ROYAL COMMISSION ON TRANSPORTATION

VOLUME II

DECEMBER 1961

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VOLUME II

To His Excellency the Governor General in Council,

MAY IT PLEASE YOUR EXCELLENCY,

We, the Commissioners appointed by an Order in Council dated 13th May, 1959, to inquire into and report upon the problems relating to railway transportation in Canada and the possibility of removing or alleviating inequities in the freight rate structure:

BEG TO SUBMIT TO YOUR EXCELLENCY

VOLUME II OF OUR REPORT

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ACKNOWLEDGEMENTS

The members of this Commission wish to pay tribute to all those whose helpful advice and experience assisted in the task assigned to us by the Terms of Reference. No mere listing of individual and collective contributions can adequately indicate the extent of our gratitude for the knowledge and experience gained through the briefs presented, and by the private consultations with competent persons in government, business and other organizations and agencies. Without this willing and co-operative assistance the discharge of responsibilities laid upon us would have been infinitely more difficult. We wish also to express our appreciation to the members of the press and to other news personnel whose reporting of our activities has been most fair.

Throughout the whole period of our investigations we had the assistance of a competent and devoted staff. Particular thanks and appreciation are due to Mr. F.W. Anderson who served as Secretary and Director of Research. He brought to his duties a sound knowledge of transportation and general economics, a breadth of vision, an objective approach, integrity, devotion to his work and a special ability to administer research that inspired his staff to produce high quality work in volume. It was on the basis of these studies and the sound counsel of Mr. Anderson that many of our recommendations were based. We were able to secure Professor Anderson's services on extended leave of absence from the University of Saskatchewan, and we are deeply appreciative of this consideration.

Major Norman Lafrance, our Assistant Secretary, was on loan from the Department of National Defence and we are grateful to the Minister for making his services available. The very able manner in which he arranged for the public hearing facilities and the travel arrangements for Commission members made their work easier and more pleasant than could have been anticipated. His knowledge and experience in facilitating the internal operations and external relations of the Commission were particularly valuable.

We are most appreciative of Major Lafrance's ability to organize an administrative staff of high quality that handled their many duties to the complete satisfaction of the Commission. He was ably assisted in this by Mrs. Helen M. Roney and her staff who, in handling stenographic, statistical and library services, performed their work with competence and dispatch. We are especially grateful to them for the many occasions when they cheerfully worked additional hours and on holidays so that the work of the Commission could be expedited.

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The body of the research programme and its necessary co-ordination and integration were carried out by members of staff made available through the co-operation of various federal departments. We are grateful to the

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Consultation services to the members of the Commission and staff were made available by a number of competent economists. Dr. D.E. Armstrong of the School of Commerce, McGill University, Dr. D.W. Carr of D.W. Carr and Associates, Ottawa, Dr. A.W. Currie of the University of Toronto, Dr. D.H. Hay, and Dr. D.L. MacFarlane of Macdonald College, all provided valuable advice in the formulation of the research programme, and each completed special studies.

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of the firm of Riddell, Stead, Graham and Hutchison, Montreal and Ottawa, have the acknowledged gratitude of the Commission for their co-operation.

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We are grateful to Mr. Pierre Daviault of the Bureau for Translations who supervised the translation of the Report into the French language. Volume I (French) was edited under the guidance of Major Lafrance and Mr. R. Fortier, and Volumes II and III (French) by Mr. G.P. Boucher of the Department of Agriculture.

General editorial supervision of Volumes II and III[1/] was provided by Dr. D.W. Carr.

1/ Volume III will be published at a later date.

INTRODUCTION TO VOLUME II

The investigations conducted by this Commission have led us to conclude that the problems which beset transportation in Canada, and in particular railway transportation, arise, in large part, out of difficulties encountered in adjusting to the recent development of competition in transportation. We believe that a solution to these problems requires basic changes in both public and private attitudes and policies. In the first volume of our Report we delineated the four main areas where it was apparent that traditional obligations in law and public policy placed burdens upon railways which they can no longer bear equitably as instruments of national policy. We set out there the measures necessary in public policy to correct the imbalance against this particular mode of transportation. We indicated also that the new environment called for a different approach in the national policy respecting transportation and that competition itself demanded the construction of a different national transportation policy.

In the competitive environment in which the transportation system now operates it has become necessary to develop a clearer distinction between the terms National Policy and National Transportation Policy. Although the Terms of Reference guiding our investigation have required that consideration be given to both, a distinction is necessary because we wish to emphasize at the outset that the assessment of National Policy objectives for economic development, national unity, social welfare or

for any other purpose is, in our view, a matter which is very definitely not within our Terms of Reference. We regard our area of responsibility to be confined, first, to recommending guides to action in developing a National Transportation Policy, which is concerned with the effectiveness of transport itself, and second, to pertinent observations respecting the effects upon it of National Policies making use of transportation to achieve their particular objectives. This dual focus of our responsibilities, distinguishing clearly between National Transportation Policy and National Policy, furnishes the structure for this second volume of our Report.

Accordingly, in Part I of this volume attention will be directed to the principles essential to an effective National Transportation Policy; to examining why the old National Transportation Policy based primarily on conditions of monopoly is no longer appropriate; and to setting out the modifications necessary in National Transportation Policy to take account of the rapid and continuing growth of competition. In Part II we consider the effects, on National Transportation Policy, of National Policies used to achieve particular objectives.

It is implicit in our Report that the objective of a National Transportation Policy shall be to ensure that the movement of Canadian goods and people is effected in a manner which utilizes the fewest economic and human resources. This is merely to say that, given the preferences of those people who wish to move themselves or their goods, the movement shall be accomplished as efficiently as possible. Broadly speaking, there are two methods for pursuing this goal. One is to permit the movement of goods and people to be administratively determined. Such an approach is foreign to the economic system accepted by our nation. It chooses to

ignore the freedom of choice which, under free enterprise, remains the responsibility of the individual or business firm in the conduct of affairs. The alternative is to rely so far as is possible upon the market decisions of individuals both in providing the services of transport and in using those services.

It is our conviction that the optimum use of resources in transportation will be achieved, by and large, if each of the competing modes of transport is allowed to develop in response to the demands of the shippers for its services. However, to state this principle is one thing, to attain it, another. The efficient provision of transportation service is an increasingly complicated economic and social problem. Differences in the nature of investment in each mode give rise to pricing practices which may not be conducive to optimum stability in the provision of service or to optimum rates. The institutional rigidities that attend any human activity may inhibit the integration between the modes which would render maximum efficiency. In principle it can be said that efficiency requires that traffic be distributed among the various modes in such a way that, with a minimum use of total economic resources, each provides the service in which it has the greatest comparative advantage. Efficiency also requires that each business firm providing a transportation service shall be free to reap the rewards of managerial wisdom and technological skill; and this carries as a concomitant feature, managerial responsibility for inefficiency. Where maximum efficiency in service and resource use demands integration between the modes, regulation should not inhibit the process.

The task then is to ensure that these objectives will, as far as possible, be approximated through the mechanism of the market. Generally speaking, this requires that National Transportation Policy shall endeavour

to be neutral in its effect upon the provision of transportation service. This, of course, does not imply that policy should be negative - a posture of neutrality cannot be maintained without continuous and positive activity. It is, moreover, part of the Canadian tradition that public policy shall undertake some forms of investment which encourage individual private enterprise. In other words, where it is obvious that the market mechanism does not provide a satisfactory standard due to physical or technological limitations, or available market size, the market mechanism shall be complemented by public policy. There are many examples of this in Canadian economic life and particularly in Canadian transportation. To cite only the most obvious we have recourse to the history of public grants towards the construction and maintenance of railway transportation and to the provision of highway, seaway, airport and navigational facilities.

Although the responsibilities laid upon us by the Terms of Reference have particular bearing upon railway transportation, we must of necessity broaden our consideration to those other modes which are competitively related to railways. This involves us in some consideration of national transportation policy regarding the provision of highway transport in particular; but the principles which we have evolved are, we believe, broad enough to be a consistent guide for a National Transportation Policy for all modes, within the range of effective competition. Beyond that range, public policy has a responsibility to the users of transportation to act as a substitute for competitive market forces, permitting to the efficient carrier the conditions for investment and returns essential to induce maintenance of the necessary transport functions. It was our conclusion, embraced by the first volume of the Report, that public policy

must, in four major areas, redress the competitive imbalance against the railways as a first step towards effective allocation of resources in transportation.

Part II of this volume analyses in some detail the impact of National Policy upon the transportation system in Canada. The analysis contains an assessment of the effects of past national assistance to transportation, and the problems pertaining to transportation which have arisen within national policy with the arrival of highway competition. Following on that analysis, several regional and industry policies making use of transportation are examined in the light of their effects upon the National Transportation Policy. Certain recommendations follow which will, in our view, ease the strain upon shippers at the extremities of the nation and prevent expensive and contradictory measures which tend towards the inefficient provision of transportation.

To many who appeared before us, these individual policies relating to regional and industrial problems were deemed to be the National Transportation Policy. Our position, however, is that a clear distinction has to be drawn between the objectives of a National Policy which uses transportation to achieve certain ends, and the objective of the National Transportation Policy - which we deem to be efficiency and economy in the transportation system. To make the distinction is not to attempt to judge which is the most important. We reiterate that our Terms of Reference do not empower us to evaluate the purposes of those policies which use transportation as a means to another end. We are able to suggest that it is not unwise to use transportation, properly applied, as an instrument for the pursuit of National Policy objectives, particularly in a setting where great distances are a limiting factor to balanced national growth. It may be that, in

future, National Policy for development of resources, industries, or regions will go even further than at present in taking upon the shoulders of the nation a share of the burdensome costs of distance. However, if a National Policy of development should continue further in this direction, either as a substitute for other tools of development such as fiscal and monetary assistance, or in conjunction with them, we submit that transportation assistance must be undertaken deliberately, knowingly, and with the fullest determination of its true costs. Moreover, it should be undertaken in a manner which will see the benefits, to the fullest extent, resting where they are intended to rest. This means, more specifically, that any benefits which accrue to any carrier from the policy shall be requisite to the service performed, not more and not less.

Accordingly, the second part of this volume will conclude with an examination of the circumstances wherein transportation may properly be used, in our view, as an instrument of national development. There we shall attempt to set out the conditions which should apply in conformity with the objectives of the National Transportation Policy when public investment in transport facilities is to be used to stimulate regional or industry development.

In general terms, the National Transportation Policy, as we see it, should be designed to create conditions which will permit each mode, and each firm within each mode, to obtain that share of the growing volume of traffic which, on the basis of inherent competitive advantage, it is entitled to. In short, the objective is a healthy national transportation industry neither too sleek and fat by contributions from the public in excess of those required to have the function performed, nor too thin by unbalanced or inadequate public treatment. The level of health attaching

to any individual firm providing transportation service should reflect managerial and technical ability, and the function of public policy is to see that it is impartially responsible for neither.

Only when it becomes apparent that one mode of transportation cannot competitively survive should public policy, for clearly and obviously important national considerations, have to assume the responsibility for the survival of that mode. Certain implications of such a possibility, which is always contingent in a society of rapidly changing technology, will be suggested in a third part of this volume.

PART I

NATIONAL TRANSPORTATION POLICY

CHAPTER 1

STRUCTURE OF NATIONAL TRANSPORTATION POLICY

Almost every transaction which occurs in the life of the nation involves transportation as one element of cost. Thus, the material well-being of the nation is improved when goods are manufactured and services are rendered under conditions where the real cost of transportation is kept to the minimum necessary to provide fully adequate services. Lowering the cost of the service increases the ability of the nation to take advantage of resource location and to improve efficiency in the utilization of the other factors of production. Lower real costs are attained through adaptation and change.

Throughout the era of railway predominance the pace of technological change in land transport has been considerable, but measured and steady rather than spectacular. The introduction of new modes occurred but the use of them in significant fashion was not immediate. Since the end of World War II, particularly in the last decade, the application of rapid and continuing improvement in all modes of transport, and the construction of new ones, offered a range of services at a range of costs which inevitably gave rise to more intense competition in the provision of transportation. Vastly improved air services, construction of pipelines, the expansion of the St. Lawrence River system, the tremendous technological improvement in railway equipment and methods, plus the growth of the trucking industry as equipment improved and the highway network spread, has given the nation a range of services which has widened the horizon of

choice within which individual businesses and industries may operate in planning production and supplying markets within Canada and abroad.

The appearance of a variety of modes of transport in active or potential competition for the provision of transportation service gives to individuals, businesses and industries a range of choice in standards of service and price which cannot help but improve the efficiency of production. In fact, so important is transportation to production that it is possible to take the view that the benefits which flow from plentiful and low-priced transportation are great enough to make it relatively immaterial whether the transportation function is discharged with maximum efficiency. Subscribers to this point of view would provide through public investment the conditions for a plentiful supply of all forms of transport service at prices which are not intended to cover the total cost of providing the service.

It must be acknowledged that this is an acceptable philosophy of transport if it could be demonstrated that the benefits which would flow to industry and the nation were greater than the inefficiencies which would result. Nothing in our experience, nor in the investigations we have made, lead us to conclude that the alleged benefits of such a scheme could be real or equitable. It amounts, in our opinion, to a scheme for income redistribution to the immediate benefit of users of freight services at the expense of the general taxpayer. We have rejected this philosophy on the prima facie grounds that it leads to inefficiency in the provision of transportation service and removes from the individual entrepreneur one responsibility for assessing the true costs of his production decisions. Individual entrepreneurial decisions which attend

the productive process in a free enterprise economy lead to over-all efficiency when the entrepreneur's responsibility for the decisions is greatest.

Accepting these principles of individual responsibility as a basis for our conclusions, we also recognize that the nation, through its parliamentary institutions, may at any time and to any extent decide that the transportation costs to a given industry or a given region are too onerous. In these cases assistance has been extended and in some instances is still being extended. Decisions so to do are made for many reasons beyond the sphere of transportation considerations and do not fall within the ambit of our Terms of Reference. But, as a principle we are forced to adopt, when transportation assistance is so used it should be applied with the most judicious care to see that the objectives of the policy are not achieved at the expense of transportation efficiency. We are convinced that efficiency in transportation is essential to total efficiency in the nation. The costs of distribution are already a high part of total production cost. Therefore, it is necessary that public policy shall do what it can to promote the efficiency of transport services.

The Objective of National Transportation Policy

Public policy in Canada should seek to create an efficient transport system. This we define as the objective of the National Transportation Policy. Opinions generally expressed before us concur in this definition. This objective we regard as of more importance than the preservation of any single mode of transport, or of any particular company offering the services of transport. Should it be apparent that a firm

providing services of transport is unable to live under a policy which seeks to attain maximum efficiency, we state that the consequences of technology or economics must not be set aside to preserve any historical or preconceived ideas about the proper composition of the transportation industry.1/

Elements of the National Transportation Policy

The elements of National Transportation Policy necessary to work toward efficiency in transportation are few. Foremost is the reliance which may be placed upon competition to keep the industry efficient. In the present environment, and so far as we can foresee, the conditions are such that considerable reliance can be placed upon the individual decisions of carriers and shippers to promote the objective of efficient transportation in the nation. This does not mean that errors of judgement and the wasteful commitment of resources will be avoided by the dependence on free enterprise and the market mechanism, but nothing in our investigations and experience leads us to think that these errors would be any less likely to occur, or would be rectified more rapidly, under a system of complete public regulation. Thus, accepting the objective of efficiency and reliance upon competition to achieve it means accepting also the necessary

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1/ The only instance where an exception to the principle ought to be allowed is where it becomes obvious, for overriding national purposes, that one entire mode of transport cannot be allowed to disappear. Then public action to preserve or revive that mode should be undertaken with a clear understanding of the effects of this interference on total efficiency, and should, at the same time, resist with firmness the demands for comparable public assistance to other modes which would only compound the inefficiencies and increase the real cost of the transportation services.

corollary condition, which is flexibility and mutability - and the possibility of bankruptcy - in the individual firms comprising the industry.

In Canada transportation competition is not universally pervasive. It may not ever be sufficiently so to place complete reliance on it. The second element of National Transportation Policy, therefore, is to introduce regulation of a type and extent which attempts to do for the industry what universally pervasive competition would do.

In Canada national development has depended upon redirection of economic and business trends. Inevitably such redirection involves assistance to transportation and to users of transportation. The third element of National Transportation Policy, if the objective of efficiency is to be achieved, requires that public assistance to transportation or users of transportation be rendered impartially by public authorities. In a federal state the corollary condition of co-operation at all levels of public policy and administration becomes essential for successfully achieving efficiency. This becomes especially true where policy has to be devised and executed for national growth within the context of limited transportation competition.

Limitations of Competition

The nature of competition in transportation in Canada being what it is and trending in the direction which it appears to be, we recognize the fact that market forces cannot be relied upon absolutely to achieve the objective of the most efficient allocation of resources in transportation.

There are a number of reasons which force us to this conclusion. Some are associated with the historical role of transportation in the national

development, the relative sizes of firms in the various modes which have developed, the minimum amounts and length of commitment of capital necessary to operate, the divided nature of regulatory powers in Canada, the unequal contribution of public investment, and other assistance to the various modes at all levels of government. Of these factors, some are amenable to change by public action if there is developed a greater degree of uniformity in public policy at all levels of government. Others, however, are the results of the economic and institutional structure of the various modes and are not susceptible to significant alteration by public action without the creation of instability and inefficiency.

Reliance on the efficacy of competition to bring about total transportation efficiency must be limited for some less obvious but equally cogent reasons. In any industry where a few firms are supplying the total product or service the condition of imperfect competition occurs. This condition can be sustained wherever other firms find it difficult to enter the industry, either because of the large amount of investment required in relation to the total market, or because of artificial regulatory control over entry. Whenever conditions exist which limit entry, prices may tend to become regulated by tacit or explicit arrangement. If these arrangements are private they will be primarily in the interests of revenue stability for the few firms, and at prices higher than would otherwise prevail. If the controls are public, the regulatory authority has the double, and often conflicting, task of attempting to limit monopoly or oligopoly price while trying to maintain revenue requirements and acceptable service standards. In the instances of a market small in relation to necessary investment (a condition sometimes referred to as a natural monopoly), the only solution for public policy is to limit the number of

firms. If accompanied by rate control, such limitation is consistent with the objectives of National Transportation Policy, in these special circumstances. If such regulatory arrangements do not exist at all, pricing in imperfect competition may be so disorganized that severe instability will result.

This is the dilemma which faces those responsible for creating a policy and administering it. Where a given mode of transport has a clear-cut cost advantage (which, to be effective, is reflected in rates) over all other modes in the movement of certain commodities, and conditions occur which limit the number of firms, the central problem is the public regulation of the firms in that mode to provide "reasonable" rates. Public policy in that case has the task of deciding, through applying standards of reasonableness, what the rates must be. This is public utility regulation and the theory and practice of it is sufficiently developed to need no treatment in this Report.

The instances of clear-cut, over-all cost advantage pertaining to a given mode of transportation are becoming fewer. More and more, new techniques are making the movement of goods by alternate modes possible. Each mode has a range of costs at which it can provide its particular services and, if competition were pervasive enough, these costs would parallel with fair accuracy the prices charged. But the more competition is limited, the more the pricing of any individual movement will tend to be opportunistic, unrelated to the costs properly associated with the service performed. This, as a matter of course, finds its effects in the misallocation of resources in transportation, and distorts to a greater or lesser degree resource allocation in the rest of the community.

