here are the Pareto relevant externalities, or conditions where gains from trade are possible, ". . . when the extent of the activity may be modified in such a way the externally affected party . . . can be made better off without the acting party being made worse off."<sup>2</sup> It is easily made apparent that extensions of the route systems

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<sup>1</sup>Problems are twofold:

- a) where income redistributions are involved, interpersonal utility comparisons will be necessary.
- b) adjusting levels of output in individual markets to where incremental increases in social benefit equal incremental increases in social costs (satisfying second-order conditions, also) will be virtually impossible because of the existence of:
  - (i) joint products.
  - (ii) problems in quantitative measurement of extra-market influences.

<sup>2</sup>Buchanan, L. M., and Stubblebine, W. C., "Externality" Economica, (November, 1962), p. 374.

served by any carrier, through internal cross-subsidization of services, do not satisfy such an absolute welfare standard. The extension of air service networks through State subsidy will also require a comparison of the tax structure with the structure of benefit receptions, in order to identify the proper welfare implications.

However, certain externalities are important in the provision of air services to the North, and, specifically, the following may be noted:

- (1) provincial/national unity enhancement.
- (2) a loss of sense of isolation.
- (3) aids to industrial development and tourism.
- (4) rapid communications (necessitated by emergency or industrial situations).

Since some economic units can enjoy these benefits from regular air service without having to pay the fully allocated costs of their production, there is a divergence between consequent marginal social benefit and private marginal costs. Extra-market regulation may then see fit to extend such services in the public interest.

It might also be observed that air transport exhibits certain public good characteristics, as " . . . a good, once produced, (that) can be made partially available, though possibly in varying degrees to more than one individual."<sup>1</sup>

As an example, the provision of air services to non-consumptive units (e. g. as an occasion, relieving a sense of isolation) is, in a very real sense, a public good and will therefore support, to a degree, government action to appropriate fuller values of the good in support of its production. Furthermore, Weisbrod's 'option values'<sup>2</sup> are suggested. As stated, consumers value the option of being able to consume a particular service,

" . . . they will be willing to pay something for the option to consume the commodity in the future . . . it will probably not exert any influence if the private market is allocating resources . . . expansion or re-commencement of production . . . must be difficult or impossible."<sup>3</sup>

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<sup>1</sup>Head, J. G., "Public Goods and Public Policy", (Public Finance, Vol. 17, 1962), p. 203.

<sup>2</sup>See Weisbrod, B. A. "Collective Consumption Services of Individual Consumption Goods" Quarterly Journal of Economics, August, 1964, pp. 472-474.

<sup>3</sup>Weisbrod, B. A., Ibid., p. 473.

In air services, these values are witnessed when a community is threatened with the abandonment of regular air services. While recommencement of production in free markets could be instantaneous (given the inter-market mobility of aircraft), institutional features (licensing procedures) make the recommencement of regular unit toll air services somewhat less than spontaneous.

As a final consideration in welfare, it will be noted that the levels of demand for services are a function of the existing distributions of income and tastes. Demands, therefore, will be subject to these parameters. Familiarity with air travel may increase its demand, and, consequently, its market value. Where services operate into low-income communities, the existence of low demand for air services does not attest to low utilities from such service; it merely testifies to the inability of low-income consumers to register their subjective values through spending in the market-place. In this area, however, the provision of affordable services through subsidized travel is not recommended; direct payment of income increments by the State will be seen to allow higher utility to the consumers and thus greater increases in social welfare.

In conclusion, welfare analysis will be seen to suggest this final consideration; the public interest in securing 'optimal resource allocation' will require acknowledging both problems of income distribution and extra-market influences. The primary technical problems are, therefore, the inability to produce objective interpersonal utility comparisons and the inability to quantitatively identify extra-market values. It is unlikely that these problems will ever move out of the realm of normative economics.

Finally, however, each dimension of air service, whether reliability, dependability, low cost, or wide availability, may be seen to evolve different structures of income distribution and extra-market influence. As these objectives to a greater or lesser degree, are seen to be mutually exclusive, ordered priorities must be established and the various welfare implications considered.

### iii) Dynamic Aspects

Dynamic theory attempts to deal with the patterns of adjustment or adaptation of a system to changes over time. Certain aspects of industrial behaviour must be considered from such a standpoint if public regulation of air transport



is to be considered effective.

Schumpeterian analysis is important, in this respect, for the distinction which it makes in indicating the potential benefits of industrial policies which allow extra-normal rewards positively into their systems,

"A system . . . that at every given point of time fully utilizes its possibilities may yet in the long-run be inferior to a system that does so at no given time, because the latter's failure to do so may be a condition for the level or speed of long-term performance."<sup>1</sup>

Adaptability of the system to economic change may be a condition of the public interest; therefore, periods of short-term extra-normal profit may be seen as necessary. Profits will determine the terms of borrowed capital, the levels of retained earnings as sources of capital, and, though debatable, may present

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<sup>1</sup>Schumpeter, Joseph, A., Capitalism, Socialism, and Democracy (Harper & Row Publishers, New York, N. Y., 1950), p. 83.

a possible spur to innovation.<sup>1</sup> Schumpeter is clear in his belief that profits are the guiding spirit of an entrepreneurial or adaptive system, "These cases then provide the baits that lure capital on to untried trials."<sup>2</sup> Hence, static standards of efficiency with short-run normal profits may have to be modified or rejected. However, what should also be apparent is that restrictive policies which allow such secured positions, may also lead to entrenchments of positions<sup>3</sup> and consequent social losses.

An important trade-off is here encountered. As noted, profits in the aviation firms will determine their ability to re-equip. Profit protection may then be considered desirable, and can be secured through State licensing which protects the market positions of these firms. However, inequities in the structure of licences issued may lead to equipment advantages

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<sup>1</sup>Caves concluded that the larger profitable firms are most able and likely to innovate through new equipment; the low profit firms are most likely to devise market innovations.

<sup>2</sup>Schumpeter, J. A., Capitalism . . . , op. cit., p. 90.

<sup>3</sup>A firm with existing equipment advantages and no restrictions as to capacities offered may continue to profit in competition with less advantaged firms; thus, it may always be better equipped. The less profitable operations may find it expedient to continue to capitalize their fleet capacity with more obsolete, cheaper equipment.

over the less secure firms.

It is possible that such imbalances in the competitive structure of the aviation system will lead aggressor firms to move against opponents, encouraging merger or failure, and thus increasing industrial concentrations in the long-run. Furthermore, the pattern of licensing may cause less advantaged (but equally ambitious) firms actively to seek combinations with firms holding licensing privileges as their only avenue to expansion. Again, in the long-run, increased concentrations in industrial structure can occur and there is an increased threat of social loss.

The essential trade-off is therefore between licensing markets in protection of profitability, as the condition for an adaptive system (and less certainly as an innovative incentive), and licensing for increased competition as an incentive to cost efficiency and social benefit. The public interest therefore, is divided between the development of air services, and the extensions of greater consumer surplus to the travelling public.

A Hicksian<sup>1</sup> approach to dynamics has further implications.

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<sup>1</sup>See Hicks, J. R., Value and Capital, op. cit.

Hicks sees the firm as a planning agent acting in a dynamic environment, in which present investment decisions are held accountable to the firm as fixed capacity in future markets. At any one point in time, therefore, the firm will have established some sort of 'organic unity' which cannot be re-duplicated instantly (the familiar short-run fixed resources of Marshall) and which is the result of past investment decisions based on past expectations.

Lags in production to meet unexpected increases in demand, and periods of excess capacity from unexpected declines in demand will thus become a feature of any transportation system. Stochastic shocks or random fluctuations in the system of demands composing the transportation network, plus the impossibility<sup>1</sup> of inventorying transport services, create an environment in which a fine sensitivity or instant adaptability to demand oscillations cannot be expected. A certain amount of market disequilibrium will always be encountered. The public interest in tuning the transportation system to meet the demands placed upon it, where fluctuations are significant or market information poor, may thus also entail low

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<sup>1</sup>See Williamson, O. E. "Peak-Load Pricing and Optimal Capacity Under Indivisibility Constraints", American Economic Review, 1966, vol. 56, pp. 810-827.

average load factors, excess capacities, and consequent low utilizations (waste) of those resources employed in the system.

As mentioned, maladjustments in individual markets may derive from past investment undertaken under conditions of uncertainty, and expectations of future markets. Lags in output expansions and inertia in present output levels may therefore be expected in a dynamic situation, presenting instances of economic waste as a corollary. The fact derives, in essence, from the immobility of resources through both economic and institutional factors.

The problem is evident in the production of scheduled air services. A certain short-run capacity for output will be maintained by any carrier for use over its licensed network of markets. The exact division of this capacity over its route network will be determined by those frequencies established in the carrier's service schedule. Lags in output expansions will then be presented by problems in leasing or acquiring new capacity,<sup>1</sup> adding new scheduled frequencies,

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<sup>1</sup>Demand increases which are considered temporary may elicit no response in output capacity or short-term leasing of capacity; permanent demand increases may elicit strip or ground facilities construction, and the acquisition of new fleet equipment and crews.

and re-scheduling factor inputs throughout the firm's system of routes. Inertia in providing capacities after demands have fallen will be provided through expectations that the declines are only temporary, the particular institutional problems<sup>1</sup> of service abandonments, and the immobility of fixed resources.

The lags and inertias in service provisions to changes in demands may lead to periods of extended financial loss which may have serious implications for the economic viability of a scheduled route system.

It will be noted that such problems are obviously less threatening to the non-scheduled operators, who need operate services only in markets where demands are sufficient to cover at least all variable costs of operation. In this respect, excess capacity with demand declines need only result in those losses contingent with fixed resources, incurred only so long as these resources cannot be reallocated out of the industry.

Again, an important trade-off is encountered. For example, the public interest may require reliability of service,

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<sup>1</sup>Applications for termination of scheduled air services will require considerations by the regulatory authority and involve protests by the communities involved.

and such a request will, in turn, require protection from the types of loss noted above. It may be seen that periods of excess profitability during conditions of high demands are to be protected from competition, in order to cover the losses of sinking demands and preserve reliable and economically viable carriers.<sup>1</sup> On the other hand, due to the different nature of his obligations, the non-scheduled carrier is not subject to such extensive losses and, due to the increased variability of his costs, it may be seen that there is less need for protection of the profitability of such services. Indeed, it may be considered in the public interest to maximize competition in the areas of non-scheduled operations.<sup>2</sup> So long as capacities can be kept in some reasonable equilibrium with demand, it should be possible for all such carriers to maintain viable operations, and, at the same time, encounter all the benefits possible from freely competitive markets.

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<sup>1</sup>Such a system of temporal cross-subsidization will involve an income redistribution from the peak-demand travellers to the off-peak travellers.

<sup>2</sup>At the same time, however, the role of the non-scheduled operators may have to be confined in order to avoid diversions of scheduled traffic, and a threat to the viability of such services.

