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THE ECONOMIC IMPLICATIONS OF ALTERNATIVE AIR TRANSPORT REGULATORY PRACTICES: A CANADA - UNITED STATES COMPARISON

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ABSTRACT

It is often assumed that regulatory intervention is de facto effective in altering the performance of an industry, although prudent authors have noted a degree of uncertainty in the causal relationship between regulation and the industry which is being regulated. The goal of this thesis is to test the hypothesis that regulatory boards do, in fact, alter the performance of the regulated industry.

A number of methodological difficulties confront any attempt to test this hypothesis. Since many regulated industries developed within a context of regulation, it is impossible to determine precisely what the performance of the industry would have been in the absence of regulation. While various studies have sought to avoid this problem by comparing regulated with unregulated firms, this technique is impossible within the context of many industries, particularly in small countries like Canada. In order to investigate the relationship between regulatory practices and regulated firms in the Canadian air transport industry and while avoiding these methodological problems a comparison was undertaken between the Canadian industry and one which was determined to have essentially similar economic substructures: the U.S. trunk air carriers, both regulated industries.

It is argued within the confines of neoclassical microtheory, and certainly within the applied area of industrial organization, that a given market structure influences the type of conduct on the part of buyers and sellers which in turn affects the expected type of firm and market performance. Thus regulatory bodies would, by altering either the structure of the market or the conduct of the buyers or sellers, be able to influence the performance of the regulated industries. If this is the case, then to the extent that either or both structure and conduct can be controlled by a regulatory agency, we would expect evidence of influence on performance.

This line of reasoning is used to conduct an analysis of the intervention of the Canadian and U.S. regulatory bodies into their respective industries. The first step was to devise a model of the particular ways in which the regulatory bodies might be expected to intervene in the domestic trunk scheduled air passenger service, the market selected for study. In particular, the study considered which aspects of the market structure and the conduct of the air carriers would be maleable, and what outcome might be expected from intervention.

Having defined the theoretically possible areas of intervention, the limitations imposed on the U.S. Civil Aeronautics Board and the Canadian Transport Commission by the respective United States' and Canadian statutes were evaluated. This task when completed generated sets of the potential actions of the two regulatory bodies within the structural limitations of their creation. In order to test the hypothesis, the actual regulatory practices of the two bodies in terms of their intervention into the structure and conduct of their respective industries was considered for the time period 1967-1975.

There emerged from the investigation a number of distinct differences in the performances of the two industries which appear to be correlated with differing regulatory practices on the part of the two regulatory bodies. These differences included: (1) a lower price per passenger-mile for "Coach" service in Canada; (2) a lower frequency of service in Canada; (3) less price discrimination in Canada; and (4) a higher load factor in the Canadian market. On the basis of the differences in these air transport industries, it is argued that there is substantial evidence to support the hypothesis of regulatory interventions altering the expected performance of the regulated industry.

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INTRODUCTION

> "Regulation means that the scope of competition is delimited. The relationship is difficult, however. Effective competition may prevent regulation. But, in order to become effective, competition may need some delimitation, or, in other words, regulation may promote effective competition." Fortman, p.139

It is often assumed that regulatory intervention is de facto effective in altering the performance of an industry. Prudent authors, such as Fortman,[1] however, have been careful to point out the uncertainty in the relationship between regulation and the industry which is being regulated. Indeed, it has even been suggested by some authors[2] that it is more generally the case that regulators have little or nothing which they can effectively regulate. It will be the purpose of this thesis to investigate the hypothesis that the actions of regulatory bodies, and more particularly of regulatory boards, in fact do alter the performance of the regulated industry.

The analysis of a particular industry in order to shed light on the above hypothesis presents several methodological difficulties. Most important, whenever an entire industry is regulated, it is impossible to determine precisely what the performance of the industry would have been in the absence of regulation. To avoid facing this problem, many studies have centred on comparisons of regulated with unregulated firms in the same industry, or with comparisons of regulated industries with highly similar but unregulated industries. This approach, however, also has its limitations. In the first place, the majority of regulated industries, including air, rail and pipeline transport, are generally excluded from such an analysis by virtue of the lack of a comparison industry. In the second, the class of excluded industries tends to be larger in smaller or less developed countries, where the number of firms is smaller and comparison industries are less likely to exist.