Public action, therefore, in developing a National Transportation Policy, must seek to encourage competitive forces where the structure of the industries permits pervasive and effective competition to operate, and to regulate where it does not. In practice this amounts to developing agencies of regulation which recognize that freedom of pricing will bring efficiencies in those sectors of the transportation industry where the firms can be numerous and achieve satisfactory economies with commitments of capital small in relation to the total market. Trucking is the obvious example. Regulation in this situation should be firm, uniform, clearly stated and adequately enforced, confined to maintaining standards of safety and performance. This applies particularly in Canada at the provincial level where co-ordination needs to be developed to achieve uniform standards and to be able to resist pressures, in the interests of those firms already established, for stricter control of entry. Stability within the industry, as defined by some proposals, is not synonymous with the provision of service at lowest real cost to the community.

For those parts of the industry where efficiencies in operation are obtainable only by very large capital commitments, the number of firms will be small in relation to the total market. The railways are the classic case in point. Here competition cannot be totally relied upon to regulate price in the interest of lowest real cost. It is here that public action must acknowledge the necessity of control comparable to any utility regulation but with one important complication. These large firms, for a large and growing portion of their business, are within a cost range which is competitive with the trucking industry. Thus the unique situation exists, and will likely persist, of a few large railway companies being the sole practical movers of a few types of commodities important to Canadian

development, but competitive with one another and with a lively and growing host of trucking firms offering specialized local and long-distance road hauling. Therefore, the development of a National Transportation Policy must on one hand attempt to exercise limits on individual rates where evidence of monopoly exists. On the other hand a consistent National Transportation Policy must do nothing to inhibit the growing free play of competition, nor cushion the rough blows of competition in that segment of the whole transportation industry where a large number of firms will bring efficiency and flexibility.

Fortunately, this apparent dilemma can, we believe, be resolved by policies which are adapted to the present transportation environment and acceptable within the Canadian constitutional framework.

The policy which we believe should be adopted will not guarantee longevity to any specific firm offering a transportation service nor guarantee the long-run continuity to any given mode of transport as we now know it. The facts of competition and the national demands for efficiency eliminate such guarantees. The policy should provide a climate in which any firm providing transportation by means of a mode, or modes, shall have the opportunity to reap the rewards of flexibility and efficiency or take the consequences of rigidity and inefficiency. We conclude, therefore, that efficient transportation should be the objective and measure of public responsibility for the nation's transportation system.

Basis for Regulatory Control

Whatever may have been the rationale behind transportation pricing policies in the past, the evidence set before this Commission, and the analysis we developed in arriving at conclusions, make clear that the

emergence of competition inevitably throws the ratemaker into sharper contact with the whole problem of costs of movement. Whether it is the costs associated with a particular movement by his own firm, or the costs of movement by a competitor, the orientation is evident. He must be in a position, before he can attempt to place an evaluation upon the quality of service of the movement by his firm, to know the minimum rate, determined by costs, below which he cannot go. And the relevant costs are determined in considerable part by the volume, speed and periodicity requirements of the traffic. The development of rapid and accurate costing methods is essential to all modes competing for traffic.

As the range and intensity of competition spreads, and individual ad hoc rate adjustments become less and less useful in maintaining or capturing traffic, broad and general revisions of the traditional rate structures are needed to bring them more in line with cost patterns. Only thus will each mode be in a sufficiently competent position to move the traffic most suitable to it.

The development of costing techniques is particularly vital for railways, and we have been impressed by the degree of sophistication already displayed. The submissions made to this Commission on the costs associated with the movement of grain and grain products from Western Canada to export positions is evidence that the science and art of cost finding have made significant strides. The determination of the degree of competence in costing principles and practice was the reason why so much time was taken up dealing with the cost studies on the movement of grain. It was an excellent test case. This knowledge will, under the pressure of competition, be continually refined and improved with the expectation of increased accuracy in the results. However, we wish to

acknowledge that several of the most important decisions respecting any costing operation are matters of judgement and not of technique, and are likely to remain so.

The unique position occupied by railways in the total transport picture makes railway costing of significant importance to the regulatory authority, the Board of Transport Commissioners for Canada. The same conclusion may be drawn for any mode of transport where the capital investment of the firm is significant in relation to the total volume of traffic moved. Where this phenomenon exists, regulation of rates, particularly minimum and maximum rates, becomes essential. The evidence in support of this conclusion will be presented in the appropriate chapters to follow. It is sufficient to state here that, for these reasons, the development of adequate and accurate cost and traffic data becomes of vital interest to all rate regulatory authorities. At the moment, we do not have, in sufficient detail for all modes, the total volume of traffic handled or its composition or the nature of movements or the significant reasons for the choice of a given type of movement. Without such information, any adequately broad and composite picture is unavailable to the regulatory authorities which would enable them to judge specific regulatory decisions in perspective. Even more serious, those responsible for policies of public investment in transportation are unable now to judge accurately the influence of their decisions upon the mode concerned or on other modes. No accurate universal assessment of cost measured against benefit can possibly be made without the necessary statistical series. A serious aspect of this limitation has been the probable effects of public investment on those modes most completely dependent upon private sources for capital funds. The end result of the lack of sufficient data has been the inability to assess

proper user charges for the use of public investment in transport, or to be able to use the instrument of the user charge to direct activity toward that mode making the most efficient use of resources.

Without accurate and sufficient statistical evidence wasteful public expenditure is a constant probability. If the objective of the National Transportation Policy is the creation of an efficient transportation system this involves the encouragement of the various modes, separately or in combination, to the extent of their economic capabilities. This involves, without question, cost and traffic compilations by the carriers and inevitably by the regulatory and the policy-making authorities. Accurate collection of such data and co-operative development of costing techniques are basic to an effective transportation policy and practice. Specific recommendations to fill the gaps in this field appear in Chapter 6.

CHAPTER 2

INCIDENCE OF INVESTMENT PATTERNS ON TRANSPORTATION COMPETITION

Competition between various modes of transportation for the opportunity of carrying goods for a price is a complex phenomenon which defies a simple explanation. Its nature can be partially described in terms of orthodox economics, that is, by the analysis appropriate to conditions of imperfect competition on both the demand and supply side. In this respect, certain characteristics of transport competition are of primary significance. One of these primary characteristics is found in the great differences in investment patterns between the various modes of carriage. It is with this characteristic that the analysis of this chapter deals. In our view, an appreciation of these differences in investment patterns is essential if proper guidance is to be given to policy in the provision of public investment in transportation.

The history of Canada is, of course, replete with public participation in the provision of transportation investment at all levels of government. Such participation began with the earliest provision of roads. It developed in sophistication with the extension of massive public assistance into the St. Lawrence canals, navigation and terminal facilities for ships and aircraft, land and money grants to railways, provincial and federal highway construction and, more recently, pipeline loans.[1/] Nevertheless, our investigations have revealed surprisingly

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1/ See Chapter 7 of this volume for a more detailed discussion of public assistance to transportation.

little evidence of a consistent and considered economic approach to this allocation of public assistance among these various modes. This may be explained, at least in part, by the fact that only in recent years have these forms of assistance provided facilities for modes of transport which were to a significant degree competitive. Moreover, it was not until the emergence of a vigorous trucking industry in competition with the more traditional railway that the necessity for careful consideration of the relative impact of public investment in favour of one mode of transport as against another began to become apparent. It is our intention in this chapter to illustrate the development of this particular phenomenon as it is related to the growth of competition between these two modes.

The investigations of this Commission lead us to affirm that two features of the competitive conditions which presently exist between trucks and railways have had a major influence on the ability of the two modes to compete. First, the character of investment in the motor transport industry has given a degree of flexibility of operation to trucking firms which cannot be achieved by the railway industry. Second, the nature of pricing for service, commonly called the rate structure, is still based largely upon a classification structure which the railways evolved when they held a virtual monopoly of the overland transportation market. The first of these, investment, will be treated in this chapter; the second, pricing, in the two chapters that follow.

Differences in the investment pattern between companies engaged in hauling by rail and those engaged in hauling by road, reflect both the nature of public assistance and the type of ownership and responsibility which attach to each mode of transport. The chief difference between railways and most other modes is that the greatest proportion of the roadbed

is the property, and the responsibility, of the railway company. Companies providing transport by pipelines are the other significant bearers of this ownership pattern.1/

From the nature of the investment pattern in railway plant and equipment, it is easy to demonstrate that railways were built to operate for a long period of time. To lay a roadbed and rails, to build locomotives and rolling stock and all the associated stations and shops of long life expectancy is to undertake a large expenditure which can only be recovered over a long period of time. Furthermore, the size of the minimal amount of investment is so large that railway plant is almost inevitably characterized from the outset by excess capacity. In economic terms this means that the investment tends to be undertaken in fairly large and indivisible units. These conditions of investment necessarily involve an expectation that the amount of traffic available will grow. In other words, the nature of the investment and expectation is such that as traffic increases the railway should become more and more profitable. Having undertaken heavy fixed investment, a return from the investment is made easier to recover as units of traffic carried increase. However, once committed to investment in roadbed, stations and rolling stock, the railway may not readily escape these associated investment costs when traffic either fails to materialize or declines. Some costs are variable because they can be avoided by not running trains. But a large proportion of railway costs must be considered

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1/ This assertion should not, of course, be taken to mean that companies engaged in other modes do not pay for the facilities they use. They may or they may not, depending upon the extent to which the "user charges" extracted from the firms cover the relevant costs of providing the facilities.

as fixed since they cannot be escaped for a considerable period of years. Clearly, therefore, to make an investment of this nature calls for two presuppositions in the minds of the investors: (a) that there will be no serious competition to the railway in the foreseeable future, i.e., that traffic increases will accrue to the railway; and (b) that there will be no substantial increase in railway operating costs which cannot be met by general and particular rate increases, i.e., that revenue requirements will be met.

In Canada's early experience conditions for profitable commercial railway operation were not immediately present. Yet national aspirations demanded the provision of railway facilities far in advance of adequate traffic volume. In these circumstances, it was public assistance, plus the unique monopoly position of the railway as a mode, that gave the necessary confidence to the builders to expect a profitable commercial enterprise.

The proliferation of railways which ensued as a result of over-optimism about the rate and volume of traffic growth in Canada brought with it an era of competition quite unlike that faced by the railways today. Then it was competition between railway companies, that is, between carriers having the same sort of investment patterns. The result of this intra-modal competition was that by the end of World War I several railroads, unsoundly financed and uneconomically built, faced ruin. Total traffic had not grown quickly enough to support all the lines, excess capacity persisted, and the burden of the investment in a number of companies grew too great for them to bear. Public action again came to the rescue and kept most of the railway plant in operation. No substantial abandonment of lines was permitted. By this policy, the nation declared its intention to

pay the necessary price in public monies to keep a given measure of service in certain areas. The amalgamation of these lines into a publicly-owned company with instructions to operate in the normal commercial manner indicates an assumption at that time that total traffic eventually would grow to absorb excess capacity in the system as a whole and national purposes would be furthered through that type of cross subsidization which the rate structure permitted in order to support those segments of the system where traffic density was too light.

It transpired, by the end of World War II, that the evolution of the trucking industry was creating a competitive situation quite different from that which has just been described. Here was a mode of transport where the firms had no long-term commitment of investment in right of way and roadbed, or even in rolling stock built to last a long time. In economic terms the truck hauler has a large share of his costs variable with the traffic carried. The trucking firm can, for example, escape most of its "track" costs (which take the form of "user charges") in any year simply by not operating. Investment in equipment is also of shorter life. Add to these the ability to operate smaller units and there exists a medium of transport where costs move much more readily in answer to the demand for services than is possible with railways. Total capacity in the individual trucking firms and in the industry will approximate fairly readily the demands for the service. Mobility of factors is great, relative to railways. In addition, with the technology of motor trucks and trailers continuing to improve and ton-mile costs tending to decrease, more and more movements of commodities have become subject to competition by road.

Each improvement in the highway roadbed paid for by public authority, and each improvement in the efficiency of the equipment used,

increased the ability of the trucking firm to expand its operations with the investment of a relatively small amount of money. The railway, on the other hand, tied to heavy investment in roadbed and rolling stock of long life expectancy was less able to shift rapidly to new and more efficient techniques of development except by large capital expenditures which called for serious evaluation before making further long-term commitments. It should, therefore, not be surprising that competition had to be real and pervasive before the necessity for large-scale technological change became evident for the railways. Moreover, the familiar pattern of large-scale investment and the previously unassailed monopoly position of the railways could be expected to engender institutional rigidities which also inhibited adjustments to the new competition.

As in any industry, the appearance of technological changes in transportation, giving rise to a new competitive mode, may in turn stimulate changes in the more traditional mode to meet it. This has certainly occurred in transportation although the process is far from complete and the eventual outcome is still to be determined. To ensure that the railways can participate in this adjustment process in a manner which reflects their appropriate position in the transportation structure is, of course, a matter of fundamental concern to this Commission. In this connection we would wish to draw particular attention to one factor which has the appearance of tipping the scale in favour of road haulage - the massive public expenditure on the highway network which, among other things, is opening opportunities to the trucking industry to extend the reach of its competition with the railways. This trend in highway building is motivated by strong and increasing public demands for roads for private vehicles, quite apart from the pressures exerted by commercial trucking interests. All levels of government are now participating in highway improvement.

Yet this expansion of highways has not been uniformly extensive in all regions of Canada and this fact explains some of the disparities that exist in freight charges among regions. In recent years it has become characteristic of Canada's transportation system that areas which are most heavily populated and industrialized have been able to afford the development of highway networks which, with the accompanying growth of motor transport, has forced the railways to lower their rates in these areas in response to competition. At the same time, those regions less generously endowed with the prerequisites for the rapid growth of a highway system have experienced not only a relative absence of competitive railway rates but also the burden of an increasing share of those railway expenses which can no longer be obtained from rail revenues in the competitive sectors.1/

In these circumstances, the extension of highways almost inevitably affects the ability of the railway as a mode of carriage to keep its share of the market. The impact becomes heavier, of course, if firms engaged in truck transport do not pay their appropriate share of the costs of the highway

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1/ Part of the solution to this problem of increasing regional inequities in transport costs, which arise from the uneven effects of competition between trucks that use a regionally-oriented highway network and a railway system designed to provide a total national service, involves pricing, and this is examined in the chapters that follow. But another part of the problem is concerned with the disparities in highway development between regions. Eventually this part of the problem seems likely to require a co-ordinated federal-provincial effort to develop an integrated national highway network which could provide a basis for motor transport services in all areas of the country as adequate, relative to traffic, as that which presently serves the heavily populated and industrialized area of Central Canada. The objective would be not to add to the financial problems of the railways but rather to introduce the stimulus of competition to regions where it is comparatively weak and thus contribute towards increased efficiency, a more balanced and integrated transport system, and a general cost-orientation of transportation charges throughout the country.

network. Extending this obvious principle, we would say that an adequate assessment of user charges for all modes of transport using public facilities is very much in the interests of efficiency of total transport resources.

It has been alleged before us that competition from trucks has been stimulated by the provision of a "free" roadbed, free at least to the extent that user charges (taxes, licence fees, etc.) do not fully recompense the builder of the road, and that this puts an artificial cheapness on transportation by roads. Alternatively, it has been claimed that road haulers pay in licences and taxes more than a proportionate and appropriate share for the use of the road. The proof of either contention is far from being satisfactorily demonstrated. Moreover, it is secondary in importance to the consideration upon which our conclusions rest. In our opinion, the major consideration is the responsibility of the railways to provide the long-term capital investment in roadbed and supplementary structures plus the longer life expectancy, larger cost and greater capacity of the motive power and rolling stock units rendering mobility in railway resources so difficult, which lies to a great extent at the root of the railways' competitive problem. Stating it conversely, it is the extreme mobility of resources in trucking, and the high degree of escapability of costs in trucking which, in large part, make that mode effective in competition with the rails. It is these facts which, in large degree, have only become clear in the past decade, and which to a great extent underlie the present railway problem. The evidence in proof is the railway companies' own investment in road haulage to the extent that the two major railroad companies between them constitute the largest owners of truck fleets in Canada. In a dynamic economy, where technological change is rapid, it is natural to seek investment in short-term equipment so far as is possible, and to seek it in an

area where a large proportion of fixed costs are escapable by the firm, given comparable profit prospects.

Generally speaking, it is recognized that it is unwise and uneconomic for management to hold to techniques or resources in the face of new discoveries or new techniques solely because of undepreciated earlier investment. The new situation in transportation puts the concept to the test. Where irresistible public pressures for public investment in roads and highways inevitably renders incidental benefits to commercial transportation by providing roadbed on a "pay as you use" basis, it would seem unrealistic for the government to provide additional alternative rail assistance simply on the grounds that business firms engaged in the provision of transport shall be in a competitive position with one another. Only if the full benefits of competition by road were not being passed on to shippers would there be some justification for such action. But competition between firms engaged in road haulage has been such and will continue to be such that the benefits will accrue fairly rapidly to the public so long as artificial restraints on entry do not create an element of monopoly in the trucking industry.

Problems do exist, however. Manifestations of the competitive disadvantage suffered by railways because of the structure of the investment pattern were reflected in the several proposals brought before us for rectifying these disadvantages. These proposals resolve into two. One suggests that truck licence fees and taxes should be increased; the other suggests that the burden of railway investment in roadbed and track should be shouldered by government even as it is for road carriers. There are practical constitutional and operational difficulties to each, but each may be considered on principle in the first instance.

The proposal to increase present road, fuel and franchise fees to trucks rests on the premise that these are not now high enough to repay the road authorities for the use of the highway. Considering this as a possibility, increasing these user charges to the full extent proper, or even beyond, would still permit any road hauler to escape the necessity for long-term capital commitments for the road he uses. It is this special element in the situation, plus the fact that the trucker is able to begin to operate with much smaller and less costly equipment, which gives the trucker the high relative mobility of resources which enables him to compete so effectively with the railways. These same characteristics of the investment pattern in trucking make the individual trucker subject very quickly to competition from other truckers. Increasing his fees and taxes will decrease his ability to operate, expand or contract his plant, but it will not remove from him this fundamental advantage of flexibility. This conclusion should not be taken to mean that it is not sound or wise to charge the trucking firm for the costs of the roadbed that it uses. If the efficient allocation of resources in the transportation industries is to be promoted each mode of transport ought to pay its proper costs.1/

1/ One of the main conceptual difficulties in comparing truck and railway costs is the problem of rate of return on the roadbed. The user cost of the trucker would obviously have to cover an appropriate portion of the cost of building and maintaining a road. The railway earns a rate of return designed to cover the comparable costs met by truckers but in addition must attempt to get a return on the money invested. Whether this money return should be calculated on the basis of historical sunk costs or current replacement costs is irrelevant at this point. What is relevant is that the railway, under the necessity to earn a return on roadbed investment, suffers a competitive disadvantage that could be rectified only by decisions either to include in truck user costs some component for the return on the road investment, or to lift this obligation from the railways. In the interests of total efficiency in transportation comparable adjustments should be made in user charges to any mode of transport making use of facilities provided by public investment.