It will be noted that such a non-scheduled system of air transport would be analagous to the 'taxi' system of urban transport. With all markets free to entry, each individual carrier will disperse its fleet as demands arise. The sensitivity of the system to the network of demands would derive from the individual carriers' knowledge of market needs (here, there may be some advantage seen in 'localized' or restricted geographical area carriers), the way in which market information is conveyed to the carriers, and the skill with which fleet are utilized to meet 'ad hoc' demands. In any case, the economic viability of such service would only seem threatened by the development of chronic excess capacity in the industry leading to conditions of cutthroat competition between carriers. In turn, such competitions might evolve into merger and consolidation activities which threaten those social losses alleged to accrue from increased industrial concentrations.

As a final area in dynamics, the nature of investment planning may be observed. In this respect, the firm is seen as a planning agent; conditioned by its information as to present conditions (the data of static systems) and its expectations as to future situations. In this environment, Hicks notes



that four causes<sup>1</sup> of disequilibrium are possible:

1. divergent expectations.
  2. inconsistent plans.
  3. stochastic elements in the system,
- and, 4. risk-avoidance tendencies.

As noted, problems of stochastic change and risk-avoidance are impossible to avoid. However, it should be possible to remove problems of inconsistent plans (i.e. excess investments in capacity) and divergent expectations to some extent through increasing the information available to firms and through an improvement in market-orientations.<sup>2</sup>

As a further development, some system of centralized investment planning by the regulatory authority may be seen as useful in co-ordinating the different transportation investments as undertaken by federal, provincial, and private interests. Chenery notes<sup>3</sup> that there are external economies in such investment

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<sup>1</sup>Hicks, J. R., op. cit., p. 133.

<sup>2</sup>It is to be noted that this change may require increasing present data accumulations and will therefore involve an increase in costs. Furthermore, firms operating under "free-enterprise" philosophies may be reluctant to provide reliable data on their investment plans.

<sup>3</sup>See Chenery, H. B., "The Interdependence of Investment Decisions", The Policy Sciences, (Stanford University Press, Stanford, California, 1951), pp. 83-98.

co-ordinations, i. e. that one investment's profitability may be contingent on another investment. As an example, private investments in aircraft may depend for utilization and profitability on strip developments which are a function of the State. The efficiency gains may be seen in the timing or co-ordinating of industrial and governmental activities. A general equilibrium systems approach (for example, of the Leontief-type) may identify potential bottlenecks in supply while a dynamic consideration of the lead times for investment would co-ordinate the completions of capacity.

In conclusion, therefore, it is to be noted that a system of centralized planning,<sup>1</sup> if efficient, will be able to remove much of the uncertainties present in the market place, thereby facilitating a better co-ordination of activities. While reliance on the structural and behavioural hypotheses of static analysis may be more administratively expedient to the regulators of air transport, in theory, at least, there are distinct benefits to be gained from centralized planning - benefits which a mere strengthening of the market-orientations by firms

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<sup>1</sup>One should realize that this function, in its data accumulating and informational elements, involves certain costs or levels of resource use itself in addition to its possible benefits.

may not be able to provide.

iv) Linear Programming Approach to Efficiency

A static general equilibrium norm for the efficiency of domestic air transport is presented by Miller (1963),

"In particular, it is felt that new light is shed on at least one long-standing objective of governmental regulatory policy in the domestic air transport system: namely, on the concept of the efficiency of that system."<sup>1</sup>

The study attempts to arrive at the efficient (least-cost) scheduling of available types of aircraft (i.e. in the short-run) over the specified route system, given particular levels of demand to be satisfied.

The objective function in Miller's linear program is to minimize total direct operating cost; it is the efficiency of the entire air transport system, and not the ability of individual firms to make the best of their given route networks (i.e. internal firm efficiency), which is to be considered.

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<sup>1</sup>Miller, Ronald E., Domestic Airline Efficiency: An Application of Linear Programming, (the M. I. T. Press, Cambridge, Mass., 1963), p. 2.

It is therefore this norm which is established as a measuring stick for the performance of the system. Given as the parameters of the system are:

1. its total capacity - as indicated by the stock of aircraft in the industry.
  2. levels of demands.
  3. costs (by aircraft types).
- and, 4. route systems (flows between nodes or origin-destination points - irregardless of airline distinctions).<sup>1</sup>

As Miller notes,

"Given the available stock of aircraft owned by the domestic . . . lines serving the nodes selected, given direct costs and other operating characteristics of each aircraft type between each possible pair of nodes, and given passenger demand, it is possible . . . to distribute this demand among available aircraft in such a manner as to minimize total direct operating costs while meeting a series of availability constraints,<sup>2</sup>

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<sup>1</sup> Institutional boundaries created by State licensing, which don't allow carriers access to particular markets.

<sup>2</sup> e. g. Safety requirements, availability of daylight, technological constraints on service availability.

balance equations,<sup>1</sup> and demand requirements."<sup>2</sup>

The model, therefore, presents a static and short-run picture of cost efficiency, a goal which admittedly only represents one objective of regulatory policy.

In essence, the model views the air transport network as if it were operated by a monopolist, faced with linear cost functions, whose objective is to meet the series of fixed demands in the transportation system at least cost.<sup>3</sup> The efficiency gains in the solution of the program are seen to derive from the flexibility of equipment assignments in an optimal pattern of use. Without the restrictions of limited markets through licensing, and the inability of firms to cooperate in equipment exchanges and interline services, it may be observed that there are significant cost savings. The model

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<sup>1</sup> e.g. The total hours of use must equal or be less than the total hours availability; at each node, departures of certain plane types cannot exceed arrivals; the total numbers of passengers accommodated will equal total scheduled capacities/route.

<sup>2</sup> Miller, Ronald E., Domestic Airline Efficiency: An Application of Linear Programming, (The M. I. T. Press, Cambridge, Massachusetts, 1963), p. 57.

<sup>3</sup> Obviously, this abstracts from the position of a profit-maximizing firm facing costs variable with distance and density of operations, and downward sloping demand functions.

attempts to make clear that the loss in the system is possible cost efficiency, through institutional restraints which restrict entry to markets. From this viewpoint, it might be considered that the public interest in a lowest cost transportation system might be best served by free entry to all markets.

In any case, the public interest in maintaining " . . . the best use of all available modes of transportation at the lowest total cost . . . "<sup>1</sup> may be seen to require an interpretation of economic efficiency as presented in the model. In this respect, institutional inflexibilities in utilizing fleet capacity may be seen as a source of inefficiency to the system.

#### v) Industrial Organization Aspects

The central theorem of industrial organization is that market structure<sup>2</sup> will functionally determine the conduct<sup>3</sup>

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<sup>1</sup>Section (3), The National Transportation Act, 1967, Statutes of Canada, 1967, Chapter 69.

<sup>2</sup>In the following dimensions:

1. seller concentration.
2. buyer concentration.
3. the degree of product differentiation.
4. condition of entry to the market.

<sup>3</sup>" . . . the patterns of behaviour that enterprises follow in adapting or adjusting to the markets in which they sell (or buy)." Bain, J. S. , Industrial Organization, (John Wiley & Sons, Inc., New York, N.Y., 1968), p. 8.

and performance<sup>1</sup> of firms within the designated industry. The basis for such predictions rests primarily on the partial equilibrium analysis of price theory.

Given such a cause-and-effect relationship, it is felt that regulatory controls would be better confined into solely conditioning market structure, ". . . we find that direct regulation of performance (such as direct determination of price and output by a government commission) is not a generally workable means of regulating a free-enterprise economy. On the other hand, regulation of market structure and conduct is much more feasible and, in general, a workable mode of regulation. Then the feasible regulatory procedure aimed at securing satisfactory performance is to devise regulation which will secure market structures and patterns of market conduct which will lead to satisfactory performance."<sup>2</sup> Such an approach is obviously dependent on the determinant features of partial

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<sup>1</sup>The end results in price-output configurations, production and selling costs, and product qualities. It will be seen that these results correspond to the social objectives of technical efficiency, technologically advanced systems, and attainment of technological adaptability.

<sup>2</sup>Bain, J. S., Ibid., pp. 12-13.

analysis, "A determinate solution is achieved by making the impersonal market forces the very powerful factor, and restricting the independent action of the firm to an adjustment to these forces . . .",<sup>1</sup> and on the ability of analysis to recognize those market structures which will determine ideal dimensions in performance. A particular problem, however, is encountered in oligopolistic market situations, " . . . writers, once they have shown the inadequacy of the determinate solutions . . . may deny the possibility of a general theory covering industry under oligopolistic conditions and substitute for it voluminous case studies . . . or oligopolistic industry is just viewed as a chaotic mess where practically anything may happen, and about which economic analysis has very little to say."<sup>2</sup> Indeterminateness of solution is recognized in oligopolistic markets. The regulators of oligopolistic air transport markets are in a difficult position, therefore, in regulating market structure towards the achievement of desired objectives.

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<sup>1</sup>Rothschild, K. W., "Price Theory and Oligopoly", (as reprinted from The Economic Journal, Vol. LVII, 1947), pp. 299-320, in Readings in Price Theory, (Richard D. Irwin, Inc., Chicago, Illinois, 1952), p. 443.

<sup>2</sup>Rothschild, K. W., Ibid., p. 446.



Discussions of competition in the market place follow. It may be felt that regulation of market structure in order to achieve a better 'operating' competition will secure the desired performance; in particular, regulation of conditions of entry may be stressed, "It thus determines the relative force or potential of competition as an influence or regulator on the conduct and performance of sellers already established in a market."<sup>1</sup> With 'effective' competition, there will be no need for government to regulate performance directly, or 'plan' industrial activities. Such a competitive presumption is found both administratively expedient and philosophically acceptable in North America, ". . . it is the sound instinct of conservatives that planning involves, inevitably, the control of individual behaviour."<sup>2</sup>

In Canadian air transport regulation, this competitive presumption is seen in the emphasis placed on intermodal competition, ". . . regulation of all modes of transport will not be of such a nature as to restrict the ability of any mode

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<sup>1</sup>Bain, J. S., Ibid., p. 8.

<sup>2</sup>Galbraith, J. K., The New Industrial State, (Signet Books, Boston, Mass., 1967), p. 34.

of transport to compete freely with other modes of transport."<sup>1</sup>  
In other words, no transportation mode is to be weighed with obligations to serve particular markets or secure objectives of national policy, if such obligations create distortions in the competitive relations among carriers.

Competition, therefore, is to be relied upon as a major means of ensuring the desired performance in cost efficiency and high standards of service. At the same time, however, the need for density in route operations to ensure the efficient utilization of capacity, and to maintain self-sufficient operators, will constrain the levels of competition admissible in air transport markets. The trade-off is clear. Concentration of markets will allow higher (i. e. more efficient) utilizations of existing capacities, the employment of larger, more efficient aircraft, and should assure the financial self-sufficiency (i. e. stability) of the carriers involved. On the other hand, de-concentration of markets will increase their competitiveness, and hence induce greater cost control and the transmitting of

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<sup>1</sup>Section (3), The National Transportation Act, 1967, Statutes of Canada 1967, Chapter 69.

the benefits of efficiency to the public. Concentrations of markets will always involve the potential threat of market abuse.

