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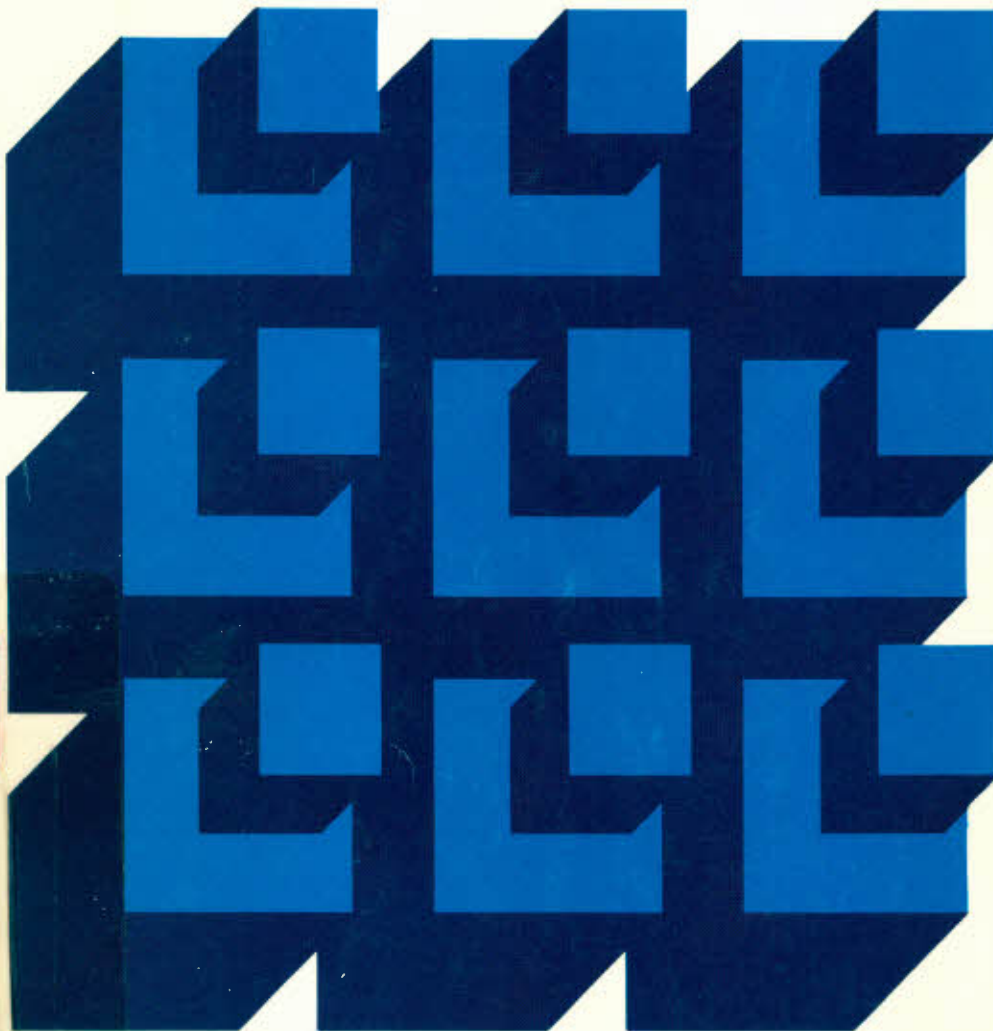
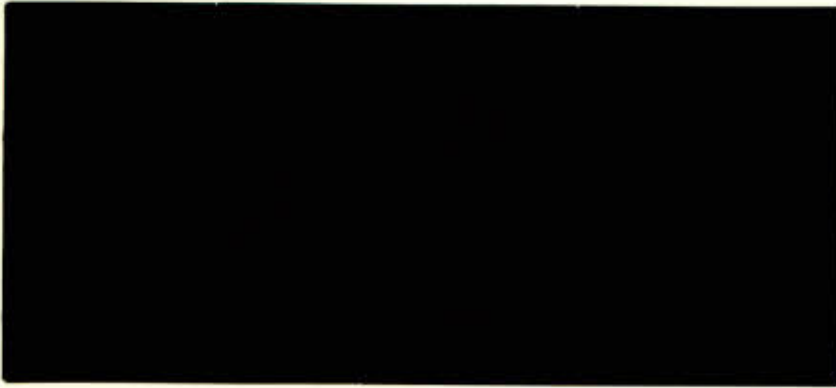


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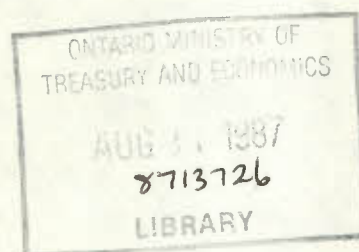
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DISCUSSION PAPER NO. 328

The Formation and Dissolution
of the Canadian Rail Cartel

by

A. Ellison



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FOREWORD

This study was undertaken as a part of the Council's project on government enterprise. The overall aim of the project is to improve our understanding about federally and provincially owned and controlled entities which operate at arm's length from government and have important commercial functions. The project is attempting more specifically, to address two specific questions: What is the appropriate role of government enterprise as one of a number of instruments of public policy? And, second, how should the apparatus of control within government be structured so as to realize the full potential of this instrument?

The research initiated for the project has included both the examination of general questions pertaining to government ownership and the investigation of the performance of particular firms and particular sectors. The present study falls into the latter category. It traces the pressures to which Canada's two main railways have been subject over time, and examines the activities of the railways within a changing regulatory and competitive environment. It looks at how the co-operative practices which had served the two railways well in the past have become problematic since the passage of the Staggers Act and the deregulation of the U.S. Rail freight industry.

Mr. Ellison, who had worked at the Council has written extensively on transportation issues. He is now an economic consultant based in Ottawa.

Judith Maxwell
Chairman

RÉSUMÉ

Depuis 1923, le secteur du transport ferroviaire au Canada est dominé par deux grands transporteurs, le Canadien National (le CN), détenu par l'État et le Canadien Pacifique (CP Rail). Bien qu'elles aient reçu des pouvoirs collusoires en 1932, les sociétés ferroviaires, pendant les quatre décennies qui ont suivi, ont fonctionné dans un cadre juridique et politique qui considérait le transport ferroviaire comme un moyen de promouvoir l'intérêt national en neutralisant le coût des activités menées dans les régions les moins favorisées du pays. À compter de 1967, grâce à l'adoption de la Loi nationale sur les transports et aux modifications apportées à la Loi sur les chemins de fer, jusqu'aux modifications apportées par la Staggers Rail Act aux États-Unis en 1980, les sociétés ferroviaires ont même bénéficié d'importants pouvoirs collusoires dans l'exercice de leurs activités. Libre de faire concurrence au camionnage et à la navigation, le cartel du transport ferroviaire était en mesure d'imposer des tarifs nettement discriminatoires pour certaines localités et certains produits. Sauf pour le cas des tarifs statutaires du Pas du Nid de corbeau, subventionnés par les opérations rentables du transport de marchandises, les sociétés ferroviaires recevaient des compensations pour les obligations imposées par l'État.

La concurrence pour les services offerts par les deux sociétés ferroviaires était limitée, en partie en raison de la division réglementaire des marchés à desservir. Le niveau de leurs tarifs semble avoir évolué vers une version modifiée de la formule de tarification de Ramsay. Aux sociétés ferroviaires verticalement intégrées comme transporteurs et propriétaires de voies ferrées, et caractérisées - grâce à la gamme et aux combinaisons de leurs produits - par des économies d'échelle et de complémentarité, la tarification de Ramsay offrait la perspective d'un recouvrement acceptable des coûts; les groupes d'expéditeurs se voyaient dès lors imposer un tarif égal au coût additionnel du service reçu, plus une part du coût fixe inversement proportionnelle à l'élasticité de la demande des expéditeurs pour le service ferroviaire. Certaines modifications ont permis aux services ferroviaires intégrés transporteurs-propriétaires de voies ferrées de devenir concurrentiels au transport routier de marchandises pour compte d'autrui et en location. Grâce à cette spécialisation, les sociétés ferroviaires ont appliqué et développé toute une technologie des convois et de l'industrie du transport. La technologie du matériel roulant, tel que le wagon couvert, a ainsi graduellement cédé le pas à celle de convois spécialisés ayant leurs propres caractéristiques techniques avancées.