An alternative approach is the comparison of the effects of differing regulators on essentially similar economic substructures. As long as the industries in question, and the underlying environments are reasonably similar, any differences in performance in the industries could then be ascribed to the differing regulatory practices and policies of the boards in question. This approach has the advantages of not being limited by the small size of the market in a country the size of Canada, and of being applicable to industries such as the air transport industry given that the economic substructures can be said to be similar as will be discussed later. The latter advantage is particularly significant, as one would expect *a priori* the performance of these industries to have been altered over the long history of continual regulatory intervention.

In particular, this study centres on the mainline air transport industry. As a traditionally regulated industry, one would expect air transport to have developed "differently" than it has, had such organizations as the Canadian Transport Commission and the (now defunct) Air Transport Board not existed.

THE THREE "CLASSIC" APPROACHES

A great deal of work has been done in the study of air transport regulation. This work may be classed basically into three types. The first is what might be called the "legalistic" type. The second type is some form of industry study. The third deals principally with the economic implications of an exogenously applied set of rules and regulations: what might be termed the "exogenous approach". Each of these three approaches has contributed substantially to knowledge and to the understanding of air transport regulatory practices; but each is lacking, to some extent, for our purposes. While each type is conceptually distinct, most work has of course, involved significant elements of more than one of these. Some clarification of the nature of these approaches is useful, if only for determining the purposes for which each is most useful and the inherent limitations of each in testing the given hypothesis.

(1) THE LEGALISTIC APPROACH

The legalistic approach consists principally of codifications of the rules and regulations of the air transport regulatory system.[3] In this case, the use for which this codification is intended limits the rules and regulations which are included. These analyses, while strong on organization, are, however, often weak on the sort of interpretation which is useful to economists. It is as an organizational technique the legalistic approach is most useful, and in Part II such a codification will be used.

(2) THE INDUSTRY STUDY

The so-called industry study encompasses a wide variety of studies. It is principally characterized, however, by an analysis of the institutional constraints inherent in a particular industry under study. One obvious limitation of this sort of study is the concentration on one industry; this is a very useful limitation, however, for extracting information about the nature of (for example) the air transport industry. However, a great deal of care must be exercised to insure that the industry is appropriately defined. Further, one must insure that policy implications and conclusions derived from such a study are not made in isolation from the rest of the economy, particularly when there are major spillover effects.[4]

(3) ECONOMIC IMPLICATIONS: THE EXOGENOUS APPROACH

In most purely "economic" analyses of North American air transport regulation, rules and regulations are viewed as exogenous to the decision-making processes and the markets. In other words, these regulations are viewed as being applied "on top of" an essentially free-enterprise economy. This emphasis might be termed the "competitive bias" of such studies. If one as one views regulation as being exogenous to any sort of economic system, and, in so far as this system is an accurate[5] reflection of the underlying economic substructure, much information can be gleaned from such approach. In addition to this bias, however, an inherent limitation is the difficulty in extracting the manner in which feedback through the decision-making processes occurs. The basic approach to this sort of analysis is the identification of "causes" and "effects", and the specification of mechanisms which "explain" how the initial variable "causes" the changes in the affected variables. Work within this category has centred generally on the implications of changes in a particular law, without regard to the nature of the regulatory body which instituted such change. For example, in the absence of a direct relationship, this approach would not ordinarily consider the relationship between technological change and the manner in which the regulatory body reacts to it. A potentially highly profitable technological change might not be made were the regulatory body to place an absolute income or profit constraint upon the firm. There would simply be no reason to bother with an alterations in the technology, particularly if there are any costs associated with the change.[6] While these sorts of considerations have been taken into account within some regulatory analyses,[7] they have not been integrated into the contemporary analysis of air transport regulation. Further, one rarely finds concern in this approach with such considerations as whether or not such change might induce the regulatory body to impose a profit constraint where none previously existed. This is not a problem with the method, but with the assumption that while regulations and regulators exist, they do so independently of the industry. As such, studies of the economic implications of regulatory intervention have tended to view regulators as isolated beings who generally behave in some known, but not *a priori* predictable, manner.

COMMENTS ON THE PRECEDING APPROACHES

Each of the preceding approaches is particularly valuable for answering certain types of questions. For example, were one concerned with such questions as, "What are the differences of the Canadian and the U.S. law in re air transportation rate regulation?", the legalistic approach would be appropriate. Similarly, were one concerned solely with concentration ratios or with the partial microtheoretic implications of altering entry regulation, the industry study and the exogenous approach would be appropriate, respectively. That is, some approaches are particularly relevant for dealing with particular sorts of questions.