The rationale of structure, especially with respect to concentration, forms the cornerstone of industrial organization. Its central concern is with the technical efficiency of the organization of firms within the industry. The degree of technical efficiency is measured by the relationship of attained unit costs to the minimum attainable. Fulfillment of the objective of technical efficiency in production, given the size of the relevant market and the extent of the economics of scale present, will imply a certain level of industrial concentration as a result of these two interacting determinants. 'Rationalization' of industrial output into firms of optimal scale and optimum levels of efficiency may therefore be required in the public interest.

The nature of cost efficiency in commercial aviation deserves some attention at this point. Early articles by Crane<sup>1</sup>

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<sup>1</sup>Crane, J. B., "The Economics of Air Transportation", (Harvard Business Review, vol. XXII, Summer 1944).

and Koontz<sup>1</sup> revealed that the economies encountered by the airlines are not distinctly related to the size of operation of specific air carriers, whatever index of size is taken (assets, gross revenue, available ton-miles). It may be summarized that economies are found in:

1. aircraft type.
2. stage lengths (by average, variance, and connectivity of flight patterns).
3. traffic flows (in total, temporal and directional patterns) - i. e. density of routes.
4. utilization rates of equipment.
5. economies of firm scale.

In four of the factors above, it is not firm scale but the nature of the route system facing the carrier which produces cost savings. The carrier's route system comprises all the individual city-pairs in which the firm is legally licensed to operate.<sup>2</sup> This vital cost determinant is presented to the firm through regulatory policy and institutional methods rather than

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<sup>1</sup>Koontz, H. D., "Economic and Managerial Factors Underlying Subsidy Needs of Domestic Trunk Line Air Carriers", (Journal of Air Law and Commerce, vol. XVII, Spring 1951).

<sup>2</sup>As well as the types of service which may be operated.

through the natural evolution of the free entry patterns of the individual carriers. As a result, cost performance has arisen as much out of the evolutions of licensing as the efficiencies with which various firms produce output.

Route decisions, in turn, may tend to be haphazard. For example, in the U. S., Caves notes, ". . . it (the C. A. B.) has not taken the initiative in planning the airline route pattern. Rather it has simply decided cases as they have been presented as a result of the initiative of some carriers who file applications for new routes or extensions."<sup>1</sup> Decisions in favor of licensing have derived from the carriers persuading the Canadian Transport Commission of the need for additional service, while denials have been based on the insufficiency of traffic or excessive diversions from existing operators. It does not seem that the Commission has developed the carriers' route systems with the goal of economic efficiency specifically in mind. The inflexibility in the evolution of specific firm route systems (due to the problems of transferring carrier property, business, or licences to other carriers) has perhaps

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<sup>1</sup>Frederick, John H., Commercial Air Transportation, (Richard D. Irwin, Inc., Homewood, Illinois, 1955), p. 198.

encouraged more merger activity, as a means to 'rationalize' the industry, than is specifically warranted by considerations of efficiency.

The prime concern of the regulatory authority may be in maintaining the density of route operations. Indeed, bad cost performance due to excess entry is a valid concern, ". . . the decrease in unit costs as a carrier's passenger volume in any city-pair increases is such that service by more carriers rather than fewer is likely to raise operating costs."<sup>1</sup> As a result,<sup>2</sup> commercial aviation markets evolve necessarily high seller concentrations; and the problem for the regulatory authorities is clear, ". . . static theoretical analysis is almost entirely irrelevant . . . because the analysis itself recognizes that where there are conditions of duopoly and oligopoly . . . the equilibrium position is largely indeterminate."<sup>3</sup>

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<sup>1</sup>Straszheim, Mahlon, The International Airline Industry, (The Brookings Institution, Washington, D. C., 1969), p. 186.

<sup>2</sup>It is also felt that the main benefits of competition are derived when only two carriers exist.

<sup>3</sup>Wheatcroft, Stephen, The Economics of European Air Transport, (Manchester University Press, Manchester, England, 1956), p. 210.

The most thorough study of this industrial organization of the air transport industry is that undertaken by Caves.<sup>1</sup>

In relation to the different levels of air carriers, Caves notes they are ". . . unquestionably different types of firms."<sup>2</sup> The existence of a 'third level' group of airlines, functioning mainly in charter and irregular or nonscheduled service is recognized only in brief and acknowledged a continuing policy problem for the regulatory authority. Yet, several general qualities of the market structure of commercial services are noted and may be repeated as of relevance to the 'third level' type of operation.

In relation to the demand for air services, Caves notes that the availability of alternative transport and the distances to be covered<sup>3</sup> are the prime determinants of demand elasticity. Hence, it is in markets where air transport has a monopoly, and over long-hauls that inelastic demands for air transport services (and, concurrently, the ability to charge higher relative prices)

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<sup>1</sup>Caves, R. E., Air Transport and Its Regulators An Industry Study, (Harvard University Press, Cambridge, Mass., 1962).

<sup>2</sup>Caves, R. E., Ibid., p. 87.

<sup>3</sup>Air service, given alternative transport, will be seen to be less competitive over short-hauls.

may be expected.<sup>1</sup> Caves also notes a higher consumer preference for newer technologies and for the airline with the most service frequencies. Hence, firms with the ability to re-equip will maintain a distinct marketing advantage over less advantaged carriers who will likely have to charge lower prices to remain competitive. Furthermore, rivalries for markets will likely go to the carrier maintaining the most frequencies, and "active" competitions may be seen to erupt into "excessive" scheduling if price and quality remain invariable. The stability of such a situation cannot be reassured through successful product differentiation, since carriers operate with standardized equipment types. Only safety appears to remain an important factor, ". . . if it seeks business on the basis of low price and relatively spartan service, it might well face a disadvantage due to consumer suspicion of its safety . . ." <sup>2</sup>

The degree of seller concentration, as mentioned, is strictly at the discretion of the regulatory authority. However, it should be noted that, without such controls on entry, the mobility of aircraft transfers between markets makes entry

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<sup>1</sup> Ultimately, such areas of service command the greatest concern for consumer interests by the regulatory authority.

<sup>2</sup> Caves, R. E., Ibid., p. 88.



exceedingly easy. Furthermore, with smaller aircraft or low-cost obsolete aircraft, initial capital investments are relatively small and absolute cost barriers may therefore be considered low. In effect, without the condition of licensed entry to the markets served, the barriers to entry by low-cost used aircraft or by small aircraft must be considered low.

As regards cost levels, Staszheim sums up the cost disadvantage of smaller firms as not particularly attributable to scale economies, ". . . the nature of small firms' operations - short stage lengths, small aircraft, poor station and labor utilization - are the important explanations of their higher costs rather than firm scale per se."<sup>1</sup> Caves concurs with such an analysis and notes that, by operating over only a small network, using homogeneous types of aircraft, and contracting out operations that involve scale economies (e. g. overhauls), the small operator<sup>2</sup> may be able to substantially reduce his cost disadvantages. By serving a limited number of points, a local carrier may lower administrative and indirect costs while maintaining an easier knowledge of the markets he serves. Hence,

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<sup>1</sup>Staszheim, Mahlon, The International Airline Industry, (The Brookings Institution, Washington, D. C., 1969), p. 87.

<sup>2</sup>Such an argument may be termed the "specialist doctrine".

it may be suggested that the scope of operations of the smaller carriers be limited both in types of markets served (i. e. preserving homogenous fleets) and in the geographical extent of networks served.

Caves makes a special reference to the importance of investment planning to firms in commercial aviation, "By far the most important aspects of market conduct in the airlines are those surrounding the carriers' decisions on investment in aircraft and on the use of these aircraft in product competition. These decisions set the quality of the industry's market performance . . ."<sup>1</sup> Investment planning and aircraft purchase become part of the long-term strategy to compete in markets.

Expectations of consumer preference and future markets determine decisions ". . . heavily keyed to considerations of market rivalry",<sup>2</sup> and are made under conditions of uncertainty. The ideal is to select that aircraft which best suits the requirements of markets while ensuring minimum cost performance. However, it appears that opportunistic and over-enthusiastic behaviour by owner-managers, absence of well-developed plans

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<sup>1</sup>Caves, R. E., Ibid., p. 303.

<sup>2</sup>Caves, R. E., Ibid., p. 312.

for market developments, problems in forecasting future demands, and equipment orders placed on the basis of hoped-for route awards, have often led to severe misjudgments of capital requirements. Capital (loanable funds) availability, furthermore, tends to create a growing advantage for the profitable carrier and possibly leads to long-run increased industrial concentrations. In any event, control of this aspect of firm conduct will likely be strongly defended from regulatory control as it represents a major competitive variable in the firm's arsenal, "Market share aspirations are highly rivalrous, and this would be even more apparent if the availability of finance did not restrain the smaller carriers so significantly."<sup>1</sup>

In conclusion, industrial organization analysis emphasizes the effects of structure on performance. In examination of air transport regulation, the indeterminacy of oligopoly situations, the trade-offs between higher seller concentrations and increased competitiveness, and the effects of regulation on the achievement of objectives arise as problems which warrant consideration.

Questions regarding the necessity of regulatory intervention

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<sup>1</sup>Caves, R. E., Ibid., p. 323.

in the operations of firms within the air transport industry follow. Whether or not regulators influence market structure sufficiently to produce a better industrial performance in line with social objectives remains the principal issue.

Economic performance, as suggested in the theory of industrial organization, may derive, on the basis of certain stated relationships, from industry structure, defined to include both technology and the regulatory environment. The essential trade-off, therefore, surrounds placing more reliance on regulation to achieve the desired ends of society or, conversely, placing most emphasis on competition and the market place to achieve the desired goals.

Wheatcroft notes, ". . . a comprehensive definition of competition must take into account the ability of new firms to enter the field, the absence of restrictions on the introduction and development of innovations, the freedom of operators to determine their own output, quantitatively and qualitatively, as well as their freedom to alter their price."<sup>1</sup> Free competition, therefore, implies complete freedom of entry, outputs,

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<sup>1</sup>Wheatcroft, Stephen, The Economics of European Air Transport, op. cit., p. 211.

pricing, quality, and investment, as decisions solely the responsibility of firms in the industry. At present, however, only investment decisions (although influenced by the expected reactions and incentives created by the regulatory authority) remain the sole directly undisturbed decision of the private firm in the commercial air industry.