Tous les marchés n'ont pas bénéficié de nouvelles applications technologiques. Le tarif fixe du Pas du Nid de corbeau ainsi que la pratique de la réglementation touchant le déploiement des wagons ont contribué à retarder les progrès dans la manutention et la distribution des céréales. Le maintien du tarif du Pas du Nid

de corbeau a aussi limité l'application de la tarification de Ramsay par les sociétés ferroviaires. Les expéditions de céréales ont bénéficié de tarifs inférieurs aux coûts variables à long terme. Les interdictions imposées par le gouvernement aux sociétés ferroviaires désireuses de délaier certains services de transport de marchandises et de voyageurs à un moment où progressait leur productivité ont contribué à les doter d'une surcapacité de voies ferrées. Après 1975, la longueur des voies ferrées en service a commencé à diminuer, alors que la demande augmentait, de sorte que le coefficient tonnes-milles par mille de voies ferrées s'est élevé rapidement. Bien que CP Rail ait réalisé un taux d'utilisation plus élevé que le CN, l'écart s'est rétréci à la fin des années 70, en partie parce que le CN a réussi à réduire de 6,7 % la longueur de ses parcours durant la période de 1975 à 1980, au regard de la réduction de 5,0 % des parcours du CP. Les améliorations techniques qui ont été apportées au matériel roulant, au contrôle des convois et au travail de bureau ont également réduit les besoins en main-d'oeuvre, augmentant d'autant le pouvoir de négociation entre syndicats de travailleurs et sociétés ferroviaires. Le CN, à cause de la capacité dont il avait héritée dans les secteurs de chômage élevé de l'Est du pays, a subi de plus fréquentes interventions de la part du gouvernement. Durant la période 1967-1980, le CP a mieux réussi que le CN à réduire son taux d'emploi. En 1980, l'emploi total au CP avait diminué de 44 % par rapport à la moyenne de la période 1960-1967, alors que la réduction n'avait été que de 25 % dans le cas du CN.

Les estimations des taux annuels moyens de croissance de la productivité totale brute des facteurs permettent de supposer qu'à la fin des années 60, la productivité du CN, dans le passé inférieure à celle de son concurrent, se rapprochait effectivement de celle du CP. À compter du milieu des années 70, la croissance de la productivité du CN a égalé celle du CP et, pour certaines années, l'a même dépassée. Pour la période 1967-1980, les estimations du revenu net par rapport à la valeur comptable des deux sociétés indiquent que le taux de rendement du CP a été constamment plus élevé. Comparativement aux taux de rendement calculés d'après des mesures semblables dans le cas de 38 compagnies américaines de chemins de fer de la classe I, la performance du CP semble avoir été supérieure à la moyenne, tandis que celle du CN aurait figuré dans la moitié inférieure.

Dans les négociations touchant la compensation pour les obligations imposées par l'État, le gouvernement a été confronté à un cartel ferroviaire capable de se forger avec autant de force que de discrétion des structures réglementaires qui lui étaient généralement avantageuses. Par suite de la création de VIA Rail, les sociétés ferroviaires, désormais capables d'éviter la concurrence entre elles, ont effectivement répercuté, en exploitant et en maintenant les convois de voyageurs sur les voies ferrées qu'elles possédaient, les coûts et les salaires élevés résultant des règles restrictives du travail qui leur avait été imposées sous le régime du cartel ferroviaire. En vertu de la Loi

sur le transport du grain de l'Ouest, laquelle prévoit l'abandon progressif des tarifs du Pas du Nid de corbeau, la différence entre le coût estimatif total du transport ferroviaire des céréales dans l'Ouest canadien et le montant du tarif statutaire payé par les producteurs est versée non pas aux expéditeurs mais aux sociétés ferroviaires.

Avant la loi Stagers, il existait une certaine parité dans les régimes de réglementation du Canada et des États-Unis, les deux étant favorables à l'existence d'un cartel du rail. La plupart des points de circulation ferroviaire dans les deux pays, tout comme ceux du transport aérien, étaient sujets à des tarifs internationaux communs, lesquels devaient à leur tour être approuvés et publiés. Favorisés par l'immunité aux lois anti-trust et anti-cartel, les taux communs étaient établis collectivement par les sociétés ferroviaires, à des niveaux préservant la parité avec les longs parcours sur le marché intérieur américain. Il en est résulté une nivellation des tarifs sur de nombreuses combinaisons de parcours. La loi Stagers a sensiblement réduit le soutien de la réglementation au cartel américain du rail. Les exemptions de la réglementation tarifaire ont été éliminées pour une part considérable de la circulation, des tarifs confidentiels et des rabais ont été permis dans plusieurs cas et la concurrence a été encouragée entre les divers moyens de transport. En abolissant l'immunité aux lois anti-trust dont bénéficiaient les transporteurs, la loi Stagers a soumis à la Sherman Act les tarifs internationaux communs établis collectivement. L'élimination de la transparence des tarifs a conféré aux sociétés ferroviaires américaines un avantage comparatif sur les transporteurs canadiens qui avaient prospéré sous l'ancienne réglementation. Ceux-ci, devenus incapables de conclure des contrats confidentiels et d'offrir des rabais, ont assisté à l'érosion graduelle d'une part croissante de leurs revenus provenant du transport ferroviaire des marchandises outre-frontière, alors que les expéditeurs délaissaient graduellement les longs parcours pour des parcours plus directs et plus courts en direction ou en provenance des États-Unis.

La fin de l'appui au cartel américain du rail s'est traduite par l'abandon des pratiques du cartel sur les itinéraires transfrontaliers et a rendu leur maintien inacceptable pour les expéditeurs canadiens. En effet, en mettant un terme à l'échange de renseignements sur les coûts et à la fixation de tarifs communs, la Loi nationale sur les transports prive le cartel ferroviaire de la protection législative dont il bénéficiait. Le nouvel organisme de réglementation, à qui l'on propose que soit confiée la gestion des droits de passage, de l'usage conjoint des immobilisations existantes et des tarifs communs, est autorisé à favoriser, plutôt qu'à limiter, la concurrence intramodale.

On peut douter, toutefois, que les mesures proposées pour laisser libre cours à la concurrence intramodale dans le transport ferroviaire susciteront une plus grande concurrence entre transporteurs. Bien sûr, les expéditeurs auraient plus de choix

si de plus nombreux transporteurs obtenaient des droits de passage, ce qui leur permettrait d'offrir divers itinéraires et favoriserait la concurrence dans les services de transport, mais l'industrie n'en demeurerait pas moins un duopole, chacune des deux sociétés ferroviaires possédant ses propres voies ferrées et ses droits d'exploitation exclusifs. Pour instaurer une concurrence intramodale efficace et soutenable dans l'industrie ferroviaire, il semble essentiel que l'on accorde à de nouveaux transporteurs l'accès à l'industrie et la possibilité d'entrer en concurrence avec les transporteurs existants. Mais alors, il faudrait séparer la propriété de l'infrastructure de celle des services de transport.

Cette séparation rendrait le fonctionnement de l'industrie ferroviaire semblable aux transports routier, aérien et maritime. Le projet de transformation de l'industrie en deux entités distinctes repose sur l'hypothèse que les deux volets de l'activité ferroviaire puissent être exploités de façon à maintenir un niveau global d'efficacité au moins égal à celui qu'atteint le fonctionnement actuel. En assurant le contrôle de la circulation pour le compte de plusieurs utilisateurs, la société propriétaire du réseau ferroviaire pourrait recourir aux méthodes de gestion utilisées dans le transport aérien. Comme le Canadien National possède et exploite déjà plus des deux tiers du réseau ferroviaire du Canada, l'étatisation des voies ferrées n'exigerait pas la nationalisation de voies ferrées privées. Une fois qu'on aura permis une plus grande concurrence en conférant à de plus nombreux transporteurs des droits de circulation, l'auteur recommande qu'un nouvel accroissement de la concurrence soit envisagé en faisant passer le CN de la société ferroviaire intégrée qu'elle est actuellement, à une société publique de voies ferrées desservant une industrie de transport ferroviaire de plus en plus diversifiée et comprenant un nombre croissant d'entreprises.