Alternately, each of the above approaches can be used to answer the same question; however, the answers one would get from each analysis might differ considerably. Consider the question: "What are the specific types of regulatory intervention in the Canadian and U.S. trunk air transport industries?" By using the legalistic approach, one could, given a codification, list the relevant rules and regulations dealing with such topics as "Economic Regulation," "Regulation of International Air Transportation," "Liability," and "Problems, such as Airport Noise."[8] Alternatively, using the exogenous economic analysis, one might trace through the micro implications of each of the above listed laws. The differences in the methods of the analyses are, at this point, unimportant. What is important is that with each approach the frame of reference alters. Thus, when using the legalistic approach, one sees the above question as meaning: "What legal variables are relevant." The industry study seeks to answer the question: "What variables within this industry are affected by these rules?" And, finally, the exogenous approach asks: "What micro (and perhaps macro)[9] theoretic variables are affected by these rules and regulations?"

Each of the above analyses thus provides useful information, both in terms of questions which are best handled by the methods implicit in each approach, and in terms of the particular slant of the answers inherent in the differing frames of reference. The problem, then, is: How can the above approaches be integrated without losing useful information while providing a more general frame of reference? To test the hypothesis the approach must also analyse policy as an integral part of the production process much as any other constraint. In order to facilitate these considerations the following frame of reference will be utilized. This approach might be called the "industrial organization" approach.

THE INDUSTRIAL ORGANIZATION APPROACH

In order to define the industrial organization approach it is necessary to distinguish the study of industrial organization from other disciplines. Industrial organization is principally concerned with a systematic analysis of the institutional constraints inherent in the production process of the industry or group of industries under consideration. In other words, industrial organization is the "applied" analysis of microeconomic theory of the firm and related theoretic constructs, and implications. These implications, in general, may be broader in scope than the industries under study. That is, they may shed light on policy considerations for factor markets, for other industries, or even for broad policies dealing with such areas as competitions policy.

A classic industrial organization method of analysis for an industry or group of industries is that utilized by Bain. This analysis centres on the relationships between market structure, market conduct and economic performance. For this analysis, following Bain, the above concepts can be defined as follows: (1) "market structure refers to the organizational characteristics of a market... [particularly] those characteristics... which seem to influence strategically the nature of competition and pricing within the market";[11] (2) "market conduct refers to the patterns of behavior which enterprises follow in adapting or adjusting to the markets in which they sell (or buy)";[12] and (3) "market performance refers to the composite of end results of whatever individual firm policies and processes of adjustments of effective demands for (enterprises) outputs which are made by sellers."[13] Bain's thesis is that a linear relationship exists between structural variables and conduct variables, and between conduct variables and performance.[14] Pictorially, this may be illustrated as follows:

Structural Variables ⟶ Conduct Variables ⟶ Performance

This is not an unfamiliar assumption to anyone who has taken principles of economics. For examples, we talk about "pure competitors" (that is, firms facing structural variables including large numbers of buyers and sellers, free entry and exit, and so on), being "price takers" (having a certain set of pricing policies) at the price characterized by the equality of market supply and demand, and producing at the quantity at which the firm's MC curves intersect the market price line, thus specifying the price and output performance of the firm.

Each of the approaches, as has been noted, is carried on within its unique frame of reference. The frame of reference of the industrial organization approach is that which is implied by the structure, conduct, performance divisions, and the linkages between them. In order to test the hypothesis that a regulatory body can influence the industry which it regulates, one must be able to specify

(1) the points in the above stated progression at which the regulatory body intervenes and (2) the mechanism by which this intervention is translated into changes in performance patterns.

Clearly, insofar as the regulatory board, with force of law, can alter structural variables (or their fluctuations), performance is ultimately altered. Alternately, a board might alter the market conduct of the buyers or sellers and thus affect performance. One of the functions of this study will be to identify the points of intervention; the relative strengths of each of the linkages between structure, conduct and performance; and the degree to which alternative regulatory practices and policies would alter the ultimate performance of the industry.

It should be noted that as specified this frame of reference has the advantage of being endogenous in terms of the regulation which is applied on the air transport industries under study. Within this analysis, any regulation or potential alteration in any regulation must be weighted by the firms which are in the industry, potential entrants, and the purchasers of air transport services. Any appropriate alterations in terms of demand, supply, methods of production, pricing policies, etc., must be immediately calculated. Then any necessary rearrangements or alterations in their plans are made, and the market continues to operate. But the regulation is an