In general, rationales for the public regulation of commercial air transport may be placed into three categories:

1. that unregulated competitive practices will lead to "excessive" or destructive competitive practices.
2. that control of entry by the regulatory authority inevitably involves, as a corollary, the regulation of fares, qualities, and quantities of service to ensure public protection against the potential abuses of State-created monopolies.
3. that scheduled air services are public utilities, part of the necessary infrastructure for economic development,<sup>1</sup> or simply, services vested with

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<sup>1</sup>The National Transportation Act, Section (3), refers to ". . . an economic system making the best use of all available modes of transportation . . . is essential . . . to maintain the economic well-being and growth of Canada."

the public interest: and that, therefore commercial operators must be regulated to ensure performances required by the public, and protected to ensure that they are able to meet their public obligations.<sup>1</sup>

The starting point is obviously that contention that the market structure of commercial air transport will determine "excessive" entry and competition. Without such a condition, the regulation of state-created protected positions would seem unnecessary. The final category above appears less open to economic interpretation. The central issue centers on political and philosophical discussions regarding whether transport services should be operated by private enterprise under strict business principles, or whether such services should perform also as instruments in securing particular social objectives. As Currie notes, the problem is ". . . whether, because of the general and widespread benefits which transportation confers on the community and the nation, it is desirable to include transportation services in the general

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<sup>1</sup>". . . carriers who are required. . . to maintain service at regular intervals according to a published schedule regardless of whether or not the traffic offered is sufficient to provide a profitable flight, ought, in order to achieve maximum loads, to receive protection from undue competition by carriers who are not so required." (i. e. non-scheduled carriers) from, Air Transport Board, General Order No. 5/51.

category of government services . . . or whether it would be more desirable for transportation to be financed by the user, as is the case of other goods and services . . ." <sup>1</sup> While economic analysis may be useful in indicating public interest aspects and trade-offs, problems in defining the public interest and establishing ordered social preferences, and in designating externalities and public good reasons for intervention, the question undoubtedly remains policital. <sup>2</sup>

The central economic concern in the regulation of commercial air services is that free competition would result in deficient market performance, that, given its structure, the free market misallocates resources, and that competition is an unsatisfactory regulator of market conduct. Given the physical ease with which factors (aircraft) can enter markets, the low absolute barriers to entry in relatively low capital requirements,

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<sup>1</sup>Currie, A. W., Canadian Transportation Economics, (University of Toronto Press, Toronto, 1967), p. 27.

<sup>2</sup>For example, Oliver Wendell Holmes notes, "The notion that a business is clothed with the public interest and has been devoted to the public use is little more than a fiction . . . the legislature may forbid or restrict any business when it has a sufficient force of public opinion behind it," as quoted in Kahn, A. E., The Economics of Regulation, (John Wiley and Sons, Inc., New York, N. Y., 1970), p. 7.

the consumer preference for firms with most frequencies of service and newest technologies, the lack of significant economies of scale, and the inability to successfully product differentiate with standardized equipment types, competitive market struggles will ostensibly lead to cutthroat price and quality competitions, excessive scheduling in lucrative markets, and too rapid re-equipping in investment programs. In the short-run, concessions to safety to maintain financial viability may occur. In the long-run, increasing market concentration may result from the successful price-cutting and equipping policies of the larger firms, followed by necessary merger and consolidation activity. As general features, the unregulated industry allegedly may display chronically subnormal earnings, chronic excess capacity relative to demand,<sup>1</sup> and high rates of small business mortality. Industrial stability would only seem to derive after the industry had dynamically evolved into one of high seller concentration. In referring to such market situations, Bain notes, ". . . the excesses of competition have had a sufficiently unfavourable impact . . . that the interested parties have usually . . . and frequently obtained special governmental regulations of their industries to lessen or limit

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<sup>1</sup>The term may appear ambiguous. In the short run, existing plant capacity is underutilized. In the long-run, the term applies to the tendency for excess entry to occur creating excess capacity in light of the economic opportunities involved.



free competition."<sup>1</sup>

At stake in the regulation of commercial air services, are those service variables - reliability, continuity, safety and availability,<sup>2</sup> which consumers may stress over those benefits alleged to accrue from competitive markets, lower fares, wider choice, higher service standards, and greater managerial control of costs. Indeed in regulating competition to lower levels, and thus maintaining denser markets, the regulatory authority may allow the operators to achieve lower unit costs and hence gain efficiency with existing capacity.

This need for regulation to limit competition, however,

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<sup>1</sup>Bain, J. S., Industrial Organization, op. cit. pp. 470-71.

<sup>2</sup>The use of a system of internal cross-subsidization as a method to extend route networks is suggested. The practice may be imposed on a transportation system by the regulatory authority to satisfy both social and political objectives. By using the profits from protected lucrative markets, a carrier may be able to meet regulated obligations in unprofitable markets while still maintaining a viable total operation. The practice is thus politically expedient as it makes air services more widely available without loss in Treasury funds and without explicitly increasing the tax burden. There is, however, income transfers from users in the viable markets to users in the marginal markets. Cross-subsidy can therefore only be justified where such transfers are socially acceptable. Further, temporal cross-subsidization of services may be considered a necessity in order to maintain price stability where conditions of fluctuating demand are prevalent.

is far from being a clear necessity. Wheatcroft<sup>1</sup> presents the most conclusive case for regulation; ". . . it is unlikely that an unregulated air transport industry would achieve the stable equilibrium that has been obtained in other oligopolistic industries . . . there will always be newcomers who, in order to establish themselves in a new market, will offer lower rates than those of the existing operations. This action is almost certain to precipitate a rate war because, without the protection of a clearly differentiated product, the established operators are certain to retaliate. Such price wars can be ruinous to all competitors."<sup>2</sup> On the other hand, Caves opts for de-regulation, "Apart from the fact that some aircraft are more efficient for any given market than others, they are freely transferable from one market to another. In the short-run, this stock of aircraft will produce only so many seat-miles of service, and there is no just reason to suspect that market forces would allocate them in such a way as to produce a great volume of unprofitable service in a few large markets and a small volume of very profitable services in others. In the long-run, it is impossible to see

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<sup>1</sup> See Wheatcroft, Stephen, Air Transport Policy, (Michael Joseph, Ltd., London, 1964), pp. 46-65.

<sup>2</sup> Wheatcroft, Stephen, Ibid., p. 56-7.

why funds would be used to buy new aircraft that would raise the output of the industry to a level that could not earn . . . a normal rate of return."<sup>1</sup> Straszheim concurs, ". . . it does not follow that easy entry necessarily leads to excessive entry since there are no economic grounds for firms to enter if profits are below normal."<sup>2</sup> The question is, therefore, whether unregulated markets will lead to optimal distributions of available stock capacity as described in the Miller model, and an equilibrium of total capacity to total demand over the long-run, or whether, as Wheatcroft describes, markets will remain as short-run unstable oligopolies, with perhaps increasing concentrations over the long-run. Quite obviously, no definite conclusions can be offered. The choice of regulation or competition will depend particularly on the interpretations of likely firm behaviour in these markets.

In discussing such problems, Wheatcroft<sup>3</sup> claims the following possible benefits attributable to increased competition:

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<sup>1</sup>Caves, R. E., op. cit., p. 383.

<sup>2</sup>Straszheim, M., The International Airline Industry, op. cit., p. 186.

<sup>3</sup>Wheatcroft, S. F., Airline Competition in Canada, (Department of Transport, Ottawa, 1958).

1. more adequate and efficient services
  2. more rapid technological progress
  3. more rapid traffic development
  4. the satisfaction of choice
- and, 5. the provision of a yardstick of efficiency

Against such benefits it was noted that paralellisms in service may be developed, that there may be overall increases in costs with decreased route densities, and that possible diversions of traffic and revenues could well retard or even reverse the carriers' progress toward self-sufficiency. The policy choice was ". . . to weigh the possible advantages of having a competitive service against the risks of increasing the cost level."<sup>1</sup> As a guide to devising the best levels of intra-modal competition<sup>2</sup> in the provision of commercial air services, however, such a standard is far from definitive.<sup>3</sup>

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<sup>1</sup>Wheatcroft, S. F., Ibid., p. 3.

<sup>2</sup>It should be noted that the guiding statute to the public regulation of commercial air transport in Canada, the National Transportation Act, makes specific reference only to the desired nature of inter-modal competition.

<sup>3</sup>The possible trade-offs are immense. Use of larger, more efficient aircraft will require lower frequency operations to maintain break-even load factor requirements. Thus, for example, increased efficiencies and technological progress may require fewer frequencies, greater market concentrations, and subsequent loss of competition. Judgment will be required as to which alternative better suits the "public interest."

Hence, the role of regulatory policy can be seen in its proper perspective. A careful balance must be struck. Restrict entry enough to realize the economies of scale and savings from higher route densities, yet allow enough competition to ensure that such efficiencies are not lost through monopoly profits. The quandary for policy makers evolves from the indeterminacy of the oligopolistic situations.

#### B) General Implications

Identification of relevant theoretical approaches in devising public policy for the regulation of 'third level' air carriers has focused on concepts of:

1. general equilibrium
2. Paretian welfare
3. dynamic adaptation to change
4. static efficiency (in linear programming)
5. 'structural' behaviour and performance

and, 6. the proper role of competition.

While regulatory policy cannot hope to cope successfully with each aspect suggested in the various theoretical discussions, certain general implications may be drawn from the preceding analysis.

Discussions in general equilibrium aspects of theory suggest the public interest in recognizing:

1. interdependencies between sectors or industrial activities,
  2. interrelationships between markets,
- and, 3. the proper role of individual transport modes or 'levels' in a fully integrated transportation system.

The examination of Paretian welfare aspects in theory implies the need for:

1. normative judgment in establishing industrial objectives,
  2. recognition of extra-market influences in the provision of air services,
- and, 3. recognition of the income distribution consequences of extending 'socially obligated' services.

Meeting the 'public interest' in a social welfare sense, as defined in Paretian theory, will require consideration of all the above implications.

The dynamic aspects in theory recognize the public interest in:

1. the ability of a transportation system to adapt to exogenous change over time,

2. assuring the individual firm's ability to adapt to such change, (in particular, the role of profits is noted),

and, 3. avoiding those economic wastes brought about through market disequilibriums or unco-ordinated investment activities.

The dynamic approach sees the transport system in a time dimension subject to stochastic change and divergent or inconsistent expectations of individual investors.

A static approach to efficiency, such as Miller's linear programming model, may recognize efficiency gains in the flexibility of equipment assignments. Without the restrictions of limited markets (i. e. the institutional constraints of licences which restrict entry to individual markets), individual firms may be able to develop more 'rational' route systems and greater co-operations through equipment exchanges and interline services. Significant cost savings may accrue.

In a dynamic context, where demands are seen to change frequently and licence authorities remain relatively inflexible to such change, there is an even greater likelihood that such cost savings, as above, may be incurred.

Finally, the industrial organization aspects of commercial air transport are examined. The basic theorem of industrial organization theory is that market structure will condition industrial performance. This 'structuralist' approach, which implies an emphasis on individual market regulation, is found less operable in markets which require oligopolistic seller concentration on grounds of efficiency. Recognition of optimum firm scales in deriving maximum productive efficiency is important. Yet, in commercial air transport, it is the rationalization of individual firm route systems which appear to warrant the greatest consideration. The influence of regulatory licensing in producing available route systems may therefore be of major importance in establishing the cost performance of air carriers in the industry. Regulatory policy in licensing which induces the development of 'irrational' route systems will therefore have to be re-examined.