SUMMARY

Since 1923, the rail sector in Canada has been dominated by two carriers, the government owned Canadian National Railways (CN) and the Canadian Pacific Rail (CP). Although granted collusive power in 1932, for the next four decades the railways operated within a legal and policy framework that deemed rail transport as a means of furthering the national interest by neutralizing the cost of conducting business in the less advantaged regions of the country. From 1967, with the passage of the National Transportation Act and the changes to the Railway Act, until changes introduced by the Staggers Rail Act in the United States in 1980, the railways operated with substantial collusive powers. Free to compete against water and truck transport, the rail cartel was able to engage in extensive commodity and locality rate discrimination. With the major exception of the statutory Crow rates, which the railways were expected to cross-subsidize from profitable freight traffic, the railways were compensated for government imposed obligations.

There was limited service competition between the two railways, in part a result of the regulatory enforcement of separate rail markets. Rail rate levels would appear to have moved towards a modified form of Ramsay pricing. To railways vertically integrated into carriage and track, and characterized, over ranges and combinations of outputs, by economies of scale and scope, Ramsay pricing offered the prospect of acceptable cost recovery, in which shipper groups were charged a rate equal to the incremental cost of the service they received, plus a share of the fixed cost inversely proportional to the shippers elasticity of demand for rail service. Services were modified such that integrated rail track carriage was placed in competition with for-hire trucking. In accommodating this specialization, the railways applied and developed carriage and operating technology. There was a movement away from general traffic equipment such as the box car towards specialized unit trains with their own advanced technical characteristics.

Advances in technical application did not occur in all markets. The fixed Crow rate, along with the practice of regulating car deployment, served to retard advances in grain handling and distribution. The retention of the Crow also constrained the railways exercise in Ramsay pricing. Grain shipments were charged rates below long-run variable costs. The constraints imposed by government on the railways' withdrawal from freight and passenger markets at a time of increasing productivity in carriage contributed to excess capacity in track. After 1975, track mileage started to decline, while demand increased, resulting in rapid increases in ton-miles per mile of track. Although CP achieved a higher rate of utilization than CN, the gap narrowed in the late 1970s, in part because CN was able to shrink its route mileage over the period 1975-80 by 6.7 per cent in comparison with

CP's shrinkage of 5.0 per cent. Technical improvements in carriage, train control and clerical operations also reduced manpower requirements, and so added to the potential for negotiation between unions and the railways. CN, with its inherited capacity in the areas of higher unemployment in the east, incurred the more frequent intervention from the government. For the period 1967-80, CP was able to reduce employment at a greater rate than was CN. By 1980, total employment at CP was down by 44 per cent over the average for the period 1960-67, while CN's was down by 25 per cent.

Estimates of average annual growth rates of gross total factor productivity suggest for the late 1960s CN's productivity, which had lagged behind CP's, approached that attained by CP. From the middle of the 1970s, CN's productivity growth equalled and in some years exceeded that of CP's. Estimates of net revenue to book value for CN and CP for the period 1967-80 indicate a consistently higher rate of return for CP. Compared with similar measures of accounting rates of return from a selected list of 38 Class I U.S. railroads, CP appears to have performed better than average, CN to have been in the bottom half.

In negotiations over compensation for government imposed obligations, the government faced a rail cartel able to forceably but discreetly forge regulatory structures that were mostly to its advantage. With the formation of VIA Rail, the railways, able to avoid competing with one another, effectively passed along, by means of operating and maintaining passenger trains on track they owned, the high wages and costs associated with the restrictive work rules that had emerged under the rail cartel. Under the 1983 Western Grain Transportation Act, which phases out the Crow rates, the difference between the estimated total railway cost of transporting grain in western Canada and the revenue derived from the statutory rate paid by the producers is paid not to the shippers but to the railways.

Prior to Staggers a congruity existed in the cartel supporting regulatory system of Canada and the United States. For the most part rail traffic points in both countries and overhead traffic were subject to international joint through rates, which in turn were filed and published. Enjoying immunity from anti-trust and anti-combines legislation, joint through rates were set collectively by the railways and at levels that preserved parity with longer hauls in the domestic U.S. market. The result was an equalization of rate levels over numerous route combinations. Staggers diminished much of the regulatory support to the U.S. rail cartel. Exemptions from rate regulation were removed from a substantial portion of traffic, confidential rates and rebates were permitted on much traffic and inter-modal competition was encouraged. By removing anti-trust immunity formerly enjoyed by carriers, Staggers exposed collectively established international joint rates to the Sherman Act. The removal of rate transparency placed the American railroads at a competitive advantage over the Canadian carriers, who had operated with success under the former

regulation. Unable to make confidential contracts and to offer rebates, Canadian carriers saw an increasing portion of their transborder rail revenue eroded as shippers moved away from the Canadian long-haul routes on to the shorter, more direct routes to and from the United States.

The removal of support to the American rail cartel spelled the end of cartel practices on transborder routes and made their retention unacceptable to domestic Canadian shippers. The proposed National Transportation Act, by removing the exchange of cost information and the setting of common rates, withdraws the legislative protection afforded the rail cartel. The new regulatory agency, with its proposed direction over running rights, joint-stock usage and joint-rates, is empowered to facilitate, rather than limit intra-modal competition.

There are doubts, however, whether the proposed measures to release intra-modal rail competition will sustain increasing carrier competition. Although shippers' choices could be expanded by extending running rights, so providing alternative routing and increasing the competition for carriage, the industry would still consist of a duopoly, with the two railways each possessing their own track along with exclusive rights to operate. In order to introduce effective and sustainable intra-modal rail competition it would appear essential that new carriers be allowed to enter and compete for traffic. This could be substantially enhanced by separating the railway's ownership of the infra-structure from that of carriage.

Separation of track from carriage would make the rail mode similar to the operations in the highway, water and air transport sectors. Underlying the transformation of an industry into two separate entities is the assumption that the two aspects of the railway can be operated so as to maintain an overall level of efficiency at least equal to the existing method of operation. In providing traffic control for many users, the track company could employ methods used in managing the airways. As more than two-thirds of the Canadian rail track network is already owned and operated by Canadian National, public ownership of the rail track need not involve the nationalization of privately owned track. Having initiated increased carrier competition by extending running rights, it is recommended that a further step towards increasing carrier competition be undertaken by transforming CN from an integrated railway company into a government track company serving an increasingly diverse, multi-firm rail carriage industry.

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1 INTRODUCTION

The rail sector in Canada has been dominated for over 60 years by two railways. By the start of the 1980s, the government owned Canadian National Railways (CN) and the Canadian Pacific Rail (CP) were producing over 90 per cent of rail freight traffic and employing 87 per cent of the rail labour force.¹ For 40 years these railways colluded over rates. Over the last two decades they have operated within a legislative framework, which, while regulating minimum and maximum rates, has, by permitting their collusion and practice of rate discrimination, by enforcing the publication of rates and by granting exception from the anti-combines legislation, facilitated and legalized effective cartel practices.

For the first 40 years the railway duopoly operated within a legal and policy framework that deemed transport, and rail in particular, as a means of furthering the national interest by neutralizing the cost of conducting business in the less advantaged regions of the country. The regulated rail cartel, with its competition in service and collusion in rate making, would appear to have been seen not only as a means of offsetting the potentially undesirable instability ensuing from unregulated competition between the two railways, but also as a means of furthering the national, economic interest by establishing rate

parity among the regions and among different shippers. While legislation prohibited forms of personal rate discrimination, commodity rate discrimination occurred. The emerging rate structure was one in which shippers were treated with degrees of equality with respect to their size and location, and offered rates on their commodities that reflected the capabilities of the commodities to bear transport charges and comparative transport demand elasticities. Such commodity rate discrimination did not go unrestricted. Statutory rates constrained rates on export grain, a substantial portion of their traffic, and on export traffic from the Maritimes. In the mid-50s a form of rate equalization was introduced.