Licensing authorities throughout the nation should, we believe, review policy constantly to ensure that user charges reflect the economic and social costs of providing transportation facilities to private automobiles, trucks, planes and ships. Many of these cost items can be accurately determined; some of them will always be a matter of judgement. Particularly is this true in the estimation of indirect costs. Highway licensing, for example, often does not take adequate account of the expense necessary to regulate and control traffic, nor of the social costs of the accident rate or the inconvenience caused by traffic density, speed factors, etc. The same factors apply to other modes of transport, particularly by water and air. These costs, even though arrived at partially by estimate, are nevertheless real costs, and a failure to charge for them is to render the favoured mode artificially cheap and will distort the optimum allocation of resources between all modes of transport.1/

1/ Without the system of user charges a position of parity between trucks and rails, if carried to its logical conclusion, would require that the truckers build their own roads. This is to deny to public authorities the possibility of achieving more nearly maximum utilization from public investment in roads. Given historically comparable public assistance, to do so would lead to excessive investment in roads in the country, and would put the road users, both public and private, to the unnecessary expense of owning and supporting two parallel systems of identical roads, neither of which was used to capacity - a situation which is apparently forced by operating limitations or institutional rigidities in some areas upon the two major railways in Canada. By no economic test could such a highway programme be supported and naturally it was never seriously put forward to us. It is set out here to illustrate that forcing the appearance of equality of opportunity between competing modes of transport by overcoming the natural, technological or social advantages enjoyed by one in order to permit "competition" by the others is against the interests of efficiency. True economies rest on exploiting every advantage to its limits, and the incentive to that exploitation is the spur of competition. Public policy need only ensure that the advantages are real.

If it is desirable that roadbed or other facilities be made available to some modes of transport by public investment at a charge less than the real cost, could the railways not be placed in an equally favourable position by lowering the roadbed costs to them? Conceivably this could be done either by lifting the burden of investment in roadbed upon which the railway company should make a return, or lifting some of the burden of maintenance costs.

These questions need to be examined in two parts: the competitive effects of relieving the railway companies of historical costs of roadbed and the competitive effects of the state providing the roadbed and levying user charges.

Analyses may be undertaken to estimate the social costs of undertaking a responsibility to provide roadbed to a mode of transport which uses it exclusively. The very fact that operational and technological factors make it necessary that railway companies have complete control of roadbed use inevitably ties to management the ultimate responsibility for determining how much track there will be, where it will go, and the utilization through pricing policy which will be made of it. Historically, the nation has also had a hand in making these decisions through various forms of control over construction, assistance in cash and land, and maximum rates. Thus the burden of responsibility for roadbed investment in Canada was never exclusively the prerogative of management. Now that portions of this large investment are in excess of efficient utilization it could be reasonably proposed that the burden of earning a return on parts of the railway roadbed systems should be partially lifted. Especially might this be argued since efficient utilization has been inhibited through the impact of competition stimulated in part by public

investment programmes of assistance to other carriers. However, we have not been able to proceed that far in our recommendations. We have recommended in the first volume of our Report that the railways shall have freedom to abandon unprofitable segments and thus escape the associated costs. Where public policy requires the process of roadbed retrenchment to be gradual or where it requires the retention of unprofitable lines, we have asserted that these should neither be a burden on the railway companies nor distort cost patterns and price patterns with consequent effect upon choice in the market place and eventual misallocation of resources.

The recommendation we made respecting uneconomic branch lines in Volume I proposes a solution to only part of the problem - that of the burden associated with historical roadbed investment which is now uneconomic. No such recommendation would have been made had we been convinced that railway management was and remains solely responsible for the original investment. Had management been solely responsible it would have been consistent with the approach we have taken to leave management to reap the penalty of what technology and time proved to be an unwise investment. But railway management has never been entirely free to adjust plant and services guided only by market demand. The nature of the assistance we have suggested - that the public should pay for services rendered as long as they are rendered, whether these be branch line services, export grain or passenger services - and the attendant opportunity to escape the burdens of uneconomic investment, should enable management to adjust to the realities of the transport market today and in the future.

One of the factors which railway management must face in their planning for the future is the responsibility to earn a return on investment in roadbed, a responsibility which may not be assumed by some other modes. Provided the railway companies are not made to suffer losses on services they are obliged to perform in the national interest, the question then becomes: should public policy attempt to redress this "imbalance" by shouldering certain roadbed responsibilities? All things considered we have not and do not recommend it.

The concept of the railway roadbed is different from that of public roads. Technological and operational characteristics of the railway necessitate complete control over traffic movements. Thus responsibility for the number, size, weight, frequency and speed of trains rests with management. These require managerial decisions on levels of maintenance, types and amount of new investment, and responsibility for expansion or contraction of roadbed facilities. These, in turn, require complementary decisions on pricing policies and service standards. In short, the investment associated with roadbed and the responsibility for it is an integral part of railway operations. Consequently, provision of the roadbed by the state would seriously limit management's control over track standards. In addition, since the appropriate user charge would be the applicable maintenance costs, there would be no advantage in shifting the responsibility to the state.

There is one concomitant aspect of the different investment patterns facing management which warrants special mention. In certain sections of the nation, ownership of roadbed and right of way by some modes of transport, particularly railways and pipelines, is subject to an annual property tax assessment. This levy is treated as a source of municipal revenue, a tax on the transportation companies for ordinary fiscal purposes. To the extent that municipalities raise revenues by this means in excess of any direct expenditure by the municipality in servicing the transportation company, the property tax becomes a levy which creates a competitive disadvantage.

In contrast, other competing modes of transport pay no comparable tax. The licensing and fees levied upon transportation in payment of service received is a user charge designed to repay public authority for actual expenditure. To the extent that user charges do not contain a surcharge comparable to a positive tax contribution for the roadbed above the costs associated with the use of it, the forms of transportation paying roadbed or right of way property taxes have a competitive disadvantage.

This assertion is not to be construed to mean that all property taxes upon modes of transportation are unrealistic or unreasonable. In a free enterprise environment businesses must contribute to the upkeep of public authorities. Depots, yards, warehouses, terminals wherever used in conjunction with any mode of transport should rightly bear the usual business property tax or comparable terminal user charges. The fact that the space requirements of one mode are more extensive than another is not in itself an argument for claiming discrimination in taxation. The appropriate principles of assessment should be applied impartially in order that the true social costs of each mode of transport may be accurately reflected in

their cost patterns. But where some modes of transport are called upon to pay types of taxes which others are not, a distortion in resource allocation is introduced. Due to well-established traditional patterns and the dependence of municipalities on these property taxes, there is probably no realistic expectation that these burdens will be lifted. Nevertheless, it is one of the considerations which the Transportation Advisory Council, recommended in Chapter 6, should bear in mind.

The solution of the problem of securing an optimum allocation of resources in each mode of transport will be achieved, not by lifting the burden of roadbed investment over which railways must perforce have exclusive jurisdiction, but by levying appropriate charges, including return on investment, on all other modes of transport for roadway, navigational or terminal facilities provided, sufficient to assure that each bears its appropriate costs of operation.

The recommendation we have made respecting the lifting of burdens from the railways for uneconomic branch line operation on those lines the railways would abandon under normal commercial criteria we do not see as a contradiction of this analysis. That recommendation was predicated on the fact that errors of forecasting were made about such things as the growth of traffic, the growth of competition and its effect on branch line requirements of the nation. With the benefit of hindsight we see that the investment in branch lines was excessive. Still, we cannot deny that the railways in large measure paced the development and settlement of the nation. Had public and private investment in railways been more cautious, the rate of national growth would have been less. Furthermore, we must recognize that the state played an influential role in determining the pattern of branch lines in the days when the railways had a functional monopoly of overland

transport. Now that the functional monopoly has largely ended, our recommendation in the first volume of this Report was that the state should relieve the railways of operational disadvantages on lines which they would willingly abandon. We make no inference that the railways should be reimbursed for the capital expenditure on these lines.

The principles stated above should not be extended to infer that we believe the role of the railway is ended in Canada. It is our conviction that, bearing full costs of investment and operation, there is a very large volume of traffic which a railway can haul at an acceptable service level, more cheaply and expeditiously, at a price which will capture the traffic and render the operation remunerative. This is not to say, however, that it will be the railway in its traditional form and function which will render this service. Once adjustments have been made for competitive factors now existing, with assistance to minimize the social and property dislocation, and given the attitude and powers of flexibility to meet new situations, then the railway will assume the place it can most effectively fill by economic and business tests. Whether its future is, from that point on, upward or downward will depend upon its ability to remain competitive. Certain recommendations which we have already made as a result of our investigations will, we believe, over an interim period of time, assist the railways to rationalize and adjust plant and operations and so place them in a position from which to render the services they can economically perform.

To sum up, we wish to state that it is our conviction that a considerable degree of competition would exist between carriage by road and by rail because of the different patterns of investment in each mode and because of the ways in which the costs of investment must be borne or may be escaped by each. Certain conclusions logically follow from this.

1. The objective of efficiency in the provision of transport services in the nation demands that each mode shall operate so as to bear the real costs of the resources used. To the extent that law and public policy force a mode to utilize its resources in the provision of service, adequate remuneration should be made. To the extent that public policy provides resources in the form of facilities to any mode, adequate charges should be levied to cover the associated real costs.

2. User charges for the use of facilities provided by public investment may frequently fall short in covering user costs plus a market rate of return on the investment. On the other hand, those modes which are most fully responsible for the costs of providing their facilities are forced to attempt to achieve a normal or market rate of return on the whole investment. A competitive disadvantage may result. In some instances roadbed property taxes aggravate this handicap.

3. For modes paying user charges for the use of fixed investment in roadbed or terminal facilities, changes in traffic patterns permit changes in the scale of operation and permit the firm to arrive at new decisions knowing that most of their costs are variable in the extremely short run. Public policy should permit this flexibility.

4. Some modes achieve economies of scale only at units and levels of output larger than others. Characteristically this introduces rigidities into the type and level of

service that can be offered. In an economy which is maturing, with relatively less and less emphasis placed upon primary production, those modes with economies of large scale may be forced by competition to specialize in those movements where their greatest economies lie. Public policy must recognize that this will call for periodic re-evaluation of investment in that mode to avoid obstructing desirable readjustments.

5. It is also likely that the business corporations who must face such specialization and possible retrenchment will seek to diversify by branching into investment in other modes. Railway company purchase of truck lines is the obvious example. We conclude that, in the environment of public investment in road building which has been developing at an increasing rate, it is normal for management in transportation to attempt to invest in resources where the larger proportion of costs are escapable. Railway companies are transportation entrepreneurs. As such, if their considered policy is to transfer resources and initiative to road hauling or to a combination of road and rail, there is no good reason why it should be inhibited by the National Transportation Policy. Arbitrary attempts to limit the possible growth of economic power by limiting conditions of ownership in the various modes we regard as unwise, for reasons set out in Chapter 3. Such limitations can inhibit the withdrawal of investment from the less efficient mode, introduce rigidities into transport investment and

delay the integration necessary for movements by two or more modes when efficiency calls for it.

6. Responsibility for and control of roadbed by the railways is advantageous, particularly on railway systems as large as those existing in Canada. Plans for maintenance of the track may vary considerably, depending on traffic, thus enabling the costs associated with ownership of the roadbed to become in some degree variable. Modes of transport using public facilities have little control over the level of roadbed maintenance or operating conditions and are subject to a certain degree of arbitrary restriction on loading limits. Keeping in mind the small-unit nature of these modes of transport, particularly trucks and aircraft, these restraints, while sometimes frustrating, are tolerable. On the other hand, keeping in mind the tremendous advantages which the railway has in achieving economies of operation with heavy loads on long distances, the freedom to control traffic and operating conditions and to adjust maintenance levels cannot be underestimated. Attainment of the full economies of scale demand complete control over roadbed use.

It is for conditions such as these, inevitably associated with the ownership of various competing modes of transport, which lead us to suggest that very little will be gained for the common good by artificially restricting the flexibility of the railways' competitors through excessive and restrictive operating and user charges, nor will there be any concomitant public benefit through artificially increasing the capacity of railways to

carry traffic by lifting the burden of responsibility from management for total investment. If user charges are at a proper level to other modes, no artificial competitive disadvantage attends those who are responsible for their own roadbed. The differences in patterns of investment mean, to the private (and public) entrepreneur, that all modes of transport are not equally competitive for similar standards of service, and no amount of artificial juggling with public assistance can place the various modes on an identically competitive plateau. For equal service, ton-mile costs will not be equal. Efficiency demands that public policy should recognize the disparate nature of the various modes and shape itself to allow them to compete where they can in terms of service and prices which reflect their competitive differences.

A reasonable approach for public policy to assume is one of encouraging competition within the road haulage industry by easy entry and minimum legal and accounting costs to the carrier. The very nature of carrier investment patterns in the road haulage industry is such that competition very quickly will spring up without any help from public policy. Should entrance by new firms be unduly restricted or capacity kept below requirements the need will be filled by the emergence of private carriage.

Whenever there is evidence that road usage by commercial vehicles paying fully assessed user charges has reached the socially tolerable limits of density, an assessment should be made of the alternative costs of providing additional road surface or roadbed assistance to the railways. It becomes quickly evident that such an assessment cannot be made rationally in the short term, for once railway facilities have been withdrawn between two points, the railway no longer exists as a practical alternative to road haulage.

The problems associated with public investment in transportation facilities for all modes are not identical to those related to road and rail. But they are broadly similar. Responsible government actions respecting the provision of transportation facilities become interdependent in an increasing degree as the modes become more competitive. The speed with which they do become competitive may depend as much or more on the amount and direction of public investment in facilities as upon any other factor. The pressures by special interest groups for public investment are thus encouraged. It is also evident within our constitutional limits that jurisdictional problems exist between various modes. The state, at all levels of government, and particularly at the federal level, now bears and will bear increasing responsibility for the pervasiveness of competition in transportation. If the objectives of National Transportation Policy are to be achieved, if investment is to be placed where it is most urgently required for development reasons and if over-capacity is to be avoided, some continuing and careful analysis must be made of all aspects of public investment in transportation. Without it pressures from special interests cannot be assessed in the light of national needs.

Respecting measures to meet and deal with this growing responsibility which governments at all levels have assumed in providing investment in transportation facilities, we will recommend in detail in Chapter 6 of this volume of our Report. There, following the examination of other important problems associated with the creation and sustenance of a National Transportation Policy, our conclusions respecting public investment in transportation will have added perspective.

CHAPTER 3

PRICING UNDER CONDITIONS OF SATISFACTORY COMPETITION

The objectives of National Transportation Policy can be partially achieved through the forces of competition. Where it does exist, it will tend to move prices towards conformity with costs of providing the service, and thereby lead to the optimum amount of resources of men and capital being devoted to each mode of transport. Under these competitive conditions, the firms engaged in transportation, whether they confine service to one mode or offer service in more than one, will earn satisfactory returns so long as they operate efficiently, adjust plant and investment to the market demands for their service, and price the service they offer in conformity with their costs of providing it.

Inter-firm and inter-mode competition does not of course imply that the rates charged any individual shipper will conform precisely to the costs of providing the service which he receives. In the first place there are all of the usual market imperfections and lack of precise knowledge. Furthermore, we are prepared to acknowledge that differential pricing in a limited manner will persist even in an environment of satisfactory competition and that some differential pricing can be entirely justified and does not cause significant distortions in the use of resources in general.

In this chapter we analyse the extent to which competition can be relied upon to bring about efficiency in transportation and can thereby reduce to a minimum the controls necessary within the widening range where

competition is effective. To do so, it is first necessary to present an historical analysis of ratemaking and its evolution from a situation of near-monopoly to the present stage of mixed competition.

Traditional Railway Pricing

In the earliest days of the railways, freight rates were not based on well-defined principles. Individual rates were sometimes put into effect on an experimental basis and at times special agreements were worked out between carriers and shippers. The innovation of rail transport in Canada was so superior to any existing medium of transportation that little or no complaint was raised for the first twenty-five years of railway operations. Since neither the shippers nor the government felt inclined to question the rate structure the railways were under no compulsion to provide a theoretical justification for the structure of rates in force.

With the publication of the first classification of commodities in 1874 by the Grand Trunk Railway, a somewhat more rational approach emerged to supplement the test of experience in railway pricing. In this first classification, commodities were grouped in four classes, with the fourth class serving as a basis for the determination of prices in other classes. Special ratings for agricultural commodities and lumber were attached to the classification.

The main principle which seemed to be behind the grouping of the commodities in the initial freight rates classification was "charging what the traffic will bear": an adaptation to railway transportation of a principle already well known in water transportation. The Canadian Freight Classification made effective in Ontario and Quebec in 1884 was also based

on an "ability to pay" principle. But the Canadian rate structure incorporated, in addition, one of the first attempts at geographical equalization of rates: the high rates charged on some rail lines or commodity lines were averaged with the extremely low rates on others.1/

In addition to such principles as ability to pay and geographical equalization, other considerations left their mark on the Canadian rate structure. The requirements of national development led the railways, sometimes on the intervention of government, to grant low rates to raw materials and other low-valued commodities. From this it can be seen that our rate structure took shape on the basis of ad hoc economic and political considerations without any careful analysis of over-all purpose or direction.

As rating practices became more and more the subject of complaint, attempts were made to develop a set of rational principles. The principle of "charging what the traffic will bear" or "not charging what the traffic will not bear" was based on the assumption that each commodity susceptible of being transported had a "movement value" ranging between out-of-pocket costs of the services, the amount below which a carrier could not accept in his pricing of a service if he was to remain in business, and a maximum above which the price of the service to the shipper could not go if movement was to take place.

The "movement value" was sometimes identified as the incremental value in the selling price caused by transportation. It was believed to be affected to some extent by the distance, the use of the commodity, the quality of service, but principally the value of the commodity. The benefits

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1/ Henry, R.A.C., and Associates, Railway Freight Rates in Canada, Royal Commission on Dominion-Provincial Relations, Ottawa, 1939, p. 163.

the shippers of commodities were assumed to gain from railway services were tested against a charge for those services. According to present day theory the idea of a "movement value" may not appear to be too sophisticated but it should be remembered that experimental adjustments were made which permitted railways to discover what the shippers could afford to pay.

In general it seemed to be observed that high-valued commodities were able to pay high tolls, which were well above the cost of performing the services. On the other hand, the fact that railways were a declining cost industry, and the fact that they had high fixed costs which did not vary with volume, put pressure on the railways to increase their volume of traffic by granting lower prices to the traffic most susceptible to expansion. This resulted in a wide variety and number of rates covering most of the commodities susceptible to movement.

High-valued commodities or commodities which were considered to have a high movement value were classed together in the grouping of articles carried by the railways and the prices charged for the services became known as class rates. Prices for other lower valued commodities were established in relation to class rates, but at a much lower level; they are known today as commodity non-competitive rates. Special reductions were granted to meet water transportation competition, most of which was seasonal. These reductions resulted in what has become known as competitive rates.

The traditional theory of railway pricing was a sophisticated and complex example of price differentiation. Commodities of high value were charged a price high enough to compensate for the low prices charged to low-value commodities. With revenue requirements in mind, rates were set to average out the differences in cost of the service between easily accessible, more settled regions and those more remote. And tapering of rates with distance resulted in some assistance to long-haul movements.

While the costs of performing the services were an important factor in the over-all consideration of the profitability of the companies, they were never an important element in the pricing of railway services for each commodity. The accepted philosophy was that low-valued commodities would not move except at a price which was little above the out-of-pocket costs of performing the services and that the assistance required for such traffic could be contributed, without harm, by high-valued commodities. This ruled out the necessity of a pricing system based entirely on costs. Added to this was the difficulty of separating the joint and common railway costs incurred in performing the services and the lack of mathematical tools to calculate the costs of a particular movement.

Differential pricing was possible and quite practicable within a monopoly environment. Distortions from any theoretical ideal which might occur in resource allocation were simply not important under the overriding national concern for resource development and for the provision of an improved transportation system. The gains to the nation resulting from the development of primary products far outweighed any refined consideration of resource allocation. Furthermore, national development through customs tariffs, and by land grants and other assistance to settlers, made a close calculation of relative resource allocation pointless. To a very large extent the acceptance of differential pricing fitted the developmental aims of the nation.