An important trade-off is recognized. The need for regulation of individual market entry through licensing may be considered necessary to avoid excess capacity, cutthroat competition, and instability in air services. At the same time, protection of individual markets by the licensing authority may be seen to lose those benefits alleged to accrue from competition.



In the final analysis, any regulatory policy will have to allow the striking of a careful balance in such trade-offs. Each implication in theory should, however, exert its influence in the final evolution of policy.

Chapter II

EXISTING REGULATION

In almost direct contrast to the preceding theoretical approaches, an examination of existing regulation of Canadian commercial aviation is undertaken. A sounding of what may be considered regulatory norms, in a Canadian context, is implicit in the analysis. Close attention is paid to the evolution of regional carrier policy as the activities of these carriers most closely resemble any distinguishable third level system and hence offer a frame of reference. In the latter parts of the discussion, a more particular description of actual regulatory positions and institutional obligations is made. In conclusion, distinctions as to the types of obligations imposed on the carriers by the regulatory authority are drawn.

#### A) Present Regional Policy

Present regional air carrier policy<sup>1</sup> provides a useful frame of reference against which to examine proposals for a distinctive 'third level' public policy. A consideration of those features most relevant to later proposals for 'third level' regulation is therefore undertaken.

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<sup>1</sup>See, the Hon. J. W. Pickersgill, "Statement of Principles for Regional Air Carriers", Tabled in the House of Commons, October 20, 1966.

A common problem is the extent to which public policy will seek to impose social obligations on the carriers, regulating them as 'chosen instruments' and extending both the obligations and protection afforded by the regulatory authority.

The issue of internally cross-subsidized services is immediately recognized. In considering the problem, Kahn notes, ". . . social or political objectives are especially obvious . . . where some services or markets pay less than their marginal costs, thus clearly imposing a burden on other users. The practice is often rationalized on distributional grounds, the desire being to make the service more widely available . . ." <sup>1</sup>

The following factors should be evident:

1. there is a definite income redistribution; the income transfers must be judged on the basis on interpersonal comparisons which are purely objective.
2. the means of income redistribution, if considered socially acceptable, is inefficient. <sup>2</sup>

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<sup>1</sup>Kahn, Alfred E., The Economics of Regulation: Principles and Institutions Vol. 1, (John Wiley & Sons, Inc., New York, New York, 1970) p. 190.

<sup>2</sup>Kahn cites Turvey, Ralph, Optimal Pricing in Electrical Supply, An Essay in Applied Welfare Economics, (George Allen and Unwin, Ltd., London 1968), p. 97-8.

3. without designated social priorities, it is difficult to determine whether the subsidization decreases or increases total welfare.<sup>1</sup>

and, 4. unprofitable services are expanded beyond what the private market would produce, while viable markets remain underdeveloped; a 'misallocation' of resources may be alleged.

Society, however, may be willing to accept such a means of developing the desired expansion in a 'regional' network of air services. Indeed, for the regulatory authority, the administrative convenience of the system over a system of direct subsidy, with its problems in cost accounting, negotiating with carriers, and facing the taxpayers, is obvious.

In developing a 'regional' network of scheduled air services, however, certain deficiencies are noted, ". . . should the estimated profits fail to materialize, or should they decline due to an unexpected external factor, then the ability of the organization to cross-subsidize would be seriously affected . . . where the fluctuations of operating income are

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<sup>1</sup> Obviously, however, a first step would be to examine the exact extent of the income transfers, determining loss and benefit distributions under the system, and without it.

considerable and the scale of operations . . . small, an external disturbance temporarily decreasing their revenues, on any one service, can rarely be overbalanced by opposite tendencies in other parts of the system".<sup>1</sup> Hence, as firms grow progressively smaller and operate over smaller numbers of city-pair markets, their abilities to dynamically withstand demand fluctuations decline. This feature is a combination of their inability to spread their risks in concentrated markets, and the weak economic base of their services.<sup>2</sup>

The situation was evident, as TransAir stated in 1965, "TransAir has been able to continue to develop its existing regional network by cross-subsidizing regional routes operated at a loss with profits earned on its long distance charter operations . . . the continued operation and further development of an economically and socially necessary local air service in the entire mid-continental portion of Canada is dependent for its very existence on the ability of the company to continue

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<sup>1</sup> Studnicki-Gizbert, K. W., The Regional Air Carriers' Problem, (The Queen's Printer, Ottawa, 1966), p. 66.

<sup>2</sup> i. e. Short stage lengths, low traffic densities, severe fluctuations in demand, cyclical fluctuations in resource development.

long distance charter contracts."<sup>1</sup> As predicted, with the Dew Line completion in 1966, charter contracts became scarce. Subsequent company losses<sup>2</sup> were recorded<sup>3</sup>:

1966	(\$256,000)
1967	(\$184,000)
1968	(\$762,000)

With smaller operations, therefore, imposed social obligations and institutional inflexibilities requiring the servicing of particular marginal markets becomes a less operable format. Some better means of regulating competition to achieve the desired performance of regular scheduled regional services is required.

The regional carrier's problem derived from its economic environment which produced higher unit costs relative to mainline operations, necessitated operating smaller, less efficient aircraft because of thin markets, and created severe marketing problems in markets where highly developed short-haul surface

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<sup>1</sup>TransAir Ltd., "Regional Air Transport in Canada", presented to the Hon. J. W. Pickersgill, Minister of Transport, 1965, p. 2.

<sup>2</sup>It should be noted, however, that loss of Dew Line contracts was not the sole aggravation. Management inexperience with competitive scheduled service, an obsolete and uneconomically large fleet, plus high operating costs all contributed.

<sup>3</sup>Ibid., p. 27.

transport existed.

The answer to these kinds of economic problems lay in the re-equipping or modernizing of fleets, with aircraft of higher productivity and marketability in the specific types of markets which these carriers were to be allowed to operate.

Two final problems were to be answered. Shouldering the financial burdens of re-equipment required that sufficient opportunities would be presented to the firms to achieve the utilizations and adequate load factors necessary to profitable operation, and necessary to meet the obligations of financing such acquisitions. In effect, this need implied access to the traffic of larger markets plus the protection of their route systems from the competition of both mainline and lower level carriers. To ensure the proper decisions in fleet investment, clear definition of the types of markets in which the carriers would be allowed or licensed to operate had to be made. Equipment had to be selected to properly fit the network of services over which it was to be employed. Finally, the areas of operations required designation; to ensure the viability of each operator (mainline, regional, or other), services were not to be allowed access to traffic sufficiently to weaken the viability of another level of operation.



In short, viability of the regional network of scheduled services required increased traffic, implying both access to larger markets and protection from competition. The areas of operation of the different levels of carrier, in turn, required definition to guide proper investments and to ensure that no level encroached on the economic stability of a neighbouring level.

Another important factor to note is the recognition of the regional carrier in its function as a 'feeder service' in transporting consumers to centres served by mainline carriers. Regional traffic development may be seen to impose benefits on the operations of the mainline carriers, as the traffic generated serves to strengthen those operations. Conversely, mainline carriers bring consumers to mainline points where travel to the more remote regional points is required. It is in this reciprocal arrangement that various levels of carriers can be seen as complementary and supplemental.

Interline travel arrangements, joint fare schemes, agreements on revenue sharing, co-operations in the joint use of facilities,<sup>1</sup> and a better co-ordinating of services are therefore

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<sup>1</sup>Where higher utilization of fixed capital or indivisible factors resulting in lower unit costs occur, efficiency gains may also be served.

justly recognized as useful in developing efficiency and a better integration of the entire air service system, "A substantially greater degree of co-operation can be developed . . . in a variety of fields relating to technical and servicing arrangements, inter-connections, joint use of reservations, advertising, sales activities, etc. Benefits to regional carriers will result from their ability to make use of mainline carrier experience and facilities. A continuing committee will be established . . . to develop areas of co-operation in these fields."<sup>1</sup> Both economies and higher service standards can hopefully be derived from co-operations. Fears that such arrangements will provide an incentive or avenue for collusive efforts aimed at monopoly exploitations are believed unnecessary.<sup>2</sup> The policy defines roles to be complimentary, both by function and geography. Co-operation, rather than a competitive atmosphere, would seem the better way of achieving a co-ordinated or integrated system, and maximum gains in efficiency.

In conclusion, therefore, the role of the regionals is established mostly in respect of its position vis-a-vis the

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<sup>1</sup>The Hon. J. W. Pickersgill, 'Statement of . . . .' op. cit.

<sup>2</sup>In allowing for such a case, a government observer is required at all committee meetings.

mainline carriers. In policy, the emphasis is placed upon developing a viable system of regional scheduled services at standards compatible with consumer preferences for modern equipment. Such a requirement called for the expansion of the revenue base through access to denser markets, public subsidy on social obligation services, and development of charter markets. The need for co-operation to achieve a mutually beneficial integration of the different 'levels' of carrier services is also recognized. To take over previously mainline routes and operate these more efficiently than the mainline operators required the 'specialist doctrine' to be imposed, with a carrier operating a more rationalized fleet in a designated 'regional' market.<sup>1</sup> It further resulted in carriers emerging with a certain standardization of fleets<sup>2</sup> operating in markets which could support such aircraft both economically and functionally.<sup>3</sup>

#### B) The Nature of Existing Regulation

Two main pieces of legislation provide the regulatory authority for the Canadian Transport Commission in the economic regulation of commercial air transport in Canada. Part II of

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<sup>1</sup>This standard applies, as admitted, only loosely.

<sup>2</sup>i. e. Within a certain range of capacities.

<sup>3</sup>i. e. With those support facilities existing.

the Aeronautics Act (1938) gives the legislative authority considered necessary effectively to regulate the economic operations of the carriers; the National Transportation Act gives these powers to the Commission, which it establishes, and outlines, in brief, the broad public interest in which transportation is to be regulated.

It would be cumbersome to list all the separate powers of control presented by the Aeronautics Act.<sup>1</sup> What is important to note is that the economic regulation revolves around the Commission's powers to regulate entry through licensing, to regulate fares, to prescribe routes and areas to be served, to impose conditions of service in scheduling, types of carriage, and points to be served, and, very importantly, to establish classifications of licences and groupings of service as the terms of licences. The Commission must function both in the legislation of the exact terms of each regulation developed, and, in the judicial function of designating which of many interests is to be emphasized in such regulations.