The increasingly effective competition from road transport forced the end of equalized discrimination. The legislative changes introduced in 1967 removed the regulatory restrictions on non-statutory rates, empowering the railways to compete against trucks and water transport, and to engage in commodity rate and locality discrimination. With the major exception of the statutory crow rates, which the railways were expected to cross-subsidize from profitable freight traffic, the railways were compensated for government imposed obligations. In negotiations over compensation, the government faced a rail duopoly sufficiently unified and strong to have resisted any intention the government may have had to use information it could have derived from CN in negotiating compensating subsidies with the privately

owned CP. Except over employment decisions, in which the government intervened, causing CN to retain more labour in economically deprived regions than desired, the government owned carrier was able to obtain parity of treatment from the government and the regulatory agency.

The unified positions, forcefully but discretely presented, were instrumental in the cartel forging institutional and regulatory structures that were very much to its advantage. The railways were able to obtain subsidies to cover a larger share of their rail passenger rates. With the formation of the government owned passenger carrier, VIA Rail, the railways, able to avoid competing with one another, effectively passed along, by means of operating and maintaining passenger trains on track they owned, the high wages and costs associated with the restrictive work rules that had emerged under the rail duopoly. In contrast, the railways' bargaining over imposed obligations in the freight sector were initially less successful. The retention of extensive branch line mileage favoured the shipper. Rates for export grain fell below cost, involving the railways in increasing cross-subsidization and disinvestment. The railways were to retain the advantage, however, with the passing, in 1983, of the Western Grain Transportation Act.² The Act phases out the Crow rates, the so-called "crow-benefit," the difference between the estimated total railway cost of transporting grain in Western

Canada and the revenue derived from the statutory rate paid by the producers, is paid not to the shippers but to the railways.

The cartel, however, engaged in practices that were not perceived by all in the transport sector to be advantageous. Some regions, such as the Prairies, contained shippers who perceived the emerging discriminatory rate structures to be sufficiently inimical to their region's development to support the dissolution of the cartel when it was threatened by the advent of the deregulated American railroad industry, following the passage of the Staggers Rail Act³ in 1980. Marking the end of the Canadian rail cartel and of the particular role of rail transport in the furtherance of the national interest, was the 1985 White Paper, Freedom to Move.⁴ The proposals, expressed in Bill C-126,⁵ to remove the exchange of cost information and the setting of common rates but permitting private contracts and rebates, in effect remove the cartel's legislative protection.

The causal link between Staggers and Freedom to Move is the substantial U.S.-Canadian traffic carried on Canadian railways. In 1983 one-quarter of Canadian railway revenue was derived from transborder traffic.⁶ Until 1980 international rail movements between Canada and the United States moved under the same restrictive rules. Both regulatory systems discouraged price discrimination between different rail routes. Enjoying immunity

from antitrust and anti-combines legislation, rates were set collectively. International joint rates could only be changed upon the unanimous consent of all carriers participating in the rate and with 30-days' notice to the public. The result was an equalization of the rate levels over vast numbers of routes.

The statutory allowed scope for collective rate making, however, diminished under Staggers. The advent of intracarrier rail competition in the United States threatened collective rate making in the Canadian portion of the international rates, and also placed pressure on collective rate agreements on domestic routes. The threat came from the lower rates offered by the American railroads to shippers of international freight, and the ability, denied the Canadian carriers, to strike confidential contracts with the shipper. Attractive international rates invited requests from Canadian shippers for lower domestic rates. In the meanwhile, Canadian shippers took the opportunity to use American carriers and American rail routes. By 1984, CNR and CPR estimated that in the four years since the passage of Staggers they had lost revenue of the order of \$100 million.⁷

The competitive pressures emerging from the deregulated American railroad industry are reflected in Freedom to Move and Bill C-126. The legislation not only proposes to withdraw regulatory support to the cartel, but would also, by establishing rates for captive shippers, institute rate regulation, and stimulate intra-rail

competition by imposing joint-track usage and shared running rights. The imposition of rate regulation in captive markets is indicative of the limited rate and service competition expected to emerge from just two track-owning, vertically integrated carriers who have divided markets and operated a tight cartel for over half a century. This paper argues that effective carriage competition will occur only after a substantial restructuring of at least one of the carriers. Such proposals are outlined in Section VII, which is preceded in Section II by a brief account of the forces shaping the events determining the rail cartel. Section III examines the cartel's role in shaping the institutions and regulations that emerged from the bargaining of the railways and the government over imposed public obligations. The next section, IV, explores aspects of the performance of the cartel over the period from 1967 until the impact of the deregulated American railroad industry was felt in 1981. Section V examines the impact of Staggers on the Canadian rail industry and of the reaction of the regulatory agency, the Canadian Transport Commission. The proposed legislative changes contained in Freedom to Move and Bill C-126 are compared and examined in Section VI.

II RAIL CARTELIZATION

The purpose of a cartel can be assumed to be to maximize the total profits of its members. The cartel price will be higher and the supply lower than would be the case without collusion, resulting in welfare⁸ and resource losses as excess capacity is created. The successful cartel would be identified by its increasing total profits, increasing rates and an allocation of market shares in accord with agreed market shares. Such success would depend on the acceptance of each railway to charge the agreed, cartel prices, which in turn would depend on the enforcement of the collusive contracts. Enforcement would be tested if it were possible for an individual railway to make more profits by being disloyal than by being loyal. Such disloyalty would depend on the level of the cartel prices, the length of time it would take to detect cheating and the elasticity of demand over the range of prices within which the cheating takes place.⁹ If the cartel price is high, the detection period long and the demand price elastic, the binding force of private contracts may be insufficient to maintain the cartel, requiring instead enforcement by government regulation.

In Canada, regulation of the railways has both constrained and enhanced the formation and operation of the cartel. Early regulation of the industry appeared in large part to be motivated by shippers responding to imperfectly competitive markets for

railway services, rather than as conscious, planned devices that perfected the enforcement of collusive agreements. There were regulations that by enhancing rate transparency, reduced the chances of undetected cheating. Regulation stipulated that rates were to be filed and published. Departures from the filed rates were forbidden, as were rebates and confidential contracts. Regulation imposing interswitching limits attenuated shipper choices and aided the railways in allocating markets. In contrast, there were regulations that constrained the cartel, and in effect introduced a form of "equalized discrimination."¹⁰ Statutory rates constrained the railway's pricing on a substantial proportion of their traffic. Rate equalization was to be substituted for rate "discrimination." Pooling of output and revenue by the railways was prohibited.

As Table I indicates, the support to and constraints on the enforcement of the railway cartel were to change over seven decades of this century. For 30 years, the railway industry was effectively a duopoly subject to equalized "discrimination." From 1967 until the advent of changes introduced by the Staggers Rail Act in the United States in 1980, the rail industry could be described as a duopoly empowered with substantial collusive powers able to engage in extensive rate discrimination. The next two sections describe the formation of the duopoly and the regulation of cartel enforcement.

A. The Emergence of a Rail Duopoly

The earliest railways in England had resembled public tollroads, in which any party wishing to operate over a rail line could do so upon payment of a toll. By 1840 the advent of the steam locomotive and the iron rail had encouraged longer trains and a larger scale of operation. The result was the emergence of railway companies as exclusive providers of carriage over their own track.¹¹ The legislation in Canada that had incorporated railway companies with such monopoly over carriage granted them freedom to determine rate levels and quality of service. Shippers relied on competition between railways to protect their interests. The competitive process, however, was irregular, with periods of stability interspersed with alternating rate wars and short-lived cartels.¹² Statutory imposed rates were the first major regulatory intervention. Their aim was to enhance the exploitation of primary products. Later regulatory intervention was principally designed to bring about greater equality of treatment of shippers and communities. This regulation indirectly strengthened, and in part limited, railway cartelization, and it was to be a further three decades before the cartel's enforcement of collective agreements was to be significantly strengthened by regulatory legislation.