The Impact of Competition

The virtual monopoly which the railways enjoyed in Canada permitted them, and the shippers as well, to benefit effectively from such differentiation

until new media of transportation offered substitute services for the movement of new commodities or of the commodities ordinarily carried by rail. The new competitive environment brought about a breakdown of the railway monopoly in transportation services and a fundamental change in the railway pricing system. For an increasing sector of transportation services, competition meant more services and lower tolls from a pricing system beginning to reflect cost differences between competing carriers.

A study of the traffic moved by the principal media of transportation reveals that the changes which have taken place because of the new competitive environment are recent phenomena. They have, moreover, far reaching implications with regard to the allocation of transportation resources and the pricing of all transportation services. Competition implies a more cost-based pricing practice for particular movements and means a better allocation of transportation resources as the price charged tends towards the costs of movement.

Competition from motor transportation, the main medium in competition with the railways, began to be felt by the railways in the fourth decade of the present century. Statistics on the tonnage moved by motor transportation are not available for the entire period. However, even by 1939, the expansion of the facilities in motor transportation and the competition within the motor transportation industry, according to the findings of a study undertaken for the Royal Commission on Dominion-Provincial Relations, had:

> "resulted in diverting a substantial volume of merchandise traffic in particular from the railways.
>
> " In the endeavour to stop this diversion the railways in recent years have made many reductions in their rates for this class of traffic, they have improved their service and they have relaxed their packing requirements and lowered their minimum carload weights.

> In both Eastern and Western Canada the railways have established 'Pick-up and Delivery' rates under which the expense of collecting the shipment and delivering it at destination is assumed by the railways at practically the former rail transportation charge. As a consequence nearly all of the less carload tonnage in Eastern Canada (bounded by Quebec in the east, and Windsor, Sault Ste. Marie and Sudbury in the west) is now moved under such rates."[1]

In 1938, the railways requested and obtained from Parliament special legislation affecting the pricing of services for shipments of commodities under contract. The new device was known as an agreed charge. The railways based their request on the economies which could be shared with the shippers if a larger percentage of shipments were secured to the railways the year round. However, agreed charges were not used extensively until the 1950's.

World War II imposed heavy restrictions on motor transportation. Statistics recently made available,[2] however, show that motor transportation carried a substantial tonnage of the freight traffic during the war period. In 1942, the ton-miles performed in intercity traffic by motor transportation amounted to 2,424 million compared to 56,154 million for the railways. For the same year, the Dominion Bureau of Statistics estimated the freight handled in intercity traffic at 130 million tons for motor transportation and at 155 million tons for the railways. Similar statistics for the year 1947 estimated the share of motor transportation at 161 million tons compared to 175 million tons for the railways.[3] Soon after the war motor transportation gained great vigour through technological changes in the efficiency of the equipment and improved highways,

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1/ Henry, R.A.C., and Associates, Railway Freight Rates in Canada, Royal Commission on Dominion-Provincial Relations, Ottawa, 1939, p. 163.

2/ DBS Daily Bulletin, May 17, 1960.

3/ A simple comparison of these statistics illustrates the nature of the service performed by the trucking industry: they provided a significant amount of short-haul transport service.

which extended the range of operations.

In 1949, the effects of motor transportation on railway traffic were assessed again before a Royal Commission on Transportation. It was admitted that motor transportation was attracting high-valued traffic away from the railways, where rates ranged between three cents and ten cents a ton-mile. Motor transportation carriers were recognized to be economic carriers over the short haul. The Railway Association of Canada claimed before that Royal Commission on Transportation that the obligation, in the national interest, to subsidize low-valued traffic from the revenue on high-valued traffic did not permit free adjustments in the pricing system in order to cope with the situation.1/ High rates could not be reduced without increasing other rates, and those increases implied a reduction in traffic.

Nevertheless, while the railways considered that traffic had been lost to motor transportation and that revenue had been kept down (by $50 million a year)2/ through rate reductions to hold other competitive traffic to the rails, there seemed to be some doubt that motor transportation was gaining an increasing percentage of the traffic moved in Canada.

Railway traffic had increased substantially from 1938 to 1948. The intercity ton-miles performed by the railways, which represented 54.7 per cent of the total in 1938, accounted for 70.3 per cent of the total in 1948. The comparable figures for motor transportation were 3.1 per cent in 1938 and 6.2 per cent in 1948.3/

1/ Royal Commission on Transportation, Evidence Heard on November 18, 1949, Ottawa, Vol. 48, p. 9128.

2/ Ibid., p. 9125.

3/ DBS Daily Bulletin, May 17, 1960. Ton-miles performed by water carriers amounted to 20,688 million in 1938, or 42.2 per cent of the total, and to 19,782 million in 1948, or 23.5 per cent of the total, which indicates the relative decline in its importance.

As indicated by the Dominion Bureau of Statistics estimates on freight handled in intercity traffic by motor transportation, there is no doubt that truckers and the shipping public in general were taking advantage on a large scale of a medium of transportation which not only offered advantages from the point of view of convenience and flexibility but reduced rates as well. The railway pricing system was presumably considered by the railways as partly inflexible because of the need to maintain cross subsidization of traffic, but still adequate to ensure the retention of a traffic volume sufficiently above the level of the late thirties to meet revenue requirements.

The Royal Commission on Transportation, 1949 to 1951, whose main concern was with complaints of regional inequities, recommended a substantial change in the foundation of the rate structure, principally the establishment of a uniform equalized class rate scale and uniform equalized commodity mileage scales throughout Canada. The Commission stated in its Report that the means of achieving the change:

> "point to a new departure in class rates, and commodity mileage rates, and eventually, in so far as practicable, in special or specific rates for the Canadian portion of the North American continent. It appears that Canada has reached a stage in its development when former methods of making regional rates must give way to a uniform rate structure that, as far as may be possible, will treat all citizens, localities, districts and regions alike".1/

Parliament, also in response to regional complaints, had already directed the Board of Transport Commissioners by Order in Council P.C. 1487, dated April 7, 1948, to investigate the rate structure of railways. On December 21, 1951, Parliament enacted in part the recommendations of the Royal Commission

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1/ Report of the Royal Commission on Transportation, 1951, King's Printer, Ottawa, p. 127.

now contained in Section 336 of the Railway Act, which determined uniform class and commodity rate scales.

The differences which existed in the freight rates between Eastern Canada and Western Canada prior to the end of World War II, had been attributed to "different circumstances and conditions". Following the first freight rate increase granted after the war, strong objections were raised by shippers about the increased disparity between eastern and western rates. This led to the policy recommendation of equality in the rate structure, "so far as reasonably possible".

The Board of Transport Commissioners considered equalization as a "general overhauling" of the freight rate structure.

The traffic moving under class and commodity rates according to the four-day sample of the Waybill Analysis for 1949 accounted for 74 per cent of the railway revenue. The traffic under class rates, while representing a small percentage of the tonnage, accounted for 20 per cent of the total revenue, and, the traffic moving under non-competitive commodity rates, 54 per cent. Since many commodity non-competitive rates were considered to be based upon class rates, the Board proceeded first with the equalization of class rates, the foundation of the rate structure, to be followed later by the equalization of commodity rates.

The Board's Judgment of December 12, 1952, preliminary to the application of the amendment of the Railway Act with regard to equalization, stated that:

> "the national freight rates policy calls for equality of tolls as therein provided even although the circumstances and conditions (for example, costs of railway operation, density of traffic,) are not substantially similar".1/

1/ B.T.C., Judgment and Order, Equalization of Freight Rates, Queen's Printer, Ottawa, 1953, p. 7.

The new approach emphasized the disregard of the cost of service principle in the pricing of railway services and reflected the thinking that railway rates could be made independently of competition.

Before the promulgation of the order for equalization of class rates in 1955, the four-day sample of the Waybill Analysis for the years 1949, 1951, 1952 and 1953 revealed important changes in railway traffic which affected the rate scales to be prescribed. A considerable decline occurred in the tonnage moved under class rated traffic from 1949 to 1953 and under commodity traffic from 1951 to 1953. On the other hand, the tonnage moved under agreed charges increased steadily from 1949 to 1953 and the tonnage moved under competitive rates was well above the 1949 level in 1953.

From the above statistics the Board concluded that a revolution in the freight rate structure was occurring:

> "It appears abundantly evident that it is no longer possible to maintain a railway rate structure based on the principle of monopoly, because the shipper of high-valued goods, such as class traffic, can now provide his own transportation, or hire someone else to provide it, without using the railway at all, and therefore avoid paying the charges on remunerative traffic which the railway needs to offset the low rates on raw materials and other low-valued articles."1/

To ensure that the traffic would "move freely" because of the new competitive environment, the Board prescribed lower rate scales for equalized class rates than those proposed by the railways "to move the traffic" and to produce the required revenues. The two main standards of the Board were:

> "(1) not increasing the class rates for the relatively short hauls any more than is absolutely necessary to achieve equalization; and
> "(2) not reducing, any more than is necessary to remove irregularities, the rates on long-haul traffic, which the railways are not in so much danger of losing."2/

1/ B.T.C., Equalization Class Rate Scale, Queen's Printer, Ottawa, issued February 28, 1955, p. 47.

2/ Ibid.

The new classification provided for the regrouping of articles which were formerly classified too low or too high, considering their current value, and the introduction of new articles. The equalization of class rates was made effective March 1, 1955.

Since 1955 a limited number of commodity rate scales have been equalized. The main difficulty encountered by the Board was the lack of uniformity in commodity rates. The Board found that commodity rates had been established less in relation to class rates than to "circumstances peculiar to each commodity and the territory in which they apply".[1/]

This policy of equalization which was adopted as a result of the investigations of a decade ago has been frustrated by the growth of competitive forces. Events have confirmed the ineffectiveness of equalization in a competitive environment, as was emphasized by Professor Innis in 1951.[2/]

1/ B.T.C., Further Report on The Equalization of Freight Rates, Queen's Printer, Ottawa, December 22, 1958, p. 8.

2/ "Recognition of the effects of truck and water competition in the St. Lawrence region on the railway rate structure and an attempt to offset its unfortunate implications for the Western Provinces must be accompanied by an active concern in the development of a flexible rate structure through the use of maxima for the Maritimes. A rate structure which in its emphasis on the value of service principle reflects the influence of water competition and in which statutory legislation has been introduced to reinforce the general emphasis in the Crowsnest Pass rates by maintaining low rates on shipments of grain from the Prairie Provinces and in the Maritime Freight Rates Act by checking the effects of high rates on shipments of manufactured products from the Maritimes is particularly exposed to the effects of horizontal increases and of inflation which involve more rapid absolute increases in rates on manufactured products in the upper classifications than in goods in the lower classifications. The markets for products in the higher classifications shipped from the Maritimes to other parts of Canada are narrowed and the burden of rates on such products from Central and Eastern Canada to Western Canada is increased. No scheme of equalization can be devised which will overcome the effects of competition in the St. Lawrence region as reflected particularly in competitive rates. An obsession with equalization will obscure the handicaps of the Maritimes and of Western Canada and perpetuate their paralyzing effects. A reorganization of the regulatory bodies concerned with transportation will facilitate collection of vital statistical facts and offset the most serious effects of a duopoly in its control of information. In this way more precise methods can be devised to meet the problems of transportation in Canada." Memorandum on Transportation by Dr. H.A. Innis, Report of the Royal Commission on Transportation, 1951, King's Printer, Ottawa, p. 307.

A study of the Waybill Analysis (1 per cent sample) for the years 1954 to 1959 indicates the profound change which is occurring in the transportation industry and the shift of traffic between modes of carriage. First, it is noticeable, from Table I, that traffic moving under class rates had relative and absolute increases for one year but has not retained its importance; the tonnage moved under class rates accounted for 2.2 per cent of the total in 1954 and was down to 1.7 per cent in 1959 (compared to 5 per cent in the 1949 four-day sample Waybill Analysis). The traffic moving under commodity non-competitive rates declined steadily from 1954 to 1959, a trend which was already well under way according to the special four-day sample Waybill Analysis from 1949 to 1953.

TABLE I

TONNAGE MOVED BY TYPE OF TRAFFIC,

WAYBILL ANALYSES, 1954-59[1/]

Type of Traffic	1954		1956		1957		1958		1959	
	Thousand tons	Per cent	Thousand tons	Per cent	Thousand tons	Per cent	Thousand tons	Per cent	Thousand tons	Per cent
Class Rates	19	2.2	22	2.3	21	2.4	17	2.1	13	1.7
Commodity Non-Competitive Rates	500	57.1	464	47.6	398	46.1	348	43.6	346	45.8
Competitive Rates	161	18.4	244	25.1	220	25.5	201	25.2	179	23.6
Agreed Charges	53	6.0	66	6.8	72	8.4	86	10.8	100	13.2
Mixed Shipments and Multiple Rates	16	1.8	14	1.4	13	1.5	14	1.8	10	1.3
Sub-Total	749	85.5	810	83.2	724	83.9	666	83.5	648	85.6
Statutory Rates	127	14.5	164	16.8	139	16.1	132	16.5	109	14.4
Grand Total	876	100.0	974	100.0	863	100.0	798	100.0	757	100.0

1/ Tonnage moved in 1955 amounted to 928 thousand tons; the breakdown by type of traffic is not available for the whole year.

Secondly, part of the decline in the traffic moving under class rates or commodity non-competitive rates was undoubtedly offset by a traffic shift to competitive rates or agreed charges. The total tonnage of traffic moving under agreed charges increased from 53,000 tons in 1954 to 100,000 tons in 1959. The tonnage moved under competitive rates was considerably above the

1954 level in 1956 (a total of 244,000 tons) but declined to 179,000 tons in 1959.

The changes in railway traffic from 1949 to 1953, it was noted above, had shown that a pricing system based on the principle of monopoly would no longer work effectively. The traffic changes from 1954 to 1959 re-emphasized that the rates (class and commodity non-competitive) which constituted the foundations of the rate structure were rapidly declining in significance. The traffic moved at these, or related, rates represented only 47 per cent of the total railway tonnage moved in 1959, compared to 68 per cent in 1951. An increasing proportion of the traffic was priced on a different basis. Cross subsidization of traffic was no longer successful because the contribution from the supporting sector was declining.

The DBS statistics on intercity ton-miles performed by carriers in Canada confirm the changes indicated by the Waybill Analysis. The railways' share of ton-miles performed was 68,430 million in 1952 and 67,957 million in 1959. For motor transportation, the ton-miles performed increased from 8,903 million in 1952 to 13,908 million in 1959. The freight handled in intercity traffic by motor transportation represented, in 1952, 226 million tons compared to 185 million tons for the railways, and by 1959, 318 million tons compared to 186 million tons for the railways.[1/] This indicates that the railways have lost their lead to motor transportation in the movement of freight in terms of total tonnage, but had retained the large portion of long-haul, heavy-loading freight.

1/ DBS Daily Bulletin, May 17, 1960, p. 3. Data for the year 1959 are estimates supplied by DBS prior to release.

Under the new competitive environment more and more shipments are made by highway carriers. The traditionally high prices the railways charged for the movement of manufactured commodities gave an extraordinary headway to motor transportation. The flexibility given by the expanding network of highways and urban roads, the rapid door-to-door delivery and elimination of terminal delays and the apparently attractive rates, gave motor transportation a definite advantage over the railways on short-haul services and, with better roads and trucks, an increasing range of advantage. For the traffic where both media were competing, there is strong evidence that the prices of the services were made lower to shippers.

The Evolution of Pricing Practices

Normally, where the quality of service between two media of transportation is the same, the shipments go to the carrier who offers the lowest price. It is the lower prices of motor transportation services that the railways endeavoured to meet with their competitive rates and agreed charges. Those rates, while increased somewhat over the last years, represented a turning away from the traditionally higher prices for railway services set on the movement-value of commodities.

Total tonnage of traffic grew in the period of national expansion between 1942 and 1957. Freight handled in intercity traffic increased from 337 million tons in 1942 to 643 million tons in 1957, or by 91 per cent. To carry this increase, total resources devoted to transportation increased. The railways renovated and innovated rolling stock, rights of way, motor power, signals and communications. Highways were improved and extended. Numbers and size of truck firms grew as did the efficiency of their vehicles.

Private trucking expanded. The evidence of the past decade adequately confirms the extensive growth of intercity highway transport and the substantial and growing competition it provides in overland transport. In consequence the attempts made by railways to hold and gain traffic have forced pricing practices to take cognizance of costs of movement to an increasing extent in both modes. Because of real efficiencies and the pressures of competitive forces, many commodity movements have already been dislodged from their traditional place in the rate structure and now take rates set more with reference to their rail costs, or the costs of competitive modes. All the evidence we have found leads us to conclude that railway management is increasingly aware of the necessity of attracting traffic under conditions of price and service in conformity with cost patterns.

The great strides made recently in the techniques applicable to the costing of rail movements give confidence and precision to the rate-makers. There is no reason to expect that these techniques will not be further refined, particularly if railway accounts are set out to aid in the process. As the prices of transportation are approaching more ideal conditions, where the price of service is determined by costs of rendering it, the implication is that the more competition prevails the better it is for the shippers and the economy in general. For the media of transportation within the new competitive environment the pricing of services on a cost-oriented basis has become inescapable.

We regard this change to a more cost conscious pricing policy in all modes of transportation as consistent with the objectives of the National Transportation Policy. Where railways have cost advantages they should carry traffic if the price discount is sufficient to overcome any service disadvantages.

To the extent that government subsidies are used to keep traffic confined to rails where no such advantage exists there is misallocation of resources. If government policy, or regulation, prevents the railways from setting prices to attract traffic on the basis of these advantages there is misallocation of resources.

Pricing and the Nature of Service Differentials

A comparison of the services between railway and motor transportation discloses many differences. The services performed differ with regard to size of load, speed, flexibility of schedule, etc. Some of the firms engaged in the transportation field are very large. Others, while not so large, require a substantial amount of capital to operate. There are also a good number of very small firms.

Motor transportation is particularly characterized by a special limitation on certain routes where a franchise is required to operate. Such limitations imply a pricing system which is not operating under conditions of optimum competition.

Under the competitive environment as we know it today, the pricing system must be considered in relation to differentiation of services. But the nature of service in transportation is such that for certain groups of traffic, the fully adequate returns to the appropriate mode for carrying them are low, as for mass transportation of commodities; for other groups, they are high. For some of them a carrier may only meet his costs; in others, he may get profits which are above normal. In the long run the carrier must cover his fully-distributed costs, but in competition he can do so only by close attention to the cost-rate ratio of individual traffic movements.

In the areas where price competition exists, reductions below fully-distributed costs require a compensation out of the surplus made from other services. With two media of transportation competing, the pricing of services of equal quality tends to be determined by each firm pricing his service as close as is necessary above the level of his out-of-pocket costs, rather than lose the traffic to a competitor. By doing so with a given size of plant, he will minimize his losses if he retains the traffic. If the competing carrier, because of lower costs, lowers that price, he will attract the traffic; he may also choose to price his services at the level of his higher cost competitor and attempt to differentiate on the basis of quality of service. Where price competition exists, the effective level of prices for transportation services is thus set at the level of the out-of-pocket costs of the high-cost carrier, or somewhat above.

The pricing of services at the level of out-of-pocket costs might be considered to lead to cutthroat competition where the aim of a carrier is to achieve a monopoly position. This will be frustrated because of the possibility of entry of new firms in trucking or by the emergence of private motor trucks supplying service on a "non-price" basis. Shippers have found it profitable to carry their own goods in many instances. In fact, the volume of services they provide for themselves is growing steadily. The entry of private carriers in the transportation field acts as a regulator when the price of services is considered to be too high, or where the quality of service is of great importance.