The major problems in regulation are immediately apparent. Proper fulfillment of its advisory, legislative, and regulatory

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<sup>1</sup>See Appendix B.

tasks requires that the Commission be supplied with adequate informational flows. While the legislation provides the powers to accumulate all imaginable information necessary, the cumulations and processing of the relevant data involve costs both for the carrier and the Commission.<sup>1</sup> While such requirements<sup>1</sup> may be readily fulfilled by the accounting staffs of the larger firms, the task may become an objectionable burden and impossibility to the smaller owner-operator establishments. Secondly, regulatory procedure in decisions pending the interpretation of material may involve costly delays and loss of business to the carriers. Again, while such delays may be sustainable by the larger firms operating, and necessary to the viable operation of a scheduled air network, they may prove exceedingly disadvantageous to the smaller carriers whose limited markets fluctuate to any great extent. Finally, the economic regulation of the air transport industry involves a certain cost in resources. The need for administrative efficiency is obvious. Furthermore, the net gain in social benefit from regulating the unregulated air transport market must exceed or equal the costs of such regulation. Where

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<sup>1</sup>Standardized cost accounting, auditing of financial statements, and careful recording and maintenance of financial activities.

regulatory costs are excessive in relation to its possible benefits, regulation implies an inefficient duplication of internal management and a loss in welfare. In the case of the small firms, whether maintaining extensive regulation is reasonable must satisfy these above requirements.

The problems in defining the public interest, given the aspects involved in such a definition, have been discussed earlier. Furthermore, in examining existing mainline and regional policies, the aspects emphasized in actual Canadian policy have been revealed. Noted are a concern with self-sufficiency (foremost), adaptability of the system to technological change and innovation, the efficiency of the system from a general equilibrium framework, concern with the extra-market welfare considerations of a total air transportation system, and a concern with protecting the markets of scheduled services from 'outside' competitors.

In essence, the CTC gears itself to the regulation of market structure and conduct in line with such interests as above. Lesser emphasis is placed on designating performance standards such as "reasonable rate of return" calculations, in detailed cost-benefit type appraisals of the extensions of service, or some deep sounding consensus of social priorities.

The main reference to the public interest in the regulation of commercial air services is found in the National Transportation Act, (1966-7).

Again, it would be cumbersome to list all the provisions of the Act.<sup>1</sup> Section (3), however, is important in defining the public interest as ". . . an economic system making the best use of all available modes of transportation at the lowest total cost . . ." <sup>2</sup> The concept is mindful of Miller's model of a static lowest cost air transport system requiring flexibility of fleet dispersions over a general system of markets. Further, considerations of dynamic efficiency suggests a Schumpeterian need for profitability, and, in the face of a general system of shifting demands, flexibility or mobility in resource allocations.

The Act suggests as a major means of achieving the economic system outlined in Section (3), the need for complete freedom in intermodal competitions, ". . . regulation of all modes of transport will not be of such a nature as to restrict the ability of any mode of transport to compete freely with other

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<sup>1</sup> See Appendix C.

<sup>2</sup> The National Transportation Act (1966-7), Section (3),  
op. cit.

modes of transport."<sup>1</sup> Literally interpreted, policies of internal subsidy to meet social obligations are rejected. Furthermore, a more competitive arrangement of the national transportation system, relying more on the allocating mechanism of the private market is implied. Hence, any extension of socially desirable services, not provided privately, will depend on the development of a government subsidy program, extended equitably to all modes of transport.

Two other means emphasized, ". . . to protect the interests of the users of transportation and to maintain the economic well-being and growth of Canada, . . .",<sup>2</sup> aside from a greater emphasis on competitiveness between the different modes, are the provisions for regulating fares found discriminatory, Section (23), and the provisions for regulating merger, Section (27).

The CTC is geared essentially to regulate market structure and conduct, in line with theoretical assumptions as to the kinds of performance which will derive. As such, it places particular emphasis on regulating seller concentration

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<sup>1</sup>The National Transportation Act, Section (3), op. cit.

<sup>2</sup>Ibid.



and determining the conditions of entry, ". . . the moderate ease of entry has been responsible in part for the existence at all times of potential entrants".<sup>1</sup> The market structure, therefore, has left the air transportation an openly competitive system where institutional considerations are ignored. While emphasis in stated policy is placed on allowing freer intermodal competitions, the Commission has placed its major emphasis on regulating or restricting competitions of an intramodal nature among the different types of air carriers.

The principal concern of the CTC is setting the levels of market concentration in the public interest - a difficult task.

The nature of cost efficiency is such that scale economies are available, notably in overhaul and maintenance, and in the specializations possible in certain functions. Full advantage of such economies will only be possible under certain scales of firm size, and is seen to require a homogeneity of

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<sup>1</sup>Caves, R. E., Air Transport and Its Regulators, op. cit., p. 428. Caves also notes, "The traits of the demand for air transport rule out product differentiation." p. 429.

fleets.<sup>1</sup> Possibilities for subcontracting functions to larger operations may be seen to enhance efficiency without increasing scale, ". . . technical co-operation . . . has helped produce a greater homogeneity among firms in production techniques. It has also produced a considerable cost saving, which has done much to reduce the cost disadvantage of small-scale operations . . . . In light of the possibilities for subcontracting, the old assumption that six or seven planes of one type were necessary for efficient operations is no longer considered valid."<sup>2</sup> Nevertheless, 'optimal' production by firms of efficient scale will imply definite levels of concentration.

Given the technological environment in which air carriers operate, with efficiencies most evident in operating large capacity turbine equipment over dense stages, it appears that efficiency will always require oligopolistic market structures.

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<sup>1</sup>The mixed fleet problem creates inefficiencies as it requires multi-functional staffs, trained in handling all the various operating needs of the different aircraft; furthermore, it does not allow carriers to reduce spares' or contingencies' requirements where only a small number of each aircraft are maintained.

<sup>2</sup>Straszheim, Mahlon, The International Airline Industry op. cit., p. 63.

Consider the following:

II. 1. COST PERFORMANCE  
DIFFERENT AIRCRAFT AVAILABLE

Engine Type	Aircraft	Capacity (Passengers)	Total Cost/ Mile (\$)	Table Cost/Avail- able Seat- Mile (\$)
jet	Boeing 737	115	3.52	.031
turbo	Hawker			
	Siddeley 748	40	1.75	.044
turbo	DeHavilland DHC6	18	1.50	.083
piston	Douglas DC-3	28	1.40	.050
piston	Piper Navajo	9	.60	.067
piston	Beechcraft D18	9	.80	.089
piston	Piper Aztec	5	.50	.100
piston	Cessna 206	5	.60	.120
piston	Cessna 180	4	.55	.137

Source: TARIFFS - published by TransAir, Midwest, Lambair, Ilford-Riverton Airways -- costs designated refer to Charter Rates considered representative of fully allocated costs.

Lower cost services are provided by the larger aircraft.

As markets expand, therefore, efficiency will dictate the transfer of such routes to carriers operating such equipment.

Furthermore, as a hypothetical case, if it is assumed that socially desirable services require four frequencies/day in any given city-pair pair market,<sup>1</sup> the following may be

<sup>1</sup>For the hypothetical example, stage lengths of 200 miles with load factors averaging 50% daily are assumed in the calculations.

presented:

II. 2. - BREAK-EVEN TOLL REQUIREMENTS  
(Assuming Stage Lengths of 200 Miles and 50% Load Factors)

Aircraft Type	Total Cost per Flight (\$)	Break-Even Unit Tolls or One-Way Tolls (\$)	Total Traffic Generation (Originating & Departing) Required in the Market
Boeing 737	704	12.13	232
Hawker Siddeley 748	350	17.50	80
Douglas DC-3	280	20.00	56
Piper Navajo	120	24.00	20
Piper Aztec	100	33.34	12

Source: TARIFFS - published by TransAir, Midwest, Lambair, Ilford-Riverton Airways.

Self-sufficient operation of higher efficiency aircraft will require increasingly dense markets for viable support. Operation of craft in ill-suited markets will either result in losses (if fares remain constant), higher fares, or dissatisfied traffic as calculated below:

II. 2. - BREAK-EVEN TOLL REQUIREMENTS  
 (Required by 4-Frequencies Operating in 56-Passenger Market)<sup>a</sup>

Aircraft Type	Break-Even Fare Requirements (\$)	Daily Loss, \$20 Fares Constant (\$)	Average Load Factors
B737	50.28	\$2,137.72	12.2%
HS-748	25.00	420.00	35%
DC-3	20.00	-	50%
Navajo	8.57	20 passengers excess	100%
Aztec	7.14	36 passengers excess	100%

(a) Assumes balanced traffic flows.

Source: TARIFFS - published by TransAir, Midwest, Lambair, Ilford-Riverton Airways.

Thus, in the hypothetical situation, the following trade-offs may be seen:

1. the lower unit costs appropriable from the use of larger capacity aircraft will require increasingly dense markets, and therefore, self-sufficient operations will always concur with a high degree of seller concentration if such efficiencies are to be made available to consumers.
2. using aircraft not suited to a market will result in either higher fares, losses, or dissatisfied consumers, and can, therefore, not be condoned - either on the grounds of efficiency or service.

3. higher load factors may allow lower break-even fares; while at the same time increasing the possibility of dissatisfied consumers during peak demands.

Given such a production function, the CTC has spent much of its regulation in creating a system of domestic scheduled services which operate as protected monopolies. Policy is clear in this respect:

". . . commercial air carriers who are required by Board regulations to maintain service at regular intervals according to a published schedule regardless of whether or not the traffic is offered is sufficient to provide a profitable flight, ought, in order to ensure maximum loads, to receive protection from carriers who are not so required."<sup>1</sup>

As a result, ". . . no commercial air carrier may

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<sup>1</sup> Air Transport Board, General Order No. 51/51, October 23, 1951.

carry traffic between points<sup>1</sup> named on the same licence of any . . . scheduled commercial air carriers . . ." <sup>2</sup> It is well established that the efficient operation of a scheduled air service is hindered by diversions or thinning traffic which raises the unit costs of providing such service; and such franchise provisions may therefore be considered "in the public interest". In short, regulation has developed a system of domestic scheduled services operating either as monopolies or duopolies, in the interests of maintaining self-sufficiency, maximum efficiency of operations, and regularity of scheduled services. These are the priorities established in the network of domestic scheduled air services. Yet, in deciding between competitions or concentrations, Wheatcroft notes, "The relationship between route traffic density, frequency, and size is

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<sup>1</sup>'Point' in respect of a unit toll commercial air service means the city, town, or place specified in a licence that a carrier is authorized to serve by such licence and that is identified. . .

- (a) in respect of a point in a class 1 licence, comprises an area 25 miles in radius measured from the main post office . . . or from the latitude and longitude of such point and;
- (b) in respect of a point in a class 2 licence, comprises an area 10 miles in radius measured . . ." (similarly)

Canadian Transport Commission, General Order No. 1972-1 Air, May 5, 1972.

<sup>2</sup>Air Transport Board, General Order No. 51/51, October 23, 1951.

complex",<sup>1</sup> and, again, it is to the judgment of the regulators that exact policy must be established.