The construction of a transcontinental railway was considered vital to the building of the federation. The government

contracted with a private syndicate, Canadian Pacific Railways (CPR), to build a transcontinental railway linking the Maritimes with the newly formed province of British Columbia. The financial guarantee was facilitated by a land grant scheme which acted as collateral for the railway's bonds. Protection for eastward moving traffic involved the granting of a monopoly to CP over southern routes, while protection for western movements was to be provided by the tariffs of the national policy.

Completed in 1885, CP was to lose its monopoly on southern routes three years later. By 1903 the potential growth in the west was sufficient for the federal government to assist in the building of two new transcontinental railways.

The discriminatory exercise of the railways' monopolistic powers served to sharpen the corollaries of common carrier obligation of fair and reasonable treatment. The notion of reasonableness brought forth consideration of equal treatment. Shippers, regional and provincial organizations and governments called for equality of opportunity, which often translated into requests for preferential rates. Special statutory rates and rate regulation were the resulting means used to enhance regional equality of opportunity (see Table II).

The federal government in the 1897 Crows Nest Pass Agreement and in the 1901 Manitoba Agreement exchanged rail subsidies in return

for concessionary rates. These rates were in turn voluntarily extended by all rail carriers to their export grain traffic. Facing increasing pressure to deal with allegations of unjust discrimination, the government revised the Railway Act and established a rail regulatory body, the Board of Railway Commissioners. The provisions of the 1903 Railway Act reflected the shipper response to perceived imperfections of the rail market. The ban on pooling and the attempt to impose rate equality in effect prevented the perfection of a railway cartel, although the process requirements of rate filing and the forbidding of rebates buttressed rail rate stabilization.

In regulating originating and terminal switching services in 1908, the Rail Commissioners attempted to deal with the monopoly power of terminal railways. The outcome was a demarcation of carriers' markets, for the rates and distance limit that were established, while protecting shippers within the limit, served to exclude alternative carriers for shippers beyond the limit by allowing the terminal railways to charge much higher interswitching rates to shippers beyond the limit.

With a railway system such that one railway served a shipper in one part of the country and another served the receiver in another, shippers depended on co-operation between carriers to establish interline arrangements. Of particular importance at a time when there were few, if any, trucks, were the agreements and

rates established between carriers at the interswitching points of the railway lines. While the shipper wished to have alternative routings, the carriers, desirous of achieving maximum return on their investment, were disinclined to lose some of their captive shippers to another carrier by charging low interswitching rates.

Following complaints concerning the interswitching paraties and rates charged by railways, the Railway Commissioners issued, in 1908, Order Number 4988 (later known as Central Order No. 11), which established the then prevailing rate and area limits be adopted in those areas where previous orders did not exist. The rate was one cent per hundred pounds and an interswitching limit of four miles from the point of interchange.¹³ In 1918, General Order 252 required a railway to move originating or terminating traffic at a prescribed rate for another carrier when the shipper or receiver was within four miles of an interchange point between the carriers. There has been no increase in the interswitching limit, and only one increase in rates, a 50 per cent rise over the 1918 rates established in 1952.¹⁴

The Board's responsibilities for rate levels were severely tested with the advent of the First World War. In order to fulfill their contracts with the government, the two newly completed transcontinental railways, the National Transcontinental and Canadian Northern, required rate increases to cover the full costs of construction and to meet the rising wages demanded by the

railway unions. The rate increases accommodating such costs, however, would have resulted in large profits for the CP, leaving the Board vulnerable to the charge of facilitating profiteering. Another option, to differentiate rates so as to reflect the degree of construction subsidies, was also politically unacceptable, for it would have meant breaching the equity of the rail rate structure. The Board did not increase rates, with the result that there was a plunge downwards in the railways' net revenue, leading in turn to the bankruptcy of the two newly built transcontinental railways.¹⁵

The Canadian Northern was acquired by the government in 1917, and amalgamated later with the federally-owned Intercolonial and the Transcontinental. In 1919 the Canadian National Railway Company was incorporated, the Grand Trunk Pacific and the Grand Trunk joining in 1920. Unified operations began in 1923.

B. The Regulation of Cartel Enforcement

The new government-owned carrier entered into vigorous competition with CP Rail in passenger and freight markets, engaging in expensive branch line extensions. The abrupt onset of the Depression, however, brought financial losses and a Royal Commission of enquiry into railway competition.

The 1931-32 Royal Commission on the Railways and Transportation in Canada (the Duff Commission) after rejecting a merger of the two railways, instead offered a set of proposals aimed at enhancing cooperation rather than competition. The legislative response was the Canadian National-Canadian Pacific Act,¹⁶ whose central provision encouraged cooperative schemes between the two railways "for the purpose of effecting economies and providing for remunerative operation."¹⁷ Such measures, although requiring Board approval, were not to be enforced by the Board, nor was the Board to require proof that all possible economies had been achieved before granting general percentage changes in rates.

The railways responded in their passenger markets by jointly operating passenger trains within central Canada. More significantly, in freight markets the carriers acted in a collective manner, exchanging cost information and establishing common rates.¹⁸ The carriers established in 1938 a new rate, known as "agreed rates," designed to improve their joint competitive position with the ever threatening truckers.¹⁹ Upon approval by the Board, a rate would be established in exchange for the shipper agreeing to guarantee that most (if not all) of shipments would be purchased from the railway. In cases where the points were served by another carrier, agreement of the other rail carrier had to be obtained before the agreed charges could be implemented.

The Board, with the power, under the Railway Act to "fix, determine and enforce just and reasonable tolls,"²⁰ was faced in 1948 with the railway's first application for a general percentage rate increase since 1920. Between 1948 and 1958 there were 12 such "horizontal" rate increase approvals.²¹ In practice, the railways were prompted to apply the rate increases selectively according to what the traffic would bear. The resulting rate increases reflected the unequally distributed intermodal competition. Rates charged for lower-valued, long-haul shipments rose relative to short-haul, higher-valued shipments. Rates in central Canada, where competition from trucking was strong, were not only increased to a minimum, increasingly lower competitive and agreed changes were applied. In contrast, there were greater increases in rates, particularly long-haul, for the Atlantic and Western shippers.

The pressure from the provinces to constrain the emerging rate discrimination was reflected in the statute consolidations to the Railway Act in 1952, aimed at equalizing rates. Section 336(1), concerning a "national freight rate policy," proposed that rates on any class or kind of freight should be equalized across Canada, while Section 337, the so-called "one and one-third rule," established that the tolls applicable to freight traffic having its origin or destination in the Prairie provinces were not to exceed the transcontinental freight rate by more than one-third. In 1959 the government assumed jurisdiction over rate

authorization by enacting the Freight Rate Reduction Act,²² which denied a rate increase and instead rolled back the rates. A freeze was imposed in the following year and was to remain in force until 1967.

Amendments to the Railway Act introduced in 1967 removed the concepts of equality of tolls and equalization introduced in the 1950s, removed the power of the Board to "disallow, suspend or prescribe tolls," and established a rate floor and ceiling within which the railways could establish rates. Rate transparency was retained. Rates had to be published, while Sections 380 and 381 of the Railway Act retained the prohibition on rebates and concessions.

The newly established regulatory authority, the Canadian Transport Commission (CTC) was to set maximum rates by means of a cost-related formula for "captive shippers." Under Section 278 of the Railway Act the maximum rate was set according to the long-run variable cost of the shipment plus a 150 per cent contribution over variable costs for fixed costs. Under Sections 276 and 277 of the same statute rates were directed to be compensatory, defined as one that exceeds the variable cost of the movement of the traffic concerned.

Within these maximum and minimum rate levels, the 1967 National Transportation Act²³ (NTA) provided the rail carriers with greater

rate flexibility in competing with other modes. Rate regulation no longer protected the shipper from the rail carriers. Rates no longer had to be "reasonable." The railways' freedom, however, was limited by Sections 23 and 27 of the NTA. Section 23 provided for appeal against freight rates that might be prejudicial to the public interest. Hence, if rates were found to be "unfair," "too high" or "discretionary," the CTC could exercise its wide remedial powers. Section 27 pertained to the acquisition of an interest in a transport enterprise by another transport enterprise. Such action could be deemed unduly restrictive or otherwise prejudicial to the public interest.