Competition and National Transportation Policy

The reality of competition in transportation calls for a new approach to regulation by both federal and provincial authorities, requiring changes in the relevant legislation. The presence of competition forces the recognition that rates for many movements will be set to meet particular competitive situations. This alone destroys any policy which attempts to ensure that shippers over any very wide area can expect to be given "equalized" rates. Equalization may be effective under conditions of monopoly but the intervention of competition renders equalization ineffective. The attempt to use equalization to ease the burden of inequities of shippers in non-competitive sectors may be expected to result in harming the shippers it was designed to help. This is because when equalization raises rates in the competitive sector and lowers them in the non-competitive sector, traffic is lost in the competitive sector while revenues are lost in the non-competitive. To recoup this double loss of revenues, rates must be raised, e.g., by horizontal increases, and these rate increases must impinge most heavily on the non-competitive sector. With these progressive losses of traffic in the competitive sector and higher rates in the non-competitive, the eventual outcome tends to be greater inequities in the non-competitive sector and, where there is competition, less railway traffic and more effective truck competition. It is with these effects that Dr. H.A. Innis was concerned when he wrote that "No scheme of equalization can be devised which will overcome the effects of competition in the St. Lawrence region as reflected particularly in competitive rates. An obsession with equalization will obscure the handicaps of the Maritimes and of Western Canada and perpetuate their paralyzing effects".[1/]

1/ Innis, H.A., op.cit., p. 307.

Under competitive conditions a wholesale re-evaluation of policy becomes necessary. Traditional measures to protect against "discrimination" in freight rates are in effect being set aside by competition. Preserving such measures on the statute books limits the power of railways properly to compete. In the real world of the market place shippers make the best bargain they can make, using one mode against the other and one firm against the other. Increasingly, traffic is being carried at rates designed to attract specific movements between specific points. The assumption that the railways have power to establish rates which are "just and reasonable" by criteria of the monopolistic period is erroneous. These terms lose all meaning as the criteria are eroded away by competition. To persist in a policy which enforces standards of behaviour on one mode but not on its competitors is to assume an Olympian position, with powers to determine the economic fate of industries and regions. This is no longer realistic. Where remnants of such powers still persist, we indicate in Chapter 4 (which deals with significant monopoly) the attitudes National Transportation Policy must adopt.

In conformity with the objectives of National Transportation Policy to work towards the optimum allocation of resources in transportation it is essential that regulation of railways should not inhibit the competitive ability of that mode of transport.

Regulation falls into two broad categories. One deals with conditions of operation and service. While we did not conduct any extensive study of this aspect of regulation, nor were many representations made to us concerning it, it is apparent that excessively detailed and rigid operational standards are expensive and stand in the way of technological change, thus contributing to the difficulties of meeting competition. However, competition which is met by the operation of any mode at unsafe standards is bad competition.

The recommendation we make concerning this type of regulation is that the Board of Transport Commissioners should continue to be in constant consultation with the railways, both management and labour, with a view to assessing the type and extent of operational control standards, and be given the widest responsibility for the nature of specific regulation. Provincial highway regulation has an even greater obligation because it is responsible for standards on the common highways.

The other main type of regulation is that of rates. It will be necessary so far as we can see, that railways shall continue to file tariff schedules with the Board of Transport Commissioners. The freedom to change tariffs, introduce new ones, and to make specific rates to meet competition without delay must be enhanced. It is apparent to us that so long as one mode can freely quote rates at the instant of bargaining, the other is at a disadvantage not to be able to do so. Therefore, we recommend that rail rates shall be effective upon filing with the Board.

Since the National Transportation Policy has as its objective the optimum utilization of resources in transportation, the position we occupy respecting rate regulation in situations of competition is determined. Where competition exists it becomes essential to allow the free choices of shippers and the market offerings of carriers, differentiated as they are in the type and quality of service they offer, to determine the allocation of resources in transportation. Those modes which gain advantages in special service, in small shipments, must be allowed to seek to gain the advantages of their specialities in the market, in competition with firms of similar type. With freedom of entry uncurtailed within strict and uniform limits of safe operating and performance standards, the prices charged will be a fair reflection of the real costs of doing business in the industry as a whole. Exceptionally

efficient firms may make unusual profits, and this is to be encouraged. Inefficient firms will not last, and National Transportation Policy has no obligations in that respect.

For modes which have heavy commitments in fixed investment and gain greatest economies by volume production, every encouragement should be given by the regulatory environment for that mode to price to attract volume. Incentive rates for heavy loading, multiple carlot rates, rates tied to regularity and size of shipments, are all legitimate competitive weapons. Again, these must be reflections of the true cost conditions under which the mode operates. Rates made on that basis, a "wholesale" basis, leave to the shipper the decision whether to take advantage of these economies and adjust his productive processes to them, or to utilize a transportation service offering refinements at a higher price. It should be left with management of all firms in all modes to decide, in the light of potential traffic, whether to carry at the lowest possible price, i.e., out-of-pocket costs, or at some price which contributes to overheads sparingly or abundantly. The only limitation upon this is the necessity to limit profitability of any given movement where it occurs in the absence of satisfactory competition.

Under this philosophy of free competition the regulatory authority takes little initiative. But it must be prepared to discharge with alacrity and precision the tasks which are its responsibility. National Transportation Policy should equip the Board of Transport Commissioners with the most efficient costing section that is possible, staffed competently, and provided adequately with the necessary data from both public and private sources. Under the objectives of the National Transportation Policy it is our conclusion that the regulatory powers of the nation shall continue to be charged with responsibility for the upper and lower limits of railway rating under the pertinent circumstances of each.

Minimum Rate Control: Railways

Enlightened management in their own interest would not knowingly carry goods at a rate which yielded revenues below the direct out-of-pocket costs, that is, those costs directly assignable to the traffic. To persist in the practice for any considerable length of time would ruin the company. Other things being equal, the regulatory provision for minimum rate control would be redundant.

However, other things are not equal. Because of their relatively enormous size and resources, and the relative permanency of investment compared to firms engaged in other modes, the railways could create intolerable uncertainty in the trucking industry by sporadic rate wars, so that an efficient trucking industry could not persist.

Rate regulation must continue to stipulate a minimum limit.[1/] Ideally this would be a feature of rate regulation for all modes, but administrative difficulties as well as economic reality make it less essential for the trucking

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1/ The effective existence of minimum rate control on railways will not, in itself, eliminate the possibilities of rate wars either between railways and trucks, or between trucking firms. The large firm can always destroy the small if satisfied that the fruits of victory are sufficiently sweet. This is not a phenomenon peculiar to transportation. The solution to the problem, should it arise, lies best in our view in preventing the gathering of the fruits of victory. The discussion which follows in the text concerning the time over which a minimum rate must operate holds the key so far as minimum rate regulation can be effective. More effective weapons are found in laws relating to commercial restrictive practices, which must increasingly be aware of the new position into which railways are thrown by competition. As instruments of national policy certain exemptions from these laws were necessary. The use of traditional exemptions for restrictive purposes should not be tolerated.

Part of the economic test of restraint of competition by rate practices is to determine whether the aggregate net return to be realized from the traffic moving under the new rate exceeds the net return from traffic moving under the former rate. If this is the case, the rate is not in restraint of competition. If it is not the case, further examination may be warranted. The Board of Transport Commissioners could be requested to supply the relevant information to the Department of Justice.

industry so long as freedom of entry of new firms is permitted. A trucking firm setting rates below the direct expenses of the movement will soon be replaced. Until that happens the effect will be a transfer of income from the firm to the shipper.

With railways, extended over the nation as they are for the most part, representing large capital investment in few firms, and less involved with each other in price competition, regulation must continue to assure that no rate should ever be set below the direct costs of the movement. Where railways continue to quote identical rates between points, the permissive minimum rate must be determined by the relevant costs of the higher cost route. For the minimum to be set by the shorter or cheaper route would force one railway to offer rates below the legally stipulated minimum. With this caveat, the practice of quoting common rates by all railways should not be discouraged. Within the regulated limits of minimum and maximum rates, common or joint rates are not in themselves in restraint of competition. Depending upon the time period taken into account the minimum rate could be set at the direct out-of-pocket costs of the movement for the very short run, or, for a longer time span, at variable costs as defined for the period, or at long-run marginal costs. Insofar as the allocation of resources between modes of transport over a long period is concerned, long-run marginal costs[1/] are unquestionably the proper minimum.

1/ Long-run marginal cost as applicable to transportation costing refers to those costs which are appropriate to assign to the provision of a given unit of additional service when rendered over a time period deemed sufficiently long for management to adjust plant and investment to the requirements of the movement. It does not refer to out-of-pocket costs as the term is generally used, and neither is it the accountants' fully-distributed historical costs. A long-run marginal cost is composed of such expenses directly traceable to the movement (out-of-pocket costs), plus an appropriation of those costs which vary with traffic but are not directly variable with any given unit of traffic (short-run marginal costs or variable costs), plus the increment necessary to reflect any impact of the traffic in question on all costs. Any revenues derived which are above the long-run marginal costs will contribute towards those fixed overheads which do not, except over an infinitely long time period, vary with changes in traffic.

The problem which faces the regulatory authority is that of defining the time period. If railways could quote no rate below long-run marginal costs much traffic would be assigned by that action to other modes, particularly trucks. This would create excess rail capacity until railways could adjust plant and service. In practice the adjustment would not eliminate completely the capacity to carry traffic below long-run marginal cost and improve the net revenue position. Therefore, because in competition the initiative of management must be preserved, and encouraged to extract the last possible movement of beneficial traffic with the plant in existence, we do not recommend the minimum permissive rate be the long-run marginal cost. Management is well aware of what a preponderant number of rates set at direct out-of-pocket costs will do to their investment in the long run. But the short-run advantages of being able to price certain movements at the level of out-of-pocket costs must not be overlooked. It is to their advantage to secure this traffic at such a price if its characteristics offer no better possibilities. The penalties of over-indulgence in the practice for short-run advantages must remain the responsibility of management.

We adopt this approach because we recognize that railways, by the nature of the investment structure, are slower to adjust to change than the trucking industry. In periods of declining traffic and revenues, coinciding most often with cyclical recessions in the economy at large, it is beneficial that a policy of reduced rates be possible.

To the extent that rates go down to railway out-of-pocket costs and inefficient trucking competition is eliminated, the national loss is minimized because the practice puts out of action those resources which can most easily be re-created. The inherent flexibility of investment in trucking assures that it is in this mode that adjustment most easily occurs. In a

period of declining economic activity and declining traffic a policy of high and rigid minimum railway rates might, it is conceded, leave trucking firms free of a degree of railway competition, yet competition between trucking firms would soon drive their rates down to the place where some firms are eliminated. During this process, one mode is prevented from resorting to the practice which another is adopting, and to that extent the freedom of choice of the shipper is limited. Even in periods of lowered economic activity, relative resource allocation is important, and competition is as worthy an instrument then as in periods of economic upswing.

In the foregoing discussion minimum rate criteria have been established on the basis that competition has grown principally between modes of carriage, ignoring for the immediate purpose the competition between firms in each mode. So far as trucking firms are involved, we have little to say. Their large numbers and relatively small investment will assure active price competition on substantially similar cost patterns.

With railways in Canada this is not the case. Two railways dominate rail transportation: one publicly-owned and charged to act on commercial principles, the other privately-owned and traditionally used as the "yardstick" road.

The onset of competition between modes has inevitably forced railway attention to costs of providing service. For the establishment of fair and equitable bases upon which each railway company can formulate costs, it is our firm recommendation that the capital sums advanced to the publicly-owned railway should be at rates comparably equivalent to the price of funds set by the market. To do otherwise is to set artificial advantage and disadvantage between the two railways in determining their costs.

In addition to this recommendation concerning the cost of money, we further recommend that the Board of Transport Commissioners, in every case

where a minimum rate is tested, should equalize the necessary costs of capital in the rate to determine a common base upon which the minimum rate can be set.

This does not mean that costs on the two railways for the movement of a good or provision of a service will be equal. There are many other factors that have to do with the relative efficiency of a route or railway, and these may give rise to legitimate differences. Artificial pricing of capital is not a legitimate costing base.

Therefore, we conclude, and recommend, that, using the guides presented elsewhere in this Report, or other criteria, the Board of Transport Commissioners continue to determine, after due consultation and consideration, the definition of out-of-pocket costs which shall be used as a criterion of minimum railway rates, and set up within a costing section of the Board, the necessary procedures for testing the minimum, either on motion of the Board or upon application from those parties able to make representations to the Board. No rate should be suspended until the Board is satisfied it is below the legal minimum.

Minimum Rate Control: Trucks

With minimum rail rates subject to test in all instances of satisfactory competition, there is no overriding reason to give great attention to minimum rates charged by the trucking industry, because of its essentially competitive nature. If the trucking industry can haul at rates below the rail minimum, public policy should do nothing to hinder it - nor indeed will enlightened railway management. Provinces which do not preserve freedom of entry, will, to the extent they restrict it, enjoy stability in the trucking industry at higher prices than otherwise, or encourage the emergence of private trucking.

What has been said for the trucking industry applies both interprovincially and intra-provincially. To the extent that the delegation of

federal control to the provinces in interprovincial trucking leads to restriction of entry, or great differences in operating and franchise requirements, the allocative effects of competition are restricted. There is pressing need for interprovincial co-operation to standardize operational regulation, taking account fully, of course, of relative traffic densities, highway facilities, climatic differences, and other physical characteristics. So far as rate regulation is concerned, the tests developed in Chapter 4 for significant monopoly can be adapted and applied so long as monopoly may be present. But, a word of caution. The investment requirements even for efficient long-distance hauling are not large in relation to the market. Limitation of monopoly by maximum rate control interprovincially as well as intra-provincially is not the best way to achieve lower rates and better services. Above average profitability - to the degree it is won by monopoly and not earned by efficiency - will attract additional firms with additional resources to serve the market at competitive prices. In the process, under strict operational standards, there will be firms rising and declining, beginning and ending. This is the nature of the industry.

Railway Rates and Other Assets and Income

To conclude the analysis relevant to this chapter on control of rates in a competitive environment there are two further subjects to be treated. All that has been said, and implied, on the importance and growing relevance of costs in setting rates competitively to achieve efficient transportation, is based on the assumption that the costs upon which the rates are based are the relevant costs. Anything which serves to exaggerate or disguise them will inevitably see rates constructed on a false base. In consideration of

that we next deal with the problem of assets of railway companies which are not part of the cost pattern of rail operation, and particularly, rail-owned truck lines. The conclusions established here apply equally well to holdings of any transportation company which are separate in purpose from the provision of transport.

The Terms of Reference guiding the investigations of this Commission specifically instruct, inter alia, to report upon "whether, and to what extent, the Railway Act should specify what assets and earnings of railway companies in businesses and investments other than railways should be taken into account in establishing freight rates".1/

Guided by these instructions, it is possible to assess the matter in principle and in practice. Regardless of the profitability of other assets, what would be the effect of using them and the income associated with them in determining the level of rail freight rates? In practice, how much difference would it make?

Dealing with the first question, that of principle, we are guided by those objectives of efficient resource allocation which we have set out for the National Transportation Policy. This means that all modes of transport shall be given a fair chance to find their proper place within an increasingly competitive system. The use of other assets in establishing rail rates would distort the competitive environment and for this reason alone would cause us to recommend that other assets not be considered.

There are other reasons. The system of rate regulation that we have recommended, or any other, could not possibly be rational if the levels of

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1/ See P.C. 1959-577, dated 13th May, 1959, included as Appendix A to Volume I of this Report.

rates fluctuated with earnings and losses of other than the rail enterprise. The consideration of other assets would distort any such cost-oriented approach to ratemaking and would consequently distort the use of transportation resources. If the realities of cost-oriented ratemaking are recognized and appropriate policy for regulation is accepted, there will be no further need for a "yardstick road", or a requirements formula, and hence no mechanism whereby the earnings and losses by non-rail enterprises could be used in determining a level of freight rates.

In elaboration, let us suppose that other assets yielded a large net return to one railway company. Suppose also that that company is then required to reduce rates. Which rates shall be reduced? If all rates are equally reduced the reduction will be smaller than selective rate reductions but the effects upon its competitive position would be similar. If the railway company is given the right to make the selection, the selective nature of the reductions will be for one purpose: the repressive effects upon the trucking industry will be immediate and profound. The effect upon other railway companies can only be surmised. If the regulatory agency makes the selection, it will have the task of determining the extent of competition and thus the allocation of resources between modes of transport, and of justifying the effect of its actions upon other railway companies. To the extent that rail rate reductions encourage the use of rail transport at less than adequate returns to railway investment, a misallocation of resources occurs and shippers are denied the possibility of rational choice between modes.

Pursuing the analysis, let it be given that the earnings of one railway company from other assets are negative - they occasion a loss. Consistency demands that the railway company be permitted to increase rates. Which rates shall be increased? The analysis of this, and associated chapters,

makes it evident that highly competitive rates cannot be raised without a loss of traffic and lowered rail earnings. The only alternative is a general permissive rate increase which will fall upon the less or non-competitive rates. The consequences of this need no further elaboration.

The third possibility is that positive net non-rail earnings shall reduce rail rates, but negative net non-rail earnings shall not raise rates. The inconsistency does not recommend itself to us on the grounds of justice.

However, there is one basis for this third possibility. It is that the non-rail assets are, at least in part, the results of national grants made to the railway companies over the years to encourage the building of the railways. If this is so, it is claimed that it is only right that the profits should be used to assist in the transport of goods in the nation - or at least in that part of the nation where the grants were made. We can find no evidence that either the donor or receiver contemplated such action. Grants were made to get the railways built. The technical superiority of the railway for land transport was so great that even relatively high rates were very attractive. Presumably the grants given were no greater than was required to get the job done.

To the extent that the grants did enable railways to be built, the railway had a new line capitalized at a lower figure than would have otherwise been necessary and an opportunity to make profits on the line. The real cost of the lines to the enterprise (if not to the nation) was lowered, and the rate structure was built from that revenue requirement. To suggest that the grants were to be used perpetually as revenue in the same fashion as revenue from rates is to suggest that the private railway builders were to act as custodians of the land grants and return to the nation, by way of the rate structure, all but an acceptable rate of return as a commission for the

administration of these natural resources. This is to place the railway company in a position quite different from settlers and other persons who received land grants (including mineral rights). The nation has already instituted measures to recapture a portion of the return from such natural resources through the media of income tax and royalties. In the interests of efficient resource allocation we contend these are better and more equitable instruments of recapture than the freight rate structure, and they obviate any necessity to determine whether profitable investments originated by grant or by private capital.

Therefore, on principle, and on all the implications of the principle, and for reasons associated with the objectives of National Transportation Policy, we do not recommend that assets and earnings of railway companies in businesses and investments other than railways be taken into account in setting freight rates.

What effect, in practice, would the reverse recommendation have? To find the answer we instituted a detailed and complete study by competent consultants of the "other assets and income" of the Canadian Pacific Railway Company, including subsidiary companies, and the subsidiaries of subsidiaries, controlled by the parent company, and income from all non-rail sources, for the ten-year period 1950 to 1959. In making this study, we received from the officers of the Company information and explanations regarding the operation of all companies with which we are concerned. The examination of financial statements was supplemented by access to corporate financial data prepared for management purposes and direct reference to books and accounts of the Company as need arose.