Several conclusions as to the nature of regulation in scheduled air services are observed:

1. the regulatory authority is concerned mainly with the effects of 'excess' entry on the efficiency and viability of scheduled or regular air services; such a concern has developed a regulatory environment which strictly protects the markets of regular carriers.<sup>2</sup>
2. entry regulation has seen fit to develop highly concentrated markets in scheduled services.
3. lesser concern is placed on ensuring 'rational' pricing, i.e. regulating fare structure to ensure 'just' fares which conform closely with the costs as properly allocated to individual services, and with the establishment of "reasonable

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<sup>1</sup>Wheatcroft, S. F., Airline Competition in Canada, op. cit., p. 26.

<sup>2</sup>Historically, the pattern has perhaps developed from a concern with maximizing the network of scheduled air services in the interests of national unity. Extensions were possible, without subsidy, under a system of internal cross-subsidization; but this, however, required close control of entry.



rate of return" calculations.<sup>1</sup> Yet, such considerations would seem essential, having accepted governmental protection of markets as necessary policy.

In the case of commercial air transport, therefore, it is not the abuse of monopoly which motivates regulation so much as it is excessive competition which destroys competent firms as well as the regularity of consumer services. The loss of consumer surplus to the public is endangered, however, by licensing which establishes market franchises; government control of price, quality, and quantities is only necessitated as a corollary.

In actual experience, the CTC acts mainly on the periphery of the private market, acting only after conditions have shown that private initiatives combined with regulatory incentives have obviously resulted in undesirable performances. Indeed, the Commission can do little more; otherwise it would be necessary to duplicate all private managements with governmental ones. In effect, the CTC can only arbitrate, post facto,

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<sup>1</sup>Section (23) of the National Transportation Act calls for such a consideration; however, the problems of cost allocation, 'measuring sticks' of efficiency, and essentiality of costs has perhaps opposed such measures. The CTC remains dependent on public reaction and notification in assessments.

between consumer interests, as an exogenous concern, and firm interests, as an endogenous concern. Kahn reviews such a situation ". . . the initiative, operating control, and responsibility for economic performance continue, even under regulation, to rest primarily with private management. The role of the government remains essentially negative - setting maximum prices, . . . specifying minimum standards, in short-contravening the decisions of private persons only after the fact, only where their performance has been or would be obviously bad."<sup>1</sup> As a result, there is a tendency to finality and rigidity once initial licensing is invoked unless a carrier proves significantly incompetent in operation. Private changes mainly are initiated. The Commission gives its permission rather than its guidance. Finally, it may be observed that governmental regulation has a tendency to be endogenous, considering particularly the buoyancy of firms, rather than any in-depth considerations of consumer needs.

In fares regulation, the main concern is with price levels or price discriminations which might prove publicly objectionable. In stressing fares regulation, however, it must

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<sup>1</sup>Kahn, A. E., The Economics of Regulation . . . op. cit., p. 18.

be noted that reliability, continuity, availability, and safety of services may be the overshadowing concerns of the public. Once such variables are satisfied, little concern may be voiced over fare structures or levels. Further, while the regulatory body regulates to avoid price competitions which might lead to instability in the industry; it has to be considered that firms might compete just as destructively through capacity and quality provisions.

The CTC seems primarily concerned with the total revenues available to any firm, so that stability will accrue. Charges are allowed adjustment primarily to allow for viable operations. However, only entry, the prime determinant of the degrees of market rivalry, may be considered as an effective regulator to ensure cost efficiency through tighter cost controls. There is, it appears, a lack of emphasis in supervising and controlling the levels of operating costs and capital outlays, the determination of an allowable rate base, or the selection of a suitable rate of return.

Admittedly, regulating costs should prove the most difficult task facing the Commission. The major problem is the inability to develop adequate measures for comparison. The behaviour of unit costs varies enormously in relation to

various dimensions over which the output may be produced. In commercial air services, the important dimensions are:

1. increased utilizations
2. increased load factors
3. increased stage lengths

and, 4. increased structural consistency of route patterns.

Incremental changes in any of these dimensions will have a distinct bearing on the nature of costs. In particular, these dimensions<sup>1</sup> will be affected through the evolution of licensed route systems, and by private initiative (i. e. management) in cost control and investments.

In conclusion, the economic rationale justifying public intervention may be placed on the existence of the externalities or public good characteristics in the provision of commercial air services, or on the supposition that the unregulated market and competition simply do not perform well. In this respect, the Commission may be criticized for an inability to account for externality and distributional effects in the former case,

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<sup>1</sup>Other variables influencing costs may be suggested:

1. types of carriage - by density, size or volumes, handling difficulties.
2. directional balances of flows.
3. whether changes in demand are sporadic or expected.

and, in the latter, its excessive concern with proper procedure, or tendency to inflexibility in licensing, may be alleged to generate inefficiencies where dynamic factors are involved.

### C) Third Level Regulation

As yet, there is no statement of public policy specifically regarding 'third level' operations. The regulatory environment for such operators is only that which lies evolved under the pattern of regulations established by the regulatory authority. Such regulations divide into two categories, the devising of regulations for specific operations<sup>1</sup> and the decisions regarding route awards.

First however, a further discussion on the nature of internal subsidy is relevant.

It is clear that companies do not normally calculate long-run marginal cost and demand elasticities in setting their rate structures. Typically, they attempt to allocate their total revenue requirements among the different services, or functions, which constitute their entire operation. At the same time, costs will be distributed among the various categories

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<sup>1</sup>See Appendix D, E, and F.

of service<sup>1</sup> on the basis of some cost accounting procedures adopted by the company. To the extent that fares chosen for the different types of service conform with the fully distributed costs of each unit of output,<sup>2</sup> fares may be said to be fully nondiscriminatory. In practice, however, firms pricing in such a way are not pricing on the basis of marginal cost, i. e. the cost of extending output to extra units, but are pricing on the basis of average cost. 'Rational' pricing or non-discriminatory pricing is felt to be satisfied where fares conform with such average costs. Where firms do not conform to these standards, their fare structures will be considered discriminatory.

However, in seeking business, securing markets, or in finding utilizations for excess capacity, firms may be induced to carry any traffic which at least covers the marginal costs<sup>3</sup>

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<sup>1</sup>Space does not permit a full discussion of the problem in allocating costs where joint or common products exist.

<sup>2</sup>i. e. Either ton-miles or seat-miles.

<sup>3</sup>In the long-run, this requirement ultimately applies to the covering of fully-allocated costs; in short-run competitions, however, only the variable costs of each service, given existing capacities, is likely to be considered.

of each service. If demands in a limited number of the markets which a carrier faces in its network of services are elastic, fares in such markets may be reduced lower than fully allocated costs. Such business is sought for the return to overhead which it contributes. Such is the competitive position of carriers when faced with competitive markets, or elastic demands. Consumers in less competitive circumstance, will perhaps face relatively higher fares as firms adjust their fare structures towards total revenue requirements. The practice cannot be said to be discriminatory or internally subsidizing in the strict sense. It is concluded that, for any particular firm, service extensions should be judged on a determination of the marginal cost of that service to the carrier, rather than any calculation of loss based on a fully allocated cost accounting. In competitive markets, such is the pricing to be expected during struggles for business.<sup>1</sup>

Another diversion from 'rational' pricing may be seen in scheduled services with stable fares. As shown, higher load factors reduce the need for fare levels to remain high to meet

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<sup>1</sup>Cutthroat pricing may be considered pricing below MC.

break-even revenue requirements on a particular flight. At higher load factors, fares may be reduced substantially while still covering the costs of any service. Such a relationship adequately reveals the pricing competitiveness of flights guaranteed full load factors, such as in charters.

Whether or not this competitive advantage will be allowed in competition with scheduled services, which maintain a regularity of services at stable fares regardless of load factors achieved, remains the decision of regulators. In effect, however, it may be considered the protection of an internally subsidizing system.

The problem is essentially that government, in considering its various social and political objectives, desires a network of scheduled services, maintained at set frequencies, and operated regardless of demand levels for particular flights. Temporal fluctuations in demand change load factors and the schedule requirements of particular times - annually, seasonally, and daily. The averaging of group costs to buyers to meet revenue requirements inevitably involves a pricing system which is



irrational and unfair. In effect, it may be contended that peak demand travellers subsidize off-peak travellers only where off-peak consumer revenues fail to meet their variable costs of service, and that, therefore, a network of scheduled services, combining regularity and fares' stability over a network of fluctuating demands, is extended only on the basis of internal subsidization. The extent of such subsidy may be determined, and can only be judged subjectively by society.

Canadian regulation of commercial air services has considered it a major objective to maintain a designated system of scheduled services, mainline plus regional, and has imposed obligations on the holders of class 1 and class 2 licences<sup>1</sup> to provide such services<sup>2</sup> in correspondence with certain requirements. Correspondingly, it has felt compelled to provide the regulatory protection of such markets from carriers who operate under licences, without the obligations of regular service. Carriers operating under primarily class 3 and 4 requirements<sup>3</sup> are not required to extend services without at least matching

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<sup>1</sup> See Appendix D.

<sup>2</sup> See Appendix F.

<sup>3</sup> See Appendix D.

variable costs. In effect, such firms are not required to internally subsidize and therefore require less protection.

The revenue advantage afforded class 3 and 4 licenced operators is that there is no legal requirement to fly where the variable costs of each service cannot be met. Firms with a high ratio of variable to fixed costs operating under such licence requirements are therefore at an advantage to carriers with a larger portion of fixed costs<sup>1</sup> and obligations to scheduled service. Self-sufficiency is much more easily attained; the burden of fixed costs and 'loss' route obligations during conditions of fallen demand is not so heavily carried. Obviously, the more variable a firm can make its cost structure,<sup>2</sup> the more easily it can achieve self-sufficiency under a system of fluctuating demands. Hence the more unstable and less reliable the system of markets over which a carrier operates, the greater is the need for flexibility and variability in the operations maintained, if self-sufficiency is in any way to be assured.

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<sup>1</sup>The maintenance of jet equipment involves a much higher investment in capital than do piston operations.

<sup>2</sup>Air carrier costs may develop relatively higher variable/fixed cost ratios than other modes. Airways are maintained at public expense, charged only with use to the carriers, leasing on equipment on short-term basis may be arranged, and other functions subcontracted.

#### D) Specific Regulations

As a general observation, third level operators are particularly involved in class 3 and class 4 operations. Hence, a clear distinction between the obligations extending to such licences is required. Class 1 and 2 services may be grouped together as scheduled until toll services operating under published schedules.<sup>1</sup> The differentiation between the two appears more in quality than in regularity. Class 1 services operate in established markets with well-developed support facilities, ". . . serving points in accordance with a service schedule . . .",<sup>2</sup> while class 2 services operate in newer, developing markets with less extensive ground support, ". . . to the extent that facilities are available in accordance with a service pattern."<sup>3</sup> In operation, however, the two impose virtually the same economic burden on carriers, and, as such both receive protection from the regulatory authority, ". . . no commercial air carrier may carry traffic between points named on the same licence of any Class 1 or . . . on the same licence

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<sup>1</sup>See Appendix D and F.