Most significantly, the Railway Act was amended to permit the railways to engage in collective behaviour. Section 279 of the Railway Act, in permitting the railways to act in a "collective" manner, represented the residue of the legislative intent of rail cooperation contained in the Canadian National-Canadian Pacific Act 1932-33, for it included a mandatory provision concerning the exchange of cost information and a permissive provision allowing the railways to agree upon and charge common rates:

Railway companies shall exchange such information with respect to costs as may be required under this Act and may agree upon and charge common rates under and in accordance with regulations or orders made by the Commission" (emphasis added).²⁴

Now no longer obliged to seek formal approval from the Board (CTC) for most rate changes, there was uncertainty as to whether the rail carriers would now be regulated by the anti-combines branch of government. Under 279 of the NTA, however, the railways were exempt, under the so-called regulated conduct exemption, as far as the exchange of information and the establishment of common rates were concerned, from prosecution under Section 32 of the Combines Investigation Act. Hence, this Act was explicitly recognized as not applicable to the rail industry when regulated by a government appointed Board.

III IMPOSED PUBLIC OBLIGATIONS AND THE RAIL CARTEL

While buttressing the railway cartel, government continued to influence resource and regional development by means of rail rates. Statutory rates were maintained and supplemented, for which the railways were either compensated directly by government subsidies, or in the case of the statutory Crow Rate, were expected to cross-subsidize from profitable freight traffic. Similarly, increasingly unprofitable passenger services, many of which the government wished to retain, were supported by profitable freight traffic. The NTA, however, espoused a change in the means of compensating the carriers for such imposed public obligations:

"each mode of transport, so far as practicable, receives compensation for the resources, facilities and services that it is required to provide as an imposed public duty."²⁵

With the major exception of the statutory Crow rate, the railways were to be directly compensated for government imposed obligations. The government was required to negotiate levels of service and compensation with the railways. The government's negotiating agent was to be the newly created regulatory body, the Canadian Transport Commission, which was to determine actual losses and public need on a route specific basis. Amendments to the Railway Act established statutory provisions governing the discontinuance of passenger trains, branch line abandonments and

the provisions of subsidies. Compensation for carrying export grain, known as the "At and East" rates were made permanent by Section 272 of the Railway Act, as amended by the NTA in 1967.

Sections 260 and 261 of the Railway Act primarily governed the procedures for passenger service abandonments, Sections 252 and 253 establishing the process for the application of branch line abandonments. The procedures were similar. A railway was first required to post notice of its intention to apply for abandonment. Once filed, the case became the subject of a public hearing for the purpose of establishing whether it was uneconomical, and whether it was to be in the public interest to continue and to subsidize the service.

Order No. R-31300 established the statement of costs and revenues of operating passenger services, Order No. R-6315 the costs and revenues of operating branch lines. Covering three preceding years, such estimates were submitted to the Rail Transport Committee of the CTC, which investigated and reviewed the statements. If the Committee verified the loss, according to Section 254(1) of the Railway Act, it had to determine whether the branch line was to be retained or abandonment. Subsection 260(a) of the Railway Act specified some of the consideration to be included in evaluating the public interest when the Committee pursued the same decisions concerning passenger services. If the Committee was to order continuance of a passenger service the

federal government was committed to bear 80 per cent of the losses. Section 256 specified the payment of subsidies to reimburse the railways for the losses incurred on uneconomic branch lines. Unlike uneconomic passenger services, the government reimbursed the railways for 100 per cent of the losses.

The CTC was not to exercise exclusive control over abandonments, for Section 64(1) of the NTA allowed the Governor in Council (the Cabinet) to vary, at any time, orders or decision of the CTC.

A. Passenger Service Contraction
and Subsidization: 1967-80

In passenger markets, both railways had responded to the inroads made by surface and air competition by attempting to reduce their services. CP had been more successful in its contraction of passenger train miles. Between 1945 and 1958, CN reduced its passenger train miles by 6.2 per cent, CP by 22 per cent, while in the period 1958 to 1967, CP doubled its reduction to 45 per cent, CN managing only a reduction of 5 per cent.²⁶ Indeed, in the 1960s, in contrast to CP's contraction, CN had embarked on an aggressive marketing drive, experimenting with fare schedules and new equipment.

Prior to 1967, although the Railway Act did not specifically provide for the discontinuance of passenger train service, Sections 33, 34 and 35 of the Railway Act provided the Board with authority to handle applications.²⁷ Decisions were made on a route-by-route basis, based on the general principle that profitable freight services should cross-subsidize unprofitable passenger services. Cross-subsidization being eschewed in the NTA, the CTC was required to determine actual losses and to determine public need. Once a carrier had posted its intention to abandon service the CTC was then to determine the extent of the loss and the subsidization of the loss deemed to be in the public interest.

The decisions of the CTC indicated an inclination, in the face of strong political pressures, to subsidize rather than abandon uneconomic services. By 1973 only 11 of the 70 decisions of the CTC had permitted abandonment, with a resulting rise in subsidies (see Table III). Combined passenger subsidies of the two carriers by 1977 were a shade under a quarter of a billion dollars, representing a ratio of 1.65 to passenger revenue for CN and 2.11 for CP (see Table III). Inclusion of the 20 per cent of the subsidy borne by the railways suggests that in 1977 subsidies per passenger mile were 15.3 cents for CN and 19.4 cents for CP. Rather than spurring increases in efficiencies, incurring 20 per cent of the cost of production appeared to have encouraged the railways to disinvest in equipment and services. Between 1967 and

1977 CN reduced its passenger train miles by 42 per cent, CP by 29 per cent, CN's greater reduction accounting in large part for the Crown carrier's lower subsidy per passenger train rates after 1975.²⁸ CN, however, was to be less successful in reducing its services in the unprofitable Newfoundland Railway.²⁹

The railways, resentful of paying 20 per cent of the cost of the subsidy, pressured for reductions in service and for 100 per cent coverage of costs to be borne by the government. In turn alarmed at the rise in subsidies determined by the decisions of its regulatory agency, the government sought to contract directly with the railways for the provision of rail passenger services. Unable to persuade the two carriers to form a passenger rail company, the government, in 1977, established VIA Rail Canada.

The government was to contract with VIA for the provision of passenger services.³⁰ The Crown corporation was in turn to contract with the two railway companies for the provisions of passenger services by purchasing track right-of-way and operating crews. VIA provided equipment which was purchased at book value from the railways. The CTC established the basis upon which the railways charged VIA for these services, and audited the statements of the railways, so ensuring that they were in accordance with the approved costing principles of CTC Costing Order No. R-6313. The Railways Costing Regulation, as it was referred to, was essentially the same as Order No. R-31300, which

constituted the basis for the compensation to the Railways of 80 per cent of their losses. The CTC retained regulatory responsibility for safety, service quality, operations and discontinuances. The Cabinet, however, could overturn all except safety decisions, while the Minister of Transport was responsible for establishing service levels and for the resulting deficits, which were paid annually by the Ministry of Transport.

B. Freight Track Abandonment and Contraction: 1967-80

Over-extended by competing railways in the 1920s,³¹ many miles of branch lines were made redundant in proceeding decades as truck transport extended shippers' range of distribution and took much of rail's short-haul traffic. Most branch line mileage lay in the Prairies, and, owing to the very low regulated rail rate for grain traffic, was used primarily for grain traffic. As the deviation between the cost of handling grain and the statutory rates grew even wider from the 1950s onwards, the railways responded by disinvesting in rolling stock, handling equipment and the branch lines. Despite such disinvestment, track abandonment was difficult. The grain collection system, with its small grain terminals located on the branch lines clustered around which were small communities, were strongly resistant to a more centralized collective system of fewer branch lines and grain terminals. Fewer than 500 of the more than 1,900 miles on the Prairie provinces were abandoned in the 20 years following the end of the

Second World War.³² Track utilization grew to be unequally distributed, the MacPherson Commission reporting that although CN's branch lines represented 40 per cent of the company's total mileage, they contributed only 4.4 per cent of the total ton-mileage over the period 1956-59.³³

Pressures from the railways to abandon unremunerative branch lines mounted in the 1960s. A list of proposed abandonments drafted by the Board, Prairie governments and the grain trade met with disapproval from the federal government. The federal government's insistence in retaining control over branch line abandonments was shown prior to the passage of the NTA. In 1967 the government issued an order prohibiting the abandonment of 17,000 miles of Western lines until January 1, 1975. This left only 1,800 miles "unprotected" in that they were liable to be abandonment if the railway could prove its case before the CTC.³⁴

Such a freeze meant that the abandonment process was launched after January 1975. It was to meet with further constraints. The Crow rates remained, and the gap between the costs of moving grain and revenue widened, such that by 1980 statutory grain rates covered only 20 per cent of the actual costs of carrying grain.³⁵ As grain traffic that did not originate on designated uneconomic lines did not receive government subsidies, the railways, unable to abandon grain traffic, continued to disinvest in their grain

carrying rolling stock and branch lines. Box car fleets shrank and train speeds had to be reduced.