The detailed figures on investment, depreciation and earnings of all activities, both rail and non-rail, were summarized and earnings after

tax expressed as a percentage of investment in rail and non-rail and the total business of the Company. These data are presented in Table II. It is obvious that even if the total non-rail income of the Company is taken into account with the earnings from the rail enterprise, the total earnings are certainly no more than adequate, and they may be inadequate, to sustain capital investment.

TABLE II

PER CENT RETURN ON TOTAL INVESTMENT IN CANADIAN PACIFIC PROPERTIES AND COMPANIES CLASSIFIED AS RAIL AND NON-RAIL FOR THE TEN-YEAR PERIOD 1950-59

Year	Total earnings applicable expressed as a percentage of total investment		
	Rail	Non-rail	Total rail and non-rail
1950	4.28	10.64	5.35
1951	2.95	14.40	4.73
1952	3.12	9.95	4.16
1953	2.95	9.32	3.89
1954	2.61	9.12	3.52
1955	3.63	10.52	4.61
1956	3.59	11.92	4.67
1957	3.09	8.18	3.79
1958	2.98	2.91	2.97
1959	2.89	2.15	2.77

Rail and Non-Rail Operations: Accounting Classifications

Having concluded, in principle and practice, that railway assets in businesses and investments other than rail should not be used as a basis

for setting freight rates, it throws particular emphasis upon the continuing need to distinguish those assets which are properly rail from those which are not.

Under Section 387 subsection 3 of the Railway Act,1/ the Board of Transport Commissioners is required to prescribe the items that shall be classed as relating to railway operations in the accounts and returns of railway companies. Under the operation of this section of the Act the Board has the power constantly to keep the Accounts Classification under review and to institute changes as necessary.

The recommendation recorded in this section of this Report respecting the application of railway other assets and income as a basis for establishing freight rates removes much of the need for the classification of accounts into rail and non-rail for revenue requirements determination. However, the analysis and recommendations respecting maximum rate control, which are developed in the following chapter, make it essential that this responsibility of the Board shall be continued. It will be necessary for the costing section of the Board to have clear-cut and appropriate guides to follow in the determination of rail variable and constant costs. To illustrate, the inclusion of assets and earnings of non-rail enterprise in rail accounts will distort the true finding of variable and constant costs of rail operations, as will the exclusion of those assets properly designated as rail. In particular, over the next period of years, the establishment of firm principles and the accurate and adequate separation of assets and earnings of investments of railway companies in transportation businesses other than rail will become vital for cost-oriented pricing policies and regulatory accuracy in determining the allocation of resources between modes.

1/ Revised Statutes of Canada, 1952, chapter 234.

Therefore, we recommend that the Board shall be given every encouragement to review constantly all items in the Uniform Classification of Accounts, and be directed to review the whole Classification at intervals not longer than every two years, in order to assure that technological application and operating reorganization shall be accurately reflected in the Accounts.

In illustration of the general recommendation we would cite six specific examples where rapid changes seem to warrant review.

1. It is suggested that a reassessment be made of the communications operations, which seem to us to be now largely non-rail. If this is so, an appropriate user charge for the rail use of the communications system should be levied on rail operations.
2. It appears that certain docks and wharves are now truly rail-oriented, and should be examined thoroughly with a view to reclassifying from non-rail to rail.
3. A similar situation appears to exist with some off-line office buildings now classified as non-rail.
4. The use of railway-owned trucking investment to provide services strictly ancillary to rail operations, such as pick-up and delivery, are now designated as rail. However, with the growth of integrated rail-truck merchandising the distinction will become less sharp. The principle of designating the investment in trucks as non-rail and the use of appropriate user charges should be considered by the Board.

5. Railway-owned bus operations are presently classified as rail. In view of the recommendation made in Volume I regarding passenger service deficits and the burden they impose pending any withdrawal of service, consideration should be given to reclassifying railway-owned bus operations. It is no part of our intention that revenues and expenses of this type of operation should have any bearing upon the deficit position of rail passenger services.

6. Subject to exceptions in 4. above, investment by railway companies in businesses providing transport service by modes other than rail, should always be rigidly separated from rail-related investment. This does not mean that any company is to be inhibited in the choice of investment, nor in the development of integrated services and joint through rates. Depending upon the facts of the investigation in each case, it is possible to effect a division of revenues appropriately between the modes involved. But it is essential that the division of revenues for inter-modal traffic be made in relation to the costs of each, and the charges made on other carriers for inter-modal service be the same as the division of revenues between rail and another mode owned by a railway company. Particularly is this evident in "piggyback" or other container type of service in which more than one mode and more than one firm is engaged. Discriminatory pricing favouring a

railway company's own vans or containers over those of other carriers is a form of inter-modal subsidization which, because of the nation's interest in rational allocation of resources, must not be permitted by the Board. Precisely the same analysis and recommendation applies in container exchange between truck lines, or for any service one mode performs for another.

Railway Ownership of Truck Lines

One final comment is appropriate in this chapter dealing with satisfactory competition. Representations have been made to us concerning the possibility of the great resources of the railways being used to assert a monopoly position in the trucking industry.[1/] We are satisfied that already these resources have made the two largest railway companies between them the largest owners of truck fleets in Canada.

What reasons are set out for this fear? We can find no evidence that this large ownership will, except for very short periods, lead to higher prices for truck transport. Such a brief windfall can exist for any truck owner. If the danger is real, the principles enunciated below for significant monopoly can be applied, and the restrictive trade practices legislation invoked.

We have stated that, with free entry, and the ever present possibility of private trucking, the structure of the trucking industry is such that effective monopoly in prices cannot persist. With competition

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1/ The establishment of realistic prices for capital to the publicly-owned railway is particularly important in the purchase of truck lines.

thus protecting shippers, the only other disadvantage of large-scale railway ownership of truck lines lies in the danger that it poses to independent truckers. This danger can only persist if railway ownership is more efficient than either independent or private trucking. Efficiency should not be penalized.

We re-emphasize also that, in the environment of increasing public investment in road building, it is normal for management in transportation to attempt to invest in resources where the larger portion of costs are escapable.

However, railway ownership of truck lines involves two policy recommendations concerning this diversification. The first concerns the real economic advantages of combining road and rail facilities. To the extent that these exist, railways must be required to offer to all truckers rail facilities at prices and under conditions the same as are offered to rail-owned trucks. When a trucker decides to use rail facilities for part or all of the distance, he is a shipper and should have the right to come before the Board of Transport Commissioners in that capacity, either singly or jointly with others. In order that the Board may determine the realities of any inter-carrier discrimination, railway companies, by virtue of being truck owners, must be required to make fully available to the Board the pertinent cost and revenue data including, particularly, costs of capital.

The second recommendation concerns the possibility of hidden subsidies from rail assets or income to trucking operations, or vice versa.

The Board must be given authority to require the railways to keep strictly separate accounting of their operations inter-modally. The costing section of the Board of Transport Commissioners must be able, at all times, to provide the Commissioners with pertinent cost separations for rail and

road operations of the railway company. Undoubtedly this will require initial and recurring changes in the Uniform Classification of Accounts, to keep them applicable to costing operations rather than for strictly balance sheet requirements.

Under these conditions, and with the publicity attendant upon the discovery of revenue transfers, and the possibility of legislative or regulatory restraint, we see no reasons to limit the entrance of railway companies into any other mode of transport. The experience of other countries with such restrictions does not encourage us to recommend it in Canada.

CHAPTER 4

PRICING IN AREAS OF SIGNIFICANT MONOPOLY

The task of appraising the inequities in the freight rate structure and such changes as will alleviate them has been one of the most complex that has faced us. The task is complex because an appraisal of rate inequities must take into consideration such related elements as the background of existing rate regulation, the expansion of competition in transportation, the diminishing area of significant railway monopoly, maintaining the viability and promoting the efficiency of railway service and other components of the problem.

Regulation of railway rate maxima has from its beginning been based on the premise that railways enjoyed a significant monopoly in overland transportation and therefore their pricing practices must be subject to public review. The objective of such rate regulation was to protect shippers from inequitable rates, qualified by the consideration that net rail revenues should be adequate to maintain railway operations.

With the rapid advance of competition, particularly in the last decade, the area of significant railway monopoly has been steadily eroded. In the areas and for commodities where competition has developed, it can provide a satisfactory ceiling on transport rates. Yet in the diminishing areas where significant monopoly remains, the tendency toward inequities seems to have increased. The explanation for this lies in the unequal growth of competition which, while causing more railway services to become clearly uneconomic and thus subject to operational losses, has at the same time reduced the range of traffic on which such losses can be recouped by raising rates.

Thus, while the expansion of competition has recommended to us the importance of reducing the limitations of rate regulation on the railways where such competition exists, it also shows the importance of developing a new, limited but effective type of regulation where significant monopoly remains. The current approach to rate regulation is inappropriate for these tasks. Rate regulation as presently established is premised on measures of average monopoly, rather than significant monopoly. This is because the basis for permissive maximum rate increases has been the net rail revenue position - total revenue less total costs. In other words, the net revenues from both competitive and non-competitive sectors of the transport economy are averaged, yet rate increases have not been averaged. As competition spread in the transport economy, with its outwash of uneconomic rail services (many of which have been maintained), net revenues could be maintained in the circumstances by raising rates only in the shrinking non-competitive sector. The contribution of this complex of conditions towards the growth of inequities is remarkable. It is notable also for its reluctance to yield to a solution.

The resolution of this problem of inequities must be kept in perspective with several important basic considerations. First, it is necessary to preserve the viability of the railways through adequate net returns. In this respect, rates and revenues must be considered in relation to our recommendations in Volume I where we identified reasons for some revenue short fall because of the obligations placed upon railways to perform certain services by law or public policy, and in Chapter 5 of this volume where we elaborate measures to assist the railways to abandon uneconomic services, thereby reducing costs relative to revenues. Secondly, it is necessary to provide a means of protecting those shippers in the

non-competitive sector, that is, those shippers without adequate alternative transport. The most effective means of providing this protection is a suitable maximum rate control for this diminishing volume of captive traffic. Such maximum rate control, it should be emphasized, is recommended solely as a replacement to existing rate regulation, not as an extension of it. The old controls and the new will not mix.

This latter point is so important that we feel we cannot stress it too strongly for there is the very real danger that either through misunderstanding or inadvertence the recommendations for maximum rate control which follow will be only partially implemented or superimposed on top of existing regulation. Nothing could in our view be more harmful nor less in keeping with our findings and recommendations. The time is long overdue when the trend of legislation should begin to reflect the facts of the increasing competition which railways face, and it is our intent that the effect of our recommendations should be to change the nature and reduce the extent of rate regulation over railways while retaining the necessary minimal controls required. It would be a serious misconstruction of our recommendation respecting regulatory rate control to attempt to implement our proposal for maximum rate control within the present system. Specifically, the proposal for maximum rate control set out in this chapter is designed to replace the present unsatisfactory maximum rates and we state, with great emphasis, that a partial implementation will not succeed.

The Determination of Significant Monopoly

Because a relatively small and declining part of the transport market is exposed to significant monopoly and to the inequities which rate

increases in that sector may impose, it is clearly important that a measure be established which can more readily and sharply determine the existence of significant monopoly than has been possible with measures now in use. Any recommendation for its control demands such a measure for its identification. It is to this identification of significant monopoly that the analysis now turns.

Before the practical distinctions between competition and monopoly can be fully appreciated it is necessary to subject the ratemaking process to analysis. To begin with, how would an omniscient, omnipotent ratemaker establish the rate for a particular commodity movement in order to maximize net revenue or, alternatively, minimize loss.

Railways in common with retailers, manufacturers and service industries are price (or rate) setters. That is to say, subject to any restraints or limits which may be imposed by law, the ratemaker is responsible for choosing the price and announcing it to the buyer or shipper. A railway, in common with other price setters, advertises its service, announces its price and the price taker (the shipper) is free to decide the amount of the service he will take at that price. The problem facing the profit-maximizing price maker is to choose that one best price for a given product which will maximize his profits. In order to make this decision correctly in the transport industry, the ratemaker will have to measure, estimate, or simply guess at certain fundamental economic relationships. First of all he must know the relationship between the costs which his company incurs and the amount of freight which they handle. More particularly he must know the <u>additional</u> cost (usually called marginal or incremental cost) which will be incurred if additional traffic is handled, and, of course, he should know what savings could be realized if some increment

of traffic is not handled. It is customary in railway costing to distinguish only between fixed and variable costs and to use variable costs as an approximation of marginal costs. This is essentially the approach of most firms that use direct costing. This assumption is reasonable if the cost-output function is linear or nearly so; that is to say if each additional ton-mile of traffic increases total costs by the same amount. Incidentally, if the rates are to be in effect for some time, the ratemaker must be interested in long-run marginal cost. What costs are variable, and what costs are fixed depends of course on the length of the time period considered. There are many items of cost each having different life. For example, the costs involved in maintaining a given fleet of box cars are very nearly fixed in the short run, but given enough time these costs can be escaped or increased as the size of the fleet is adapted to the traffic handled.

The next ingredient necessary for his ratemaking decision is the "demand function". This is simply a schedule of the number of ton-miles which will be demanded by shippers at all possible rail rates. When plotted this schedule becomes the "demand curve". As shown in Appendix A to this chapter, this demand curve may be inelastic (i.e., quantities shipped are not highly sensitive to small movements in rates) for individual shippers. Or, it may be elastic, i.e., quantities shipped are highly sensitive to rate movements.

But this elasticity relationship between rates and the quantities shipped varies over time. In the short run, the demand function tends to be inelastic for all shippers. In the longer run, it tends to be more elastic. This tendency for the elasticity to increase with time is related to the problem of rate inequities. This is because the increase in elasticity over time opens two channels by which the railways can influence their revenues

by adjusting rates. One of these ways is to raise rates whenever net revenues fall below revenue requirements. Shippers will pay the higher rates in the short run, that is, until they can seek alternative forms of transport. Shippers successful in finding lower-cost transport go elsewhere eventually, thereby reducing the net revenues of the railways and setting the stage for another rate increase to recoup lost revenue and further reduce traffic. This is the short-run channel, which, it may be seen, tends to increase rates and inequities while reducing the volume of traffic.

The other channel is the long-run approach. This involves lowering rates, where warranted by cost-profit conditions, as a means of improving the revenue position. In this case, net revenues may fall in the short run but in the long run with the greater elasticity of demand, the lower rates tend to attract more traffic and, unless set lower than demand requires, will build up net revenues. Using the long-run approach, there is no increase, and may be a decrease, in rate inequities.

It may be apparent that choosing the short-run or the long-run demand as a basis for ratemaking can have profound significance for the railways. Ratemaking that exploits short-run inelasticity of demand to bolster the short-run cash position tends to increase inequities and encourages a reduction in the volume of traffic. Ratemaking that exploits the long-run elasticity of demand tends to expand the volume of traffic and to reduce rate inequities, at the possible expense, perhaps, of the short-run cash position.

It follows also that the more knowledge the ratemakers have of the short- and long-run elasticity of demand, the more effectively they can select rate levels which will maximize the long-run profitability of the carrier. The technique for making this selection may be briefly outlined.

Having estimated, on the basis of the demand function, the reaction of shippers to increases or decreases in the price (or rate), it is a matter

of simple geometry or arithmetic to calculate their revenue effects, i.e., the additional revenue, or loss of revenue, that will accompany a change in rates. It is also apparent that so long as the extra (or marginal) revenue exceeds additional (or marginal) cost it will pay to lower the rate and encourage more traffic. If marginal revenue is less than marginal cost, it may pay to raise the rates and thereby reduce the ton-miles performed. Once the optimum position has been established, further increases in freight rates will reduce profits just as surely as will reductions in rates. High rates do not inevitably mean high profits.

On the contrary, under conditions of modern technology, the maximum profit tends to be obtained by maximum volume at lower levels of cost. The development of mass-production techniques has brought with it a reversal of the conditions on which the traditional view of monopoly was based.1/ The result has been, in transportation as in other large-scale enterprises, that much greater emphasis than in the past must be given to expanding effective demand so capacity can be utilized more fully to gain the benefits of lower mass-production costs.

Moreover, while it can be seen from the foregoing that costs and demand are equally important in the determination of the optimum rate it would be incorrect to say that the railways (or most other businesses for

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1/ Cf., Drucker, Peter F., Concept of the Corporation, Boston, 1960 (rev.) p. 219, where he states, "This theory of monopoly which is still widely accepted as gospel truth, rests on the assumption - correct in the eighteenth century - that supply will always be limited, whereas demand will always be unlimited. On this assumption, monopolistic behavior will indeed yield the maximum profit. But under modern industrial conditions, it is not supply that is limited, but demand; supply in modern mass-production industry has, by definition, no practical limitations. It is simply not true that contraction of production and artificial maintenance of high prices will always yield the highest profit to the producer". On this basis, maximum rate control may be expected to stimulate ratemaking that will support higher, rather than lower, net profits for the railways.

that matter) have placed equal emphasis on research in these two areas. While we found rather sophisticated applications of statistical inference to costs we did not find evidence of the same quality of analysis applied to the problem of estimating demand. This was well illustrated by all the presentations on the problem of the Crowsnest Pass grain rates. After millions of words of evidence on the cost of moving the grain traffic, the estimate of demand was limited to the sole observation that the farmers could not afford to pay higher freight rates. Obviously this did not mean that if the Crowsnest Pass rates were raised by a few cents the Western farmers would stop growing wheat.

It might be argued that a rate structure based on a value of service principle does involve a crude attempt to measure demand. But in the first place, how bad an estimate of demand it is, is attested to by the way in which the railways have failed to retain the movement of high-valued commodities. Given transportation competition, the assumption that elasticity of demand is in a direct way related to the value of the commodity becomes highly questionable. Recognition of these demand implications of competition for pricing decisions is essential to effective ratemaking.1/

1/ See, for example, Dr. Joel Dean, Cost Analysis for Competitive Railroad Rate Making, Railway Systems and Procedures Association, Chicago, 1959, p. 8-9, "It should be noted that a ceiling established by your customers' alternatives is far from a unique characteristic of railroad rate-making; quite the contrary, this is a fundamental rule of all competitive pricing. For many years most railroads did not feel much restraint from such a ceiling because the ceiling was then very high. It was high because alternative modes of transport were poor substitutes for rail transport and because price competition within the railroad industry has been effectively restrained by rate bureaus and government regulation. Hence customers' alternatives took the form of not shipping or not producing the commodity. It was this non-transport alternative which produced the 'value of service' principle of railroad rate-making. But the development of highway networks destroyed forever this aspect of the early railroad monopoly position.

"Transport alternatives available to shippers differ in two dimensions - price and service. To be competitive, railroad rates must take account of both."

Having established the framework in which a pricing decision is made, it is now possible to examine practically the concept of competition and monopoly. The degree of competition or monopoly which attaches to a product (or service) in the market place is influenced more than anything else by the number and closeness of substitute products offered to consumers. It is conceivable that this may range from a market situation where only one product or service is offered without any close substitutes (monopoly) to a situation where a large number of close substitutes are offered (competition). In fact, most markets lie somewhere between these two extremes. There are, in other words, varying degrees of monopoly. It is customary to measure these degrees of monopoly by the slope of the demand curve,[1/] whenever such slope can be satisfactorily measured or estimated. But in transportation, such measurement is subject to more than the usual difficulties of accurate estimates of demand. It is subject also to the kink in the demand curve that develops at the point where rates rise to the level where higher cost carriers may compete.[2/] This kinked or discontinuous demand curve makes the slope of the curve too uneven for use as a precise measure of monopoly but it leads the way to another, more satisfactory measure to test for specific instances of significant rail monopoly.