<sup>2</sup>CTC, General Order No. 1972-1 Air, Part I, Section (3).

<sup>3</sup>CTC, General Order No. 1972-1 Air, Part I, Section (3).

of any Class 2 . . . commercial air carriers . . ." <sup>1</sup> On the other hand, Class 3 licensed operations need operate only . . . serving points consistent with traffic requirements . . ." <sup>2</sup> under unit toll. In effect, these are charter-like services, moving in response to demands as they occur, under no particular routings, into points which the carrier is licensed to serve. Such licencing offers ideal flexibility to the carrier where demands are generally temporary, developmental, or severely fluctuating. However, it is often found that unit toll services are only successfully marketed as publicized, scheduled services, <sup>3</sup> a feature denied class 3 operations. Inevitably, therefore, market development involves a transfer of the market to a class 2 licensed authority. Finally, charters or Class 4 services operate only where the full costs of each service are covered, offering ". . . transportation on reasonable demand, . . . from the base specified in the licence issued for

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<sup>1</sup>ATB, General Order No. 5/51, except in emergencies, under permission of the class I carrier or specific approval of the regulatory authority.

<sup>2</sup>CTC, General Order No. 1972-1 Air, Part I, Section (3).

<sup>3</sup>ATB, General Order No. 5/51 states, for example:

". . . in no case may Class 3 . . . or Class 4 . . . carriers develop regular air services or hold out to the public by advertising or any other means that regular services will be provided."

that commercial air service or the base declared by the Committee to be the protected base for that commercial air service . . . at a toll per mile or per hour for the charter of an entire aircraft . . ." <sup>1</sup> Hence, revenue requirements are met for each flight. Carriers operate out of named bases into any markets, not protected by the regulatory authority and satisfied by the types of equipment, by weight groupings, which the carriers have been licensed to operate.

The essential difference where class 1 and class 2 are compared with class 3 and class 4 licences is that class 1 and 2 carriers operate according to an institutionally fixed structure of services while class 3 and 4 operate with greater flexibility, in answer to demands arising and with better terms in revenue.

The Base protection afforded class 4 services warrants further discussion. It is observed that aircraft in different weight groupings <sup>2</sup> are not strictly competitive with each other;

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<sup>1</sup> CTC, General Order No. 1972-1 Air, Part I, Section (3).

<sup>2</sup> See Appendix D.

each grouping roughly represents a certain capacity aircraft, which can be best fitted to a particular demand or market. The Committee states, "It should be noted that if protection is afforded a base it will apply only to group against group. No base protection will be afforded in any case in respect of the new Group A aircraft."<sup>1</sup> Hence, in the smallest aircraft grouping, the 'taxi' function is recognized to its fullest, and craft are allowed universal entry into all points. In the other groupings, however, for larger aircraft, recognition is taken of the fact that larger capacities imply the maintenance of larger ground facilities and the incidence of greater depreciation. In other words, fixed costs become a higher percentage of total cost and, therefore, higher utilizations are required to result in efficient operations. The rationale for base protection then surrounds protection of investments which will result in better public service, ". . . the Committee requires . . . to be satisfied that . . . the granting of base protection is required . . . to result in an improvement in air service for the public . . . and the applicant's position

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<sup>1</sup>ATC Notification to all class 4 operators, September 24, 1971.

is expected to improve . . . the applicant . . . will obtain permanent base facilities, equipment, personnel and financing adequate to provide service safely and continuously."<sup>1</sup> The regulatory authority, then, presumes the right to remove protection at any time where the protected carrier is not meeting the area's demands.

Charter licences allow any carrier to operate into any points not given regulatory protection. Protection, as a policy, has derived from the need to ensure utilizations of fixed investments and to maintain viability of carriers. However, it is evident that the marketing flexibility as well as the competitive stimulus of freely entering carriers is lost through such a policy. Control of investments rather than protection of markets would seem a wiser policy in the long-run. Where investment in base facilities can result in efficiency gains to a carrier, it would seem that competitive advantages would be secured<sup>2</sup> in its markets up to full capacity in competitions with other non-based carriers. The extra costs in dead flight

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<sup>1</sup>Ibid.

<sup>2</sup>Only if operations are efficient; the policy, it is assumed, does not aim to protect inefficiencies.

time for positioning and de-positioning aircraft imposed on carriers outside the area serviced by the based carrier, would appear to establish the based carrier securely in its markets.<sup>1</sup> Problems would only result where too many carriers were licensed to operate out of any particular base or area, or where inconsistent private investments result in duplications. Both conditions lead to situations of excess capacity, with either under-utilizations or inefficiencies in use of capacity, or competitive struggles resulting in instability and long-term consolidation. In either case, however, regulation of investments rather than monopoly-creating base-protections would seem wiser policy.

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<sup>1</sup>Particularly, where charters are required to charge:

- "(a) . . . the lesser of the miles or flight time, if any:
  - i) from carrier's base to which the . . . aircraft is shown as available . . . to the place at which the work is to be performed; or
  - ii) from the place at which the . . . aircraft is actually located at the time of the charter to the place from which the work is to be performed; and:
- (b) the miles or hours flown in performing the work of the charter; and,
- (c) . . . the miles or flight time, if any:
  - (i) to return the air carrier . . . to carrier's base named . . ." - from Lambair Limited, Charter Tariff.



The other main restrictions under which the third levels operate regards their market conduct - in price discriminations and merger. Toll requirements<sup>1</sup> require 'rational' pricing, ". . . under substantially similar circumstances and conditions, with respect to all traffic of the same description, (tolls must) be charged equally to all persons at the same rate."<sup>2</sup> In commercial air operations into isolated areas and 'captive' markets, there is a particular sensitivity to prices even where actual demands are not particularly strong; hence, while demands remain thin but inelastic, the regulatory authority is under major pressure from public opinion to maintain fares which the population feels are ". . . just and reasonable . . ."<sup>3</sup> While charges of price discrimination might thus be suggested the task of competition policy, in the particular circumstance outlined above, close control by the regulatory authority would seem most beneficial. Merger activity is also controlled both by competition policy and the regulatory authority.<sup>4</sup> In either

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<sup>1</sup> See Appendix E.

<sup>2</sup> CTC, General Order No. 1972-1 Air, Part V, Section (45).

<sup>3</sup> CTC, General Order No. 1972-1 Air, Part V, Section (45).

<sup>4</sup> See Appendix E.

case, prevention of merger has been minimal. Given the finality and rigidity of licence awards, plus carrier ambitions for aggrandizement, mergers have often been promoted as an avenue of expansion through combined licences. In other cases, it has been a 'means' to rationalizing route systems or achieving better scheduling of equipment. Whether merger is necessary, or whether a greater flexibility in licencing authorities is sufficient, remains a question.

In conclusion, therefore, the following points may be recognized:

1. Class 1 and 2 services are recognized to carry obligations recognized in the public interest which warrant protection of their markets from carriers not so obliged.
2. Class 3 and 4 services offer both the degrees of flexibility and terms of revenue which enable viability of operations where demands constituting the carrier's system fluctuate widely and unexpectedly.
3. Given investments in capacity, each carrier requires a certain level of traffic over its total system of licensed markets, to achieve the utilizations necessary to efficiency, and in order to

meet the revenue requirements of his total operation.

Thus, while class 1 and 2 services may require protection of markets to ensure orderly developments in the public interest, the flexibilities afforded class 3 and 4 operations may be considered sufficient to allow markets to become openly competitive. So long as investments are controlled to ensure no generations of excess capacity, competitive stability seems assured while the benefits of a competitive system of markets are maximized. Again, the only threat to the general equilibrium system is if independent investments lead to excess capacities and cutthroat competition ensues.

Chapter III  
THIRD LEVEL OPERATIONS  
IN MANITOBA

The two areas of discussion, the relevant theoretical approaches and actual regulation, are examined together in a study of actual developments in the specified Manitoba 'industry'. An interpretation of regulatory influence on the firms observed is developed. Specific considerations, of interest to public policy, in line with those theoretical norms outlined earlier, are noted.

A) Actual Route Awards  
(and Industrial Developments in Manitoba)

Peiffer notes, ". . . licensing action did not display any positive transportation planning by the government but rather a passive response to demonstrated need."<sup>1</sup> Regulation has been imposed relatively independently by the regulatory authority, operating under ambiguous legislative direction, in the case of 'third level' operations. There has been little mention (perhaps, implying little attention) in route decisions of economic efficiency as developed by a carrier's route system in relation to its equipment. There has been little goal definition which, while admittedly difficult, would guide the

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<sup>1</sup>Peiffer, K. P., "Air Transportation to and within the Arctic" paper delivered at the symposium on Arctic and Middle North Transportation, May 5-7, 1969, Montreal.

regulatory authority in weighing alternatives and allow the carriers to form their own long-run developmental policies on the basis of some stated principles. In effect, much of the guesswork and gamesmanship which has evolved in the route decisions may be avoided.

Given the existing pattern of route system developments based on cumulative individual route grants, an examination of overall efficiency may suggest<sup>1</sup> the need to rationalize route systems by transfers of licences or by a basic change in policy. In Manitoba, this major task has been accomplished, to a large extent, through merger activity. Haphazard developments have thus become more orderly. However, it has been by private initiative rather than by regulatory pressure on public policy grounds that the changes have occurred.<sup>2</sup>

Markets follow an evolutionary pattern in development, beginning with low frequency charters and ending in the maintenance of a viable scheduled service with turbine equipment.

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<sup>1</sup>As in Miller's model.

<sup>2</sup>see Adams, Russel, B., "The Air Route Pattern Problem" Journal of Air Law and Commerce, vol. XXII (Spring 1955) pp. 138-9.

In seeking licensed authority, therefore, the main task is to establish that appropriate levels of demand exist to support the applied for service. In evolving unit toll services (i. e. class 3 authority), evidence of increased charter activities (developed by the carrier in question) is likely to ensure that carrier of its licence grant. Yet, all manner of factors can contribute, besides prior service. Management, investments in facilities, and financial ability may be considered more important in determining which carrier is chosen to provide the new service or compete with existing services, once sufficient demand, for the operation of the service in question, has been demonstrated to the regulators. However, as Peiffer notes, "It should not be up to the carriers to have to merge, agree informally on route licensing interventions and applications,<sup>1</sup> to run investment risks in order to "be the first in" and get squatters rights, to operate so as to not ruffle the feathers of those areas in which they hope for future profits."<sup>2</sup>

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<sup>1</sup>For example, ATC Decision Serial No. 2558 shows major changes in the particular applications in the midst of proceedings to decide route awards. Whether such changes suggest an interdependent compromising of objectives or evidence of "gamesmanship" among applicants, the Committee believes it to ". . . signify a practical realization by the applicants concerned of existing air services in the area and the traffic available for such services."

<sup>2</sup>Peiffer, K. P., Ibid.