The deterioration in the grain transportation and handling system brought forth a series of reports on the Crow and the branch line systems. The Hall Commission was appointed in 1975 to inquire into the areas served by the 6,283 miles of protected lines. Reporting in 1977, the Commission recommended 2,165 miles should be abandoned over the five year period beginning in 1971, 1,813 miles should be added as the Basic Network and 2,344 should be turned over to a newly formed institution, known as the Prairie Rail Action Committee (PRAC).³⁶ The government instructed the PRAC to decide on the disposition of the 2,344 miles. By Order in Council, the government insured protection of the basic network to the year 2,000. The PRAC recommended 958 miles to be added to the basic network.³⁷ The Neil Report, commissioned by the 1979 federal Conservative government, recommended 592 miles should be added to the Basic Network and 1,011 miles (375 miles to be served by off-track elevators) turned over to the CTC for hearings.³⁸ The incoming Liberal government accepted these recommendations in 1980.

The abandonment process involved an investigation and review of the statements of costs and revenues according to Order No. R-6313 by the Railway Committee of the CTC. If the Committee verified the losses, according to Section 254(1) of the Railway Act, it had

to determine whether the branch line was uneconomic, and if it was, it had to decide if the line was to be retained or abandoned.

There were delays in processing abandonment applications. The costing order took time to assemble, while the Railway Committee was fully occupied in assessing the extensive subsidies it was to give for passenger services. The first subsidy payments were made in 1970. Over the decade 1970-80 the two railways received over \$1 billion, of which CN received almost \$550 million (see Table IV). CN also achieved more branch abandonments. Over the five year period following the removal of the freeze in 1975, CN's length of track in the three Prairie provinces shrank by 11 per cent, CP's by 6.9 per cent.³⁹ Non-compensatory rates for transportation of grain, however, caused the railways to continue their disinvestment in branch lines and grain rolling stock.

The government's immediate response to the deteriorating track and rolling stock was the introduction of a rehabilitation program and the purchasing of hopper cars for the railways. In 1977 the federal government agreed that 1,300 miles of CP and 1,015 miles of CN lines would be rehabilitated, with a projected expenditure from 1977 to 1984 of \$298.1 million for CN and \$196.8 million for CP.⁴⁰ In 1972 a federal program to purchase new grain hopper cars

was launched, such that by 1981 a total of 10,000 cars had been purchased or leased to the railways. In 1974 the federal government and the railways launched another program to share the costs of repairing over 7,400 box cars, while in 1979 the Canadian Wheat Board purchased 2,000 hopper cars at producers' expense. The provinces of Alberta and Saskatchewan each purchased 1,000 hopper cars, Manitoba acquiring 400 cars on short-term lease.⁴¹

The 1983 Western Grain Transportation Act introduced a phase-out of the Crow. The Act proposed to pay the so called "crow benefit" to the railways. Defined as the difference between the estimated total railway cost of transporting grain in Western Canada and the revenue derived from the statutory rate paid by producers, the railways received over \$600 million in the first year. The actual freight rates will rise over time, leading to a subsequent fall in the subsidy. The federal government, however, agreed to continue direct subsidies, continue purchasing hopper cars and to contribute to railway upgrading, involving expenditures of \$250 million over five years.

C. Compensation for Obligations

The substitution of direct compensation for that of rail internal cross-subsidization as a means of paying for imposed public obligations led to institutional structures that were

largely to the interest of the railway cartel. These interests were especially well served by the establishment of VIA Rail and the passage of the 1983 Western Grain Transportation Act.

Despite the mix of privately- and government-owned carriers, the rail cartel was well served because it acted in unison. In negotiating over compensation the government and the regulatory agency were faced with a unified rail duopoly, one which was strongly resistant to competing in the provision of track and carriage. The strength of the joint railway cooperation would appear to have been sufficiently strong to have repelled any intention the government may have had to use the information it could have derived from CN in negotiating compensating subsidies with the privately owned CP. Except in certain decisions concerning employment, CN was in turn able to obtain equal regulatory treatment from the CTC and the government.

Although judgments are difficult owing to the inherent problems in allocating joint and common costs, the rising costs registered by the railways for their rail passenger services would suggest they were successful in obtaining subsidies to cover a large share of their rail passenger costs. Certainly, the rise in subsidies⁴² obtained by the railways and the declines in quality of service were sufficiently marked to have caused the government to form VIA and to remove the responsibility for passenger services from the railways.

The railways, however, retained responsibility for the operation and maintenance of the trains on the track that they owned, operated and maintained. The railways did not compete in providing these services, nor was VIA directed nor powerful enough to stimulate competition by a contracting process. VIA was not permitted to audit the railway's charges, nor, when faced with the duopoly, was it able to terminate contracts.

Using the same costing regulation that had operated under the NTA's passenger rail subsidy program, the railways were able to receive full (not 80 per cent) compensation for their long-run variable costs. Facing audits by the Railway Committee that merely ensured they complied with the Commission's costing regulations, the railways were able to pass along to VIA, and ultimately to the taxpayers, the high wages and costs associated with restrictive work rules that had been sustained under the rail duopoly.⁴³ In 1980, VIA's payments to the two railways (plus the remaining passenger subsidies) totalled \$323.7 million, representing 7.34 per cent of the railways' operating revenue.⁴⁴ In 1977 passenger subsidies were 6.33 per cent of operating revenues. Payments to the railways in 1980 accounted for 70 per cent of VIA's operating costs, equipment maintenance constituting the largest cost item, accounting for 36 per cent of the total, train crew wages for 20 per cent.⁴⁵

These cost levels were considerably in excess of those incurred by the government owned, but more powerful American railway passenger carrier and contractor, Amtrak.⁴⁶ By 1985-86, rising administrative and railway contract costs had involved VIA in shortfalls that required \$600 million in government subsidies. The proposed 1986 National Rail Passenger Transportation Act⁴⁷ intends to provide VIA with a clear legislative mandate that it had been lacking. Along with specific financial targets, the Bill proposes to provide VIA greater powers in negotiating contracts with the railways. Compensation is to be modelled on the arrangements used by Amtrak, whereby direct costs incurred by the railways will be covered, plus a performance-based incentive payment that will provide a contribution towards joint and common costs.⁴⁸ For the purposes of negotiating contracts with the railway, VIA will be permitted access to railway costing information it is presently denied.⁴⁹ As a result, although VIA will be able to exert greater pressure on the railways to produce desired quality of service, it will still face two suppliers not only unwilling to engage in competitive contracting, but also able to deny entry of potential competing carriers by refusing to contract for the use of their tracks.

In the case of imposed obligations in the freight sector, the government, in retaining extensive branch line mileage and removing them from the regulatory process of the CTC, favoured the shippers rather than the railways. Similarly, retention of the

Crow rates to below compensatory levels until the passage of the Western Grain Transportation Act in 1983 favoured the shippers.