Our examination has clearly shown that a rational and objective measure of the degree of significant monopoly can be based on the relationship between cost and price. This would apply only when conditions occur which prevent the entry of new firms.[3/] In comparing degrees of monopoly

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1/ See Appendix A to this chapter, p. 118.

2/ Ibid., p. 119-121.

3/ Ibid., p. 120-121.

among different products one would obviously need to examine the relative rather than the absolute spread between cost and price. Hence, in the case of railway shipments, the degree of monopoly for each could be measured by the difference between rate and cost divided by the cost. Alternatively the same effect could be obtained by expressing the rate as a percentage of cost. It is essentially this relationship of rate to cost which provides the basis for our proposals regarding maximum rate control.

Measures of Significant Monopoly

If entry into the transportation business was easy, if capital was mobile and flexible, rates that were significantly above those yielding normal profits would encourage other firms to come in to compete for the business. In fact, entry into the railway business is not free. The amount of capital required is enormous and would by itself restrict the number of firms which would be willing and able to enter. Furthermore, restraint is offered by the fact that rail transportation is a declining cost industry. Where one or two firms might survive with a profit the entry of another firm might mean disastrous losses for all concerned. It is this lack of freedom of entry which opens up the possibility that there are pockets of traffic throughout the country where there is still a positive degree of monopoly and where there may even be a significant degree of monopoly - significant enough that the shipper might be able to justify his demands for some measure of protection on economic grounds.

The application of the concept of monopoly to railroad transportation today calls for some refinement, or at least re-statement, of the traditional theory. To begin with, the term monopoly has generally been

used in economic literature to refer to the total sales of either a firm or an industry. By inference, therefore, the term has usually implied a price-quantity relationship involving a large number of transactions. When the economist refers to the degree of monopoly, therefore, he generally means an average degree of monopoly, the average being based on a large number of individual transactions.

It may be questioned whether an average degree of monopoly is of much interest to the public authorities when that term is applied to Canadian railways in the latter half of the twentieth century. With the intensification of truck, water, air and pipeline competition, we are less concerned that the railways are exploiting all shippers than with the possibility that a significant element of monopoly may still persist in a few cases. It may very well be that if it were not for the tradition of regulation of the railways, we could look only at the average degree of monopoly and if this did not appear to be excessive, we would dismiss rate regulation on pragmatic grounds. After all, the degree of monopoly which any firm enjoys varies widely from customer to customer and even from sale to sale. Many business firms enjoy individual markets in which they have a significant degree of monopoly, yet so long as their over-all degree of monopoly is not obviously high it is not deemed necessary to impose price regulation.

The average degree of rail monopoly as measured by the difference between total revenues and total costs is not high; indeed it is, by the test of profits, lower than in many industries in Canada. One might argue, then, that the nation must be content with a rough economic justice. We have recognized that there is an increasing amount of competition in the transportation business. It may very well be asked, therefore, if monopoly

regulation is not merely a relic of the past which could be safely dispensed with today. This Commission believes that the average degree of monopoly which the railways have today is not itself significant and would not itself justify elaborate and expensive rate regulating machinery.

Nevertheless we found evidence that for some rail movements the rates were many times higher than costs, indicating that a significant degree of monopoly still exists in at least a few commodity areas. Some evidence of the substantial variations in the degree of monopoly is provided by the very uneven incidence of freight rate increases in the post-war period. Railways have found it possible to implement much larger percentage rate increases on some movements than on others. It was conceded in evidence before us by witnesses for the Canadian National Railways that there remain commodity movements for which the railway has a significant degree of monopoly. There is every reason to believe that similar situations exist with the Canadian Pacific Railway Company.

For these reasons we are not prepared to recommend at this time the complete abandonment of all rate regulating machinery. However, we do believe that the existing machinery, geared as it is to the class rates and designed to control the average degree of monopoly, is out of date. Regulatory machinery should be adopted which is more in harmony with the realities of competition, and which accords more closely with the existing practice of ratemaking.

We look forward to the day when, because of effective competition throughout the nation, maximum rate regulating machinery may be scrapped completely and it is our intention that whatever steps we recommend should contribute to progress toward that goal. We expect that our proposals will mean less regulation rather than more and that subject to the maximum rate

rule the railways will have all of the discretion on non-statutory pricing matters that any other company would have. The government, the shippers, and perhaps even the railways themselves must begin to treat railways more as normal commercial operations.

We anticipate that our recommendation on maximum rate control will facilitate at least an evolution, if not the revolution that seems necessary, in the approach to regulation of our railways.

The railways have demonstrated that they are taking a new approach to ratemaking. In fact one of the reasons that the Commission went into the Crowsnest Pass grain rate problem so extensively is that it afforded a unique opportunity to study the new railway costing techniques. While we saw much less evidence of the new estimating techniques being applied to the demand side, even here there are indications that advances are being made. In fact, as demonstrated in Appendix A, one of the critical aspects of the demand function - the point at which the demand curve breaks and becomes horizontal - is itself a matter of estimating the cost of the next best transportation mode. In other words we are moving away from a traditional rate hierarchy towards a more cost-oriented rate structure. It seems to us that from the point of view of the railways it would be desirable if the new maximum rate control machinery more closely mirrored their new approach to rate setting than is the case with existing controls.

Objectives and Attributes of Maximum Rate Control

The objectives of the National Transportation Policy call for the regulatory powers of the state to continue to be concerned about maximum rate control at least for the time being because where significant monopoly

exists, allocation of resources is not at the optimum and does not tend toward the optimum as it would under conditions of satisfactory competition. The power of the state must, in transportation as in other monopoly areas, attempt to substitute for competition. With the assistance of new techniques for determining the components of railway costs the degree to which regulation can move resource allocation toward the optimum by maximum rate control is much enhanced.

There are reasons other than optimum resource allocation for the nation's concern with maximum rate control. The first is that such control sets the limit to the burden which any particular shipper must expect to bear. Second, the regulatory authority in acting as an appeal board provides a forum for the shipper who feels he is being unjustly treated. In the presence of competition the shipper feels a security from the knowledge that he is not dependent upon the decisions of any one firm. Even though he may loyally remain with one transportation firm, the existence of alternatives gives him some bargaining power in his demand for service. The market place provides the opportunity for effective protest and even the existence of a more expensive form of service is some relief.

To the shippers who are truly captive to the railway, i.e., those who have no practicable alternative, no such feeling of escape presents itself. Every shipper by any mode of transport is bound by the operating rules of that mode. Trains, planes and buses leave at scheduled hours and the rules of the service are imposed on the individual to enable the best average level of service to be given. When competition exists the shipper has chosen the rules to which he will be subject. When it does not, he must perforce accept the rules laid down by the mode he is forced to use, and an outlet for appeal from the conditions of such captivity becomes a

legitimate interest of the regulatory function. It is no accident that the regions of Canada where competition to the railways is less pervasive have been the most active before the Board of Transport Commissioners.

Before discussing the mechanism of maximum rate control it must be stressed that any effective control must move in line with the changing transportation environment. Old criteria of maximum rates, based on the traditional rate structure, with emphasis on the value of the commodity, are increasingly less effective. It is the aim of this Report to see fewer and simpler rules established which will be more precisely effective. The new rules, to be logical and understandable, must apply to those particular pockets of significant monopoly which exist, and not to the average degree of monopoly.

As competition grows, a larger and larger percentage of railway traffic is composed of heavy-loading, longer haul commodities. Any new system of maximum rate control must provide a measure of defence against significant monopoly in the movement of these commodities. Yet, to be realistic, consideration of the degree of significant monopoly must begin at the base point that maximum rate ceilings must not worsen the financial position of the railways, or captive commodity movements will have no means of transportation at all.

We have recognized throughout this Report that a period of grave change faces the railways in Canada if they are to achieve a truly viable place in the transportation complex. We have urged that the nation recognize its share of the responsibility for the difficulties the railways have in meeting competition. We have suggested, moreover, that only the railways themselves can initiate changes in plant and service to equip them to meet their competitors. Throughout the period of transition significant changes

in the patterns of railway costs will emerge which will change the relationship between variable and overhead costs. But, for the interim, the maximum rate applicable to any movement has to face the realities of the railway plant as it exists. This is only to say that maximum rates might possibly be lower with an ideal railway plant than they can be with the extant plant. The national assistance we have recommended for facilitating the rationalization of plant and services will reduce cost and therefore help to reduce maximum rates.

It would be desirable if the new criteria of maximum rate control made some contribution to the solution of the long-haul and short-haul problem. It has been argued before this Commission that terminal costs have increased more than line-haul costs. Because of the way in which rate increases have been applied, the long-haul shipper has had to bear an increasing proportion of total rail costs. It is our conviction that maximum rates based on a cost-rate relationship will help to prorate the relative impacts of terminal and line-haul costs.

To summarize and itemize we set out as objectives of maximum rate control the following:

1. It must limit the impact of railway monopoly upon shippers.
2. It fails in its purpose if it is seriously detrimental to the revenue position of the railways.
3. It must be flexible enough to reflect at intervals the changes in railway costs which will occur with the rationalization of plant and services.
4. It should leave incentives for efficiency with the railways and offer incentives to the captive shippers to use transportation as economically as they would in a competitive environment.

5. It must be in keeping with newer ratemaking practices.

6. It must not be in conflict with the optimum allocation of resources in transportation.

In addition to these necessary objectives there are some attributes which would be desirable to have associated with maximum rate control.

1. It would be desirable that it provide some solution to the additional burdens which fall on the long-haul shipper.

2. If possible the regulatory and appeal machinery should be rationalized and simplified to use less time and energy in hearings.

Mechanism of Maximum Rate Control: Railways

It is our conclusion that maximum rate control can come closest to attaining these objectives and gaining these attributes if it is based on the variable costs of the particular commodity movement plus an addition above variable cost such as will be an equitable share of railway fixed costs.

Tying maximum rate control to variable costs necessitates establishing a standard weight as a basis for precise and comprehensible maximum rate construction. This implies that the maximum rate shall be tied to a key carload weight. Having the maximum rate based on a key carload weight would permit incentive features to stimulate economical loading and handling and would leave open an area for negotiation between the railway and the shipper for the sharing of such economies as result. Within this area, negotiation would proceed under ordinary business methods.

The determination of the key carload weight merits examination.

The necessity of regulatory control arises because of the lack of alternative carriers. In the past when and where significant rail monopoly has been eroded, the truck has usually been the instrument effecting it. In almost every remaining case of significant monopoly, the alternate carrier would be the truck. Thus the key weight upon which it is reasonable to base a maximum rate is the weight of the unit load the competing carrier could use to give his optimum rate. We propose that the carload weight upon which rail variable costs shall be determined for purposes of maximum rate control be 30,000 pounds in standard railway equipment.

Two considerations support this qualified 30,000 pound key weight. First, if the commodity loads lighter than 30,000 pounds in standard railway equipment it is probably an expensive commodity to handle on a weight, if not a cubic, basis. Secondly, if the commodity is heavy loading but is shipped in small quantities up to only 30,000 pounds, it is in effect an L.C.L. movement, which again has a very high cost per pound. In either case we found that there was little dissatisfaction with rates on the part of shippers who fall into these categories, and such dissatisfaction as there is stands to be alleviated by the forces of competition before long.

It is our recommendation that for purposes of maximum rate control the variable cost should be construed to mean the long-run variable cost determined for the particular movement involved. Reference to the studies prepared by the railways, the provinces and the grain trade on the costing of grain and grain products moving at statutory and related rates will be a guide in determining the components of long-run variable costs. The special studies, published in Volume III,[1/] on the costing techniques

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1/ The Problem of Grain Costing, by D.H. Hay, to be published in Volume III of this Report.

applied to the Crowsnest Pass rates could serve as a guide for the Board of Transport Commissioners.

From the evidence presented to us it is clear that the calculation of these rail variable costs should present no great difficulties. Under the stimulus of competition and the natural managerial goals of seeking profitable business, the major railways are constantly engaged in sampling and testing various segments of traffic for various operational and accounting reasons, important amongst which is the desire to know the variable costs of movement. Once certain specific conditions have been laid down, techniques already in existence, when applied to the traffic and accounts data already extensively collected, yield variable cost figures with reasonable reliability. Amongst these conditions are the operating circumstances under which the traffic shall move, such as distance, load per car, types and numbers of cars in each movement, terminal and other handling procedures, etc. The costing section of the Board will, of necessity, keep abreast of developments in the science and art of determining variable costs.

The variable costs so determined could exclude the costs of optional services which would be subject to a separate charge by the railway according to schedules filed with the Board.

In addition to the necessary components of variable costs, the process is incomplete without some indication of the length of time over which the costs shall apply. The general rule would be: the longer the period of time, the more costs become variable with traffic. Nevertheless, for all practical purposes, there are some costs which do not ever vary with traffic volume. These must somehow be covered by railway rates, including maximum rates. The function of maximum rate control is to place limits upon the share of these fixed costs the captive shipper must carry. The weight

of the burden of inallocatable overheads determines the justice and reasonableness of the rate.

The additional portion of the maximum rate above the associated variable costs must, for simplicity and for the equity which comes from uniformity, be a figure expressed as a multiple of the variable cost. The variable costs, based on a simulated truck-competitive load of 30,000 pounds, may differ for each movement. The addition to variable costs, that is, the contribution to fixed costs, will be a multiple of variable costs and, as such, will be stated as a constant percentage of them.

The cost structure of the railways, with their relatively high proportion of fixed to variable costs must be reflected in maximum rates. The equitable contribution allowed by maximum rates should not be less than 150 per cent of long-run variable costs. This percentage above variable costs, applied to types of traffic captive to rails under the mechanism set out in the next section, would not be detrimental to railway revenues at the present time. We recommend therefore that a maximum rate be the variable costs appropriate to the movement as defined by the Board of Transport Commissioners, plus 150 per cent of that variable cost. This we conclude is a reasonable share of the burden of fixed costs which traffic, designated captive under the criteria set out below, shall bear.

The definition of variable cost is different depending upon whether one looks back to historical costs or forward to prospective costs. In setting maximum rates it is expected that the Board of Transport Commissioners will need to have reference to historical costs. But the technological and organizational changes which occur over the next few years will cause changes in the content of variable costs and in the relationship of variable costs to total costs. In consequence, the Board of Transport Commissioners must con-

stantly review its definition of variable costs for maximum rate control and periodically reassess the appropriate relationship between variable and fixed costs to determine from time to time necessary changes in the addition above variable costs. We propose that the first categorical reassessment of the relationships between variable and fixed costs be undertaken at the end of the five-year period of public assistance for passenger-train operational deficits, when branch line rationalization will have progressed.

In our view the objectives of satisfactory maximum rate regulation are largely achieved by this form of control. Shippers of commodities subject to such a maximum will have the knowledge that the burdens of railway overheads are rationally apportioned on a basis of cost, and equitably borne. They will find that, so far as their traffic can be encouraged in volume, incentive loading and volume rates may be sought and bargained for. The long-haul shipper, captive to rails, will know that the maximum rate reflects line-haul and terminal costs without undue distortion. The railways, on the other hand, will not be forced to adhere to maximum rates which ignore changing cost and traffic patterns and opportunities for more efficient movement of traffic. An element of incentive inheres in any rate-controlled movement if opportunities exist to economize. New investment and technological and organizational changes which enlarge capacity, open to traffic officers new opportunities to assess each movement so affected and offer such incentive rates as are possible without interfering with maximum rates over the system.

Finally, the nation can be assured that this scheme of maximum rate control does not restrict optimum resource allocation, and, to the extent that it reflects costs of movement, should enhance it. Periodic re-evaluation of the components of variable cost and of the relation of

total variable to total fixed costs, will ensure the continuing efficient reallocation of the resources needed in the transportation industry, insofar as they bear on captive movements. The resources of time and energy devoted to the determination and application of maximum rate regulation will also be reduced as rules and definitions are developed.

Application of Maximum Rate Control

The decision to seek captive status must rest with the shipper. His reasons for initiating the action will be dissatisfaction with the rate he is forced to pay. His first step will be to attempt to effect an adjustment from the railway company concerned. Failing satisfactory settlement the shipper will apply to the Board of Transport Commissioners for an examination of his rate by the criteria established for maximum rate control.

The first application to the Board will enclose copies of the relevant correspondence with the railway, or other evidence that rate negotiations with the railways took place and that from the shippers' point of view they were not successful. The application will set out the rate paid, the origin and destination of the movement, seasonality, approximate minimum tonnage at indicated intervals, and details of the nature of the commodity shipments for assessment of loadability, fragility, damageability, perishability, etc., and information on the type of equipment required. On the basis of this information the Board will be able to give him a range within which his maximum rate would probably fall. This can be done without much delay as the estimate will be made on the basis of regional or system average costs. A nominal charge of, say, $25.00 should be made for the service. This ends the first stage of the application.

If the shipper feels it is worth his while to ascertain specifically his maximum rate he must apply formally for a special study. The cost of the detailed study is the responsibility of the complainant. It will probably be in the range of $300 to $500. Upon securing such additional information as is required, the Board will determine the maximum rate for the movement of the commodity between the points and under the circumstances prescribed in the application. Having received the maximum rate determination, the shipper then decides whether to declare himself captive.

The shipper's declaration to the Board of Transport Commissioners that he is captive must mean what it implies. In exchange for the maximum rate, the shipper is bound to confine all the traffic in question to the railway at the maximum rate under the conditions stipulated in his application. Unwillingness to assert his captivity means that he has alternate modes of carriage available to him or hopes to have. The maximum rate and traffic commitment will be in effect for one year, in any case, and will continue until the Board is notified of cancellation by the shipper. After cancellation, rates on the relevant traffic can be set freely by negotiation between the shipper and the railway.

After the initial one-year period the railway company concerned may offer evidence to the Board, and so notify the shipper, of any changes in associated variable cost. After verification, the Board may determine any change in the maximum rate applicable to become effective after the appropriate interval.[1/]

1/ Since the determination of the variables, and changes in variables, for large segments of traffic will be a continuing process in the costing section of the Board, maximum rate adjustments will become a significant part of the work of the Board of Transport Commissioners.

During the period of captivity, there is nothing to inhibit the introduction of a lower incentive rate, or the development of additional charges for special services demanded by the shipper. Performance standards by railway and shipper, which go far towards determining the variables, will be determined by the shipper in his application. Additional services he may require, or services he may wish to discontinue, are not to be the basis of a new application. These will be determined according to the regional or system scale of rates applicable to the service, constructed by the railways and filed with the Board.

Determination of rates for maximum rate control as set out by the suggested mechanism we believe will fulfil the second desirable attribute of any scheme of maximum rate control, i.e., simplified regulatory machinery. It appears valid to us to suppose that the new maximum rate control will be less cumbersome than the old. The test of significant monopoly is relatively simple and we do not see why the operation of the machinery should require any public hearings whatsoever. The first stage of the application should not take more than one or two weeks to process after experience has been gained. The determination of the variables will be in conformity with the practices already being developed by the railways and it should not take too long for the cost experts of the Board to collect the necessary information to arrive at a decision. In time the costing section of the Board will acquire a sophistication in the knowledge of railway costing that will enable the Board to render decisions in very little time.

The implementation of this recommendation will see the end of general permissive horizontal percentage rate increases and the expensive and protracted hearings which accompany them. That in itself should save the nation large resources in time and manpower. Within the controls for

minimum rate regulation which have been spelled out in Chapter 3 and maximum rate controls as set out in this chapter, the railways will be free to set individual rates by ordinary business standards and to adjust them upwards and downwards as the competitive conditions and changes in cost patterns require. With this freedom the time lag between cost increases and the permission to apply rate increases is eliminated. Even those rates which are set at the maximum are annually adjustable upwards after the initial one year contract, or downwards immediately as circumstances require.

Considerable concern was displayed by the railway companies who appeared before this Commission at the possibility of cost information becoming generally available. It is possible that this concern may be a basis of objection to this scheme of maximum rate control. There are two comments appropriate to allay the concern.

The first is that there is no particular commercial significance to variable cost. It differs with each type of shipment, each length of haul, each service peculiarity demanded, and, furthermore, is not necessarily the basis of establishing the minimum rate. The establishment of a maximum rate and the knowledge of the percentage of the variable which will be applied to the variable will enable the captive shipper to know the variable costs of his traffic movement. But this information is of no more use to a shipper or other carrier under the new situation than is knowing the rates charged various shippers in the present system.

Secondly, it is to the railways themselves that we are indebted for the great mass of costing data and techniques which were brought forward in the presentation which attempted to demonstrate in the public hearings of this Commission that the full costs of moving grain and grain products

to export positions made necessary a rate approximately in the relative position that grain occupied in the traditional class-rate structure. The cost results have become public information and will remain so. It is our conviction that a great contribution was made by the railways toward a solution to this nation's transportation problems by the revelation of these nascent techniques. Railway transportation business in Canada, so long as pockets of significant monopoly persist, is public business. Public business involves public review. Such limited review of railway costs cannot harm the conduct of the nation's transportation business so long as each mode is free to compete on the basis of its cost patterns.

The proposal outlined here for establishing maximum rate regulation deals with the rate a captive shipper pays to an individual railway for the movement of a commodity, point-to-point, on one railway system. Variable costs are predicated upon the costs associated with movement over one railway system. In Canada one important qualification must apply.

In many cases shipments could move by more than one railway, or partly over the lines of several. In these cases it is customary for all railways to quote identical point-to-point rates. In the case of maximum rates, which costs should apply? It seems to us that so long as we maintain a mixed private and public ownership in the railway industry in Canada all railways must operate with essentially the same set of rules. This means specifically that the capital costs which should be applied in the determination of variable costs for testing maximum and minimum rates are those approved by the Board of Transport Commissioners as proper for the privately-owned railway. Apart from this, however, it is logical that the other costs must be calculated for the short-line distance.

Introduction of Maximum Rate Control

Any change of regulatory control over maximum rates must, to be initially successful, be applied with due regard to the institutional and financial relationships which have grown up under the older system. Here, as in other instances where change will be necessary, we recognize that the method of application chosen which will ease the transition period will be most worthwhile to carriers and shippers and the regulatory agencies. The danger lies, of course, in slowing the pace of change too greatly, out of excessive concern for traditional procedures, and thus delaying implementation until the problems are worse compounded.

In proposing an entirely new mechanism of maximum rate control to meet the changes which are inevitably occurring, we recognize clearly the dislocations which abrupt introduction would make. In moderating this pace of change there are three important factors to consider and provide for during the period through which adjustments are being made.

First, existing rate relationships, while far from ideal, must be adjustable over time if serious and abrupt market disturbances are to be avoided. Second, present revenues of all carriers must not be significantly affected if all modes are to be preserved while energies are being directed toward adjusting to the new regulatory environment. Third, those shippers who have received some measure of rate protection either by the old system of maximum rate controls or by competition must continue to receive at least the same measure of protection during the period of adjustment.

In considering the method of applying the new maximum rate control, the protection being extended by law and regulation at the present time must be the base from which to proceed. At the present moment, effective

regulatory ceilings are being maintained by means of the Freight Rates Reduction Act which came into effect August 1, 1959. The circumstances leading up to the passage of that Act illustrate two things. The first is that both the Board of Transport Commissioners and the Privy Council found that the revenue requirements of the railways justified the horizontal increase of 17 per cent permitted to the railways by the Board of Transport Commissioners, Judgment and Order 96300, of November 17, 1958.1/ However, Parliament recognized that this increase, while necessary to the railways, was too high to be equitable for those shippers subject to the full 17 per cent. The Freight Rates Reduction Act rolled back the rates so affected as far as an annual payment of $20 million would reduce them. The $20 million was the amount Parliament saw as adequate to fill the gap between the rate levels deemed equitable to railways and the level deemed to be just and reasonable to shippers subjected to the 17 per cent increase.

One of the chief responsibilities laid upon this Commission was to assess the problem of inequities in the freight rate structure. Our problem, as we see it, is to attempt to substitute a more realistic method of maximum rate control for the traditional class rate maximum, which will protect the captive shipper and not limit the operation of commercial principles in the growing competitive sector. In our view the Freight Rates Reduction Act was an acknowledgement by the Government and Parliament of Canada that there then existed a double standard of equity in the freight rate structure. On the one hand, the revenues needed by the railways, which determined the extent of the general permissive increase, were recognized

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1/ Effective December 1, 1958. This was amended to read 10 per cent for 17 per cent by Judgment and Order 98424, dated July 10, 1959, effective August 1, 1959.

and met. On the other, the complaints of shippers subjected to the increase were met by lowering the maximum permissive rates. An acceptable measure of equity was restored to shippers and equity preserved to the railways by the $20 million subsidy until Parliament could receive and act upon this Report.

Thus the clash between the older traditional maximum rate control and the realities of the competitive environment had, by 1959, resulted in a most unusual situation. The claims of shippers and the railways for equitable treatment were only resolved by the establishment of a double standard[1/] of equity. Obviously, unless the nation is forever to bridge the gap between the two standards, some method must be found to bring them together. We sought, and found, the reasons in the structure of railway costs, swollen beyond the ability of the traffic to support them because of a number of obligations the railways could not escape. It was to these larger factors that we addressed our attention in the first volume of our Report. It is our conclusion, and our recommendation, that the nation can and should lift the burdens remaining upon railways by law and public policy, and thus restore to management the responsibilities for financial health which properly belong to it. The proposals outlined in Volume I are designed to discharge the chief public responsibilities for railway revenues. They are also designed to eradicate the main causes of inequitable freight rates so far as there is any public responsibility and, combined with the scheme for maximum rate control which has been proposed

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1/ Forewarning of this inevitable conflict was given a decade ago when the "roll-back" principle was invoked in what is known as the "bridge" subsidy, in what was a rationalization of an attempt to secure adequate revenues without raising maximum rates beyond the equitable level.

in this chapter, to protect the exposed shipper from any measure of significant railway monopoly.

Therefore, we recommend that, upon acceptance in policy of the plan for control of maximum rates, those rates which are now the effective rates being borne by all movers of commodities by rail on their own account under the provisions of the Freight Rates Reduction Act, shall for purposes of maximum rate control be rates considered just and reasonable. The test of maximum rate control as outlined here shall not apply to rates now effectively in force.

Following the adoption of this base, and after implementation of those proposals for restoring an equitable basis upon which rates shall be made, as recommended in Volume I, we recommend the repeal of the Freight Rates Reduction Act. From that moment on, the railways shall be given the freedom to make rates by commercial principles, subject only to the maximum and minimum rate controls we have advocated. Upon the increase of any rate, the mechanism for testing the rate may come into play at the discretion of the shipper who is prepared to declare himself captive.

It may be useful to explore the consequences of this technique for transferring from the older to the new regulatory system.

If the procedure as outlined is adopted, those shippers who might otherwise be subject to the old class rate scale maximum will not revert to it. Until the railways choose to raise those rates, such shippers will remain under the protection afforded by Parliament's action in rolling back what had become unsatisfactory maxima. Only when such a rate is raised by the railways will it become subject to the new maximum control. Rates which were not at the level of the old maxima are presumably set at their present level by commercial criteria. If such rates are increased it will be because

of commercial criteria in the light of new circumstances. Each shipper so affected, if he has reason to suspect significant monopoly, can then have recourse to the railways and to the Board to have the new rate judged by the new maximum rate control.

For the carriers' part, this order of procedure for introducing maximum rate control will avoid any immediate attrition of revenues. The temporary and emergency annual payment of $20 million will be replaced by those measures of assistance recommended in Volume I designed to correct the root causes of inequities, rather than palliate the effects. Railways, in common with other carriers, particularly trucks, will be free to make independent assessment of all their rates, and adjust them as business acumen directs, subject only to the maximum controls over significant monopoly and the minimum controls of directly associated costs of the movement. On the part of the public of Canada and its elected federal representatives, the order of procedure will permit the protection of maximum rate control to be continued at the level deemed just by the emergency legislation of the Freight Rates Reduction Act, while affording opportunity to move to a more permanent scheme of control at a pace dictated by changes in the competitive transportation environment and changes in the railways' cost patterns. And, finally, the unsatisfactory and dislocative process of applying for permission to institute general freight rate increases by Order of the Board of Transport Commissioners will be eliminated.

Maximum Rate Control: Trucks

Maximum rate control could apply to the trucking industry if significant monopoly arose. The basic touchstone of significant monopoly

is the lack of alternative carrier services. In trucking, unlike railways, this condition implies both collusion between firms and restraint of entry by provincial authorities.1/ The remedy for collusion is found in the law. The remedy for limited entry is regulatory relaxation.

To the extent that provincial authorities are concerned about excessive competition in commercial trucking, and restrain entry through franchise restrictions or by other means, the rationale and mechanics of maximum rate control are commended. Otherwise the trucking regulatory authority takes upon itself the difficult task of determining what the shippers of the province shall pay, the standards of service they shall accept, and thus the size and extent of resources the limited number of firms shall devote to road haulage. Should regulatory Boards misjudge any of these, private motor trucking will tend to supplant public carriage.

In an industry where competition is readily entertained, none of this is necessary. Regulatory control of highway transport is much more effective when concentrated upon safe operational and proper performance standards in keeping with the physical and climatic limitations of the highway network.

The complaint is made that too easy entry brings a continual arrival of new entrepreneurs who are not well informed about the profitability of trucking or about their own ability to make profits, and this keeps the industry in a constant state of depression. Attendant upon this, it is claimed, is the operation of badly maintained trucks, over-driven

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1/ If there is freedom of entry there is no point in collusion. If there is not freedom of entry, but more than one trucking firm, there is no reason (in the absence of collusion) why rates should not be competitive. A significant degree of monopoly in the trucking business suggests both collusion and lack of freedom of entry.

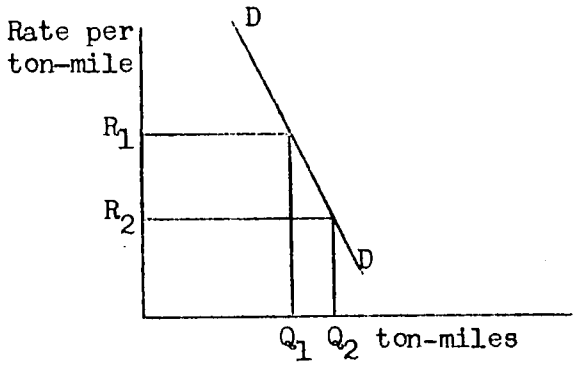
drivers, and unsatisfactory service, which reflects upon the whole industry. None of this can be denied, except perhaps in degree. The cure appears to lie in one of two directions: either control of entry and rates or the creation of lively and sympathetic highway traffic boards adequately supplied with the necessary data to examine and advise prospective entrants to the commercial trucking industry. If it appears to the public authorities that there are too many trucking companies and that this situation is chronic then the latter direction seems preferable. The necessary capital requirements for various types of operation can be explained. The necessity of adequate insurance, and bonding for the traffic they hope to handle can be set out. The typical rates in effect, and the volumes necessary at those rates to make an adequate return, are all demonstrable items. It is even possible to envisage instructional courses in small business management, to whatever extent seems necessary. Thus equipped with knowledge and certified for operational competence, the entrepreneur is free to take his own risks. The growth of efficient and large trucking companies in Canada today is due far more to the entrepreneurial drive of individual firms than to restricted franchises. Restricting entry does not guarantee safe operating practices and roadworthy equipment. In the interests of public safety, regulation of this type on public highways is vital but separate. Concentration upon regulation of operations, with freedom of entry based upon better knowledge, will promote the type of atomistic competition which brings adequate resources to bear in the provision of road transport at prices for service related to costs and normal returns to enterprise. Incentives to efficiency and the attendant returns are encouraged without the regulatory boards being responsible for any degree of monopoly profit.

APPENDIX A

The Demand Function

The "demand function" is simply a schedule of the number of ton-miles which will be demanded by the shipper at all possible rail rates. Demand curves are usually downward sloping to the right (DD) as shown in Figure 1. At a price or rate R_1 the shipper will be willing to buy Q_1 ton-miles. If the freight rate is lowered more ton-miles will be "consumed". The increase in the quantity of the railway services that will be demanded in response to lower price will come about for two reasons. In the first place, since transportation charges are a part of the total costs of the product a lowering of these charges may be presumed to lower the price of the final product and therefore increase its rate of consumption. In the second place, a lower freight rate will probably make it possible for the individual shipper to reach more distant markets. (Lower rates might also direct traffic from other modes but this aspect of the problem will be handled later.) Common sense tells us that the demand for the services of the railway for any one shipper will tend to be fairly steep (inelastic) indicating that quantities moved are not highly sensitive to small movements in rates. But it must be emphasized that this relationship between rates and shipments varies

Figure 1



over time. In the very short run shipments may be expected to have little or no relation to the amount charged, but as more time elapses the shipper may make adjustments in markets and prices which will profoundly affect his use of rail services. Hence the slope of the demand curve will vary over time. The longer the period allowed for adjustment, the flatter it will become. Again, since the ratemaker must consider that some rates may have to apply for an appreciable time, it is the long-run demand curve in which he is interested.

Competition and Monopoly

The degree of competition or monopoly which attaches to a product (or service) in the market place is influenced more than anything else by the number and closeness of substitute products offered to consumers. This point can be best demonstrated by an examination of two extreme examples. Let us suppose that there was only one salt mine in the world and only one salt-supplying company. For most of its uses there is no very satisfactory substitute for salt. For table use we would be prepared to pay a very high price. This implies that the demand curve for table salt is very nearly vertical, or to put the matter a little differently, the amount sold would be quite insensitive to the price. In this case we would have no trouble agreeing that the firm would have a very high degree of monopoly and that it could charge a very high price. Now let us assume that there are thousands of salt mines scattered around the world. Salt as a commodity is no less essential, but the output of any one firm is not the least essential since the salt of any other mine will serve in its stead. One mine owner would be virtually powerless to raise the price above the market rate because

if he did his customers would go elsewhere. In other words, his demand curve would be flat and we would say that the salt was sold in a market in which there was a very high degree of competition or a very low degree of monopoly.

Obviously the two cases we have been discussing are on the extremes. Most markets lie somewhere in between. It is therefore not useful to speak of monopoly and competition without qualification; one must instead recognize that there are varying degrees of monopoly.

To over-simplify a bit, it is customary to measure this degree of monopoly by the slope[1/] of the demand curve.

One may go one step further and ask what it is that determines the slope of the demand curve, i.e., what is the degree of monopoly facing the individual firm? From our previous example we can see that this is a function of the availability and closeness of substitutes. In a sense there is no product for which there is not a substitute since all must compete with each other for the consumer's or the businessman's dollar. Hence sellers of diamond necklaces must compete with sellers of mink coats. For some purposes, at least, these products may be very close substitutes. For other purposes a manufacturer of mink coats must compete with other manufacturers of mink coats, of other fur coats, and even of expensive cloth coats.

It is obviously the existence and closeness of substitutes which is at the root of competition and monopoly and which determines the shape

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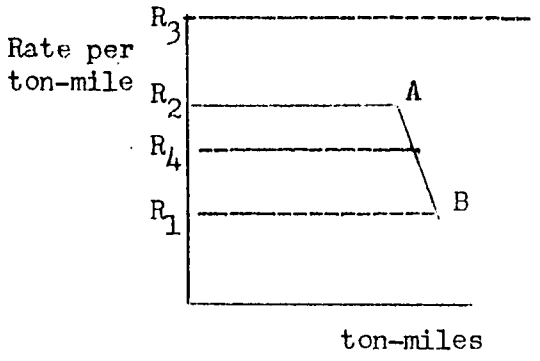
1/ More precisely the measure of the degree of monopoly is generally taken as the reciprocal of the price elasticity of demand. Price elasticity is not quite the same as slope but is, like slope, a measure of the sensitivity of sales to changes in price.

of the demand curve. It follows from this that wherever we can measure or estimate the demand curve we can provide a reasonably objective measure of the degree of monopoly.

While the concept of the degree of monopoly which we have just outlined is useful in sharpening our thinking about the nature of monopoly we find that it is not directly applicable to the competition which exists among the various transportation media. The reason for this is that the demand curve for a particular commodity movement is not a smooth straight line as we indicated in Figure 1 but instead is sharply kinked. This kinked demand curve is represented for a typical movement in Figure 2.

Figure 2



R_1 represents the long-run marginal cost of the railway and therefore constitutes the long-run rate below which the railway would be unwilling to move the traffic. R_2 represents the rate which would make it more attractive for the shipper to move his goods by truck or for trucks to establish a competing service where none exists. The railway therefore has some discretion in the choice of rates only between R_1 and R_2. So long as marginal revenue remains positive, the profit maximizing ratemaker will set the rate as close to A as possible. But what is the slope of the point A? On the line segment R_2A it has a slope of zero which suggests a zero degree of monopoly. If on the other hand A is considered to be on line segment AB it has a steep slope which indicates a high degree of monopoly. Obviously a measure of monopoly is not of much use if, for the same point, the degree of monopoly can at the same time be considered to be very high

when considering downward adjustment in the rate and very low when considering upward movements in the rate. And point A is, in fact, relevant for rate regulation since it is likely to be one sought after by a profit maximizing rate setter.

The kinked or discontinuous demand curve for rail services, then, requires that we adopt a slightly different measure of the degree of monopoly. In order to find a more practical definition of the degree of monopoly we need only inquire what are the price and profit consequences of competition. If there are a large number of actual or potential firms willing and able to perform a particular service or supply a particular good the price established could not for very long be more than full cost plus the usual rate of profit. If the market price fell, profits would fall and some firms would leave the business and new firms would be discouraged from entering. On the other hand if prices and profits were high, existing firms would expand and new firms would be attracted. In our cond salt example the easy entry of new firms into the business would discourage any firm from extracting more than the going rate of profit for to do so would simply speed the arrival of additional competition.

It follows from this that the relationship between price and costs will serve as a rational and objective measure of the degree of monopoly. Of course, in comparing degrees of monopoly among different products one would obviously need to examine the relative rather than the absolute spread between cost and price. Hence in the case of railway shipments the degree of monopoly for each could be measured by the difference between rate and cost divided by the cost. Alternatively the same effect could be obtained by expressing the rate as a percentage of cost.

In Figure 2 on page 119, two possible full costs are shown at levels R_3 and R_4. If the full cost of the rail movement is R_3 the degree of monopoly is obviously negative. In such a case the firm would be unable to recover its full costs from handling the business. If the capital equipment of the railway in the long run is divisible, and is capable of being withdrawn by the firm in small increments in the form of cash, the capital required for this particular movement would be withdrawn. If, on the other hand, the full cost is R_4 and the firm charged R_2 there would be some degree of monopoly. Again if entry into the transportation business were easy, if capital were mobile and divisible, a rate of R_2 would encourage some other firm to come in and it would compete for the business so long as it promised more than normal profit. In other words, we should expect atomistic competition of this sort to bring the rate down to R_4. But where capital is indivisible, and is required in large amounts to be invested for a long period of time, these market forces will not operate effectively. Regardless of the success the railway achieves in meeting competition where it exists, the shipper whose demand for rail services is inelastic may require a significant degree of protection.