The response by the railways to "frozen" branch lines and non-compensatory rates was characterized, however, by identical policies of minimum maintenance of track and disinvestment in rolling stock.⁵⁰ Both railways in turn benefited by direct government expenditure on rolling stock. Similarly, consistency in approach to the compensatory grain rate issue resulted in the railways, rather than the shippers, receiving the direct compensatory payments.⁵¹

IV THE PERFORMANCE OF THE CARTEL 1967-81

A. Rates of Return

The rail duopoly clearly possessed monopolistic power. Capital requirements limited entry. Ease of exit was limited by governments' susceptibilities to the pressure from communities faced with line abandonments and service cessations. Legislation introduced in 1967 served to make explicit collusive rate discrimination, while regulating minimum and maximum rates. Unlike industries not inherently monopolistic, such as trucking, government regulation acted to enforce and enhance rather than create the possibilities of transforming wealth from the shipper/consumer to the rail carriers and from the carriers to those suppliers of inputs, such as labour unions, possessing monopolistic power.

Examination of the indicators of performance, suggest that along with the rail cartel, changes in technology and economic structure, government policies of investment and regional development, of imposed public obligations, have had substantial impacts. As a result, of interest has been the performance of the cartel in responding to these exogenous changes.

Evidence would suggest that with the exception of the statutory Crow rates, the rail cartel was successful in obtaining more than

adequate compensation for the imposed public obligations. In the case of the response of the cartel to technical change, the difficulty is in discerning whether the constraints imposed by the cartel or by the other imposed regulation thwarted the rate at which technical potentialities were exploited.

There are also difficulties of measurement and interpretation involved in evaluating the performance of the cartel, when this is indicated by the cost levels attained, the rates charged, the extent of excess capacity and the achieved rates of return. They are factors that limit the usefulness of considering the welfare implications of resource misallocation resulting from cartel practices.⁵² Imprecision in measurement also present difficulties in interpreting the shifts in returns between input suppliers, the railways and shippers, and the effect that these shifts have played in pressuring changes in the cartel.

Essential to such interpretations are accurate measures of economic rates of return. Readily available data, however, permit the calculation of the ratio of net revenue to book value, an accounting measure of the rate of return. Such accounting returns, however, cannot be assumed to be equated with the economic rate of return. The conditions for such an equality are highly restrictive,⁵³ such that it would be improbable that the accounting rate equalled the economic rate of return that equals the present values of the entire net revenue stream with the

initial capital cost. Yet measures of economic rate of return facilitate evaluation of cartel power and market performance, for it is the output restrictions under cartelization that produce the economic rate of return. Hence, accounting measures, while they must be considered inappropriate in evaluating market performance, can be used instead to infer whether one railway generates more dollars of profit per dollar of assets than another.

Such inferences have also to be qualified. There are problems of measurement common to most railways, such as the treatment of sunk costs,⁵⁴ and some which are exclusive to the Canadian railways. In particular, the lack of compensation for the carriage of export grain could be expected to have reduced net revenue and to have caused disinvestment in branch lines and rolling stock. Given these substantial qualifications, the estimates of net revenue to book value for CN and CP for the period 1967-80 displayed in Table V indicate a consistently higher rate of return for CP. Compared with similar measures of accounting rates of return from a selected list of 37 Class I U.S. railroads taken from a study by Keeler⁵⁵ (see Annex 3), CP appears to have performed better than average, CN to be in the bottom group. Over the period 1966/67-70, of 22 U.S. railroads, seven exceeded CP's average return of 6.4 per cent and 19 exceeded CN, with its average return of 3.62 per cent. Twenty of the 22 railroads exceeded CN's average return of 3.7 over the period 1971-75, but only nine exceeded CP's average return of 7.2 per

cent. During the period 1976-79, CP achieved an average return of 10 per cent, CN of 6.8 per cent. Some 12 railroads exceeded the average return of CP, and 21 of the 37 exceeded CN's. Of the two U.S. railroads, which are slightly larger, as measured in revenue freight, and smaller than CN and CP, namely Southern Pacific and Illinois Central Gulf, CP attained average returns in all periods in excess of both railroads, while CN exceeded both only in the period 1976-79, having been third in the earlier periods.

B. Markets and Rates

The pre-1967 cartel, subject to the Board's approval for rate changes and the requirement to maintain class rate equalization, was transformed into a rate discriminating duopoly. Free from rate regulation, the major exception being export grains, the two railways responded by refining their value of service pricing. Typically, associations of shippers collectively negotiated rates on an annual basis with teams of negotiators from the two railways.⁵⁶ Rate levels were determined according to market and modal competition, with the variable costs of the particular movement providing a floor below which the railways could not charge. In negotiating group or average rates, the shipper associations presented their members within particular zones with rate structures that were identical, irrespective of location within the zones or the rail carrier.^{57, 58}

There was limited service competition between the two railways, in part a result of the regulatory enforcement of separate rail markets. As competition was possible only when the line of the two carriers was available to carriers, the location of lines clearly limited shippers' choices, resulting in the use of trucks for access. Direct access to alternative rail carriers was available to those shipping within interswitching limits, while running rights possessed by a carrier extended the alternatives available to the shipper. Interswitching limited operations, for the most part, such that most shipping located within access to one line could only choose to deal with another located within four miles of a designated interswitching point with that railway.

Alternative rail carriers were more frequently available on cross-border routes than on domestic routes. Estimates for 1981 suggested that 35 per cent of traffic by total freight billing, defined as traffic in which CN or CP participated and including American carriers, could have been subject to intra-rail competition. OF this figure, 19 per cent was domestic and 16 per cent cross-border.⁵⁹

The estimate was that 40 per cent cross-border traffic was subject to intrarail competition. The potential for competition differed across the country. The opportunities for rail competition was greatest in Eastern Canada, where over 40 per cent

of the originating and almost 40 per cent of the terminating domestic and international traffic by revenue was potentially subject to intra-rail competition. In the Maritimes and the West the percentage dropped to 24 and 28 and 23 and 32 per cent respectively.⁶⁰

The collusion between the railways and the shipper committees could be seen to have facilitated the railways' concentration on high volume, low value resource traffic. Moving into the carriage of long-haul, bulk commodities, the railways began to sell increasingly not to the market but to well defined specific shippers and shipper groups. Rate levels would appear to have moved towards a modified form of Ramsay pricing,⁶¹ in which shipper groups were charged a rate equal to the incremental cost of the service they received, plus a share of the fixed cost inversely proportional to the shippers' elasticity of demand for the rail service.

Services were modified such that integrated rail-truck carriage was placed in competition with for-hire trucking. In accommodating this specialization, the railways applied and developed carriage equipment and operating technology. There was a movement away from general traffic equipment such as the box car towards specialized unit trains with their own advanced technical characteristics. The railways developed the unit train using robot power, solid trains, 100-ton covered hopper cars, large

capacity mechanical refrigerators, bulkhead flat cars, auto pack passenger and truck cars. Supplementing these advances in equipment were the introduction of automatic hump yards, centralization of control and communications and the processing of rail computer technology.

Advances in technical application did not occur in all markets. The fixed Crow rate, along with the practices of regulating car deployment, served to retard advances in grain handling and distribution. The emergence of truck movement substituting for rail in the primary collection process, the replacement of inefficient, small elevators alongside branch line by inland terminals enjoying economies of scale and the deployment of low cost unit trains did not take place primarily because of the retention of the Crow rates. The fixed rates, below cost and the same for the small terminal on a branch line as for an inland terminal on the main line, meant the inland terminal operator could not capture the cost savings that would accrue to the railways from the introduction of the low cost unit trains.⁶²

As well as experiencing protracted contractions in Prairie branch lines, the railways faced constraints in the use of rolling stock.⁶³ The low returns from shipping grain had led to their disinvestment in rolling stock. Although the Canadian Wheat Board, a crown corporation, purchased grain hopper cars and permitted the railways to use them free of charge, the Board and

not the railways continued to assign the cars to the particular elevators.

The retention of the Crow also constrained the railways' exercise in Ramsay pricing. Grain shipments were charged rates below long run variable costs. Estimates made by Snavely⁶⁴ for 1980 suggested the long-run variable costs of shipping exceeded other Crow rates by a factor of four (see Annex A.1), such that rates would have had to have risen from \$4.96 to \$20.41 per ton to have been fully compensatory. The revenue yielding a fully compensated variable cost for grain would have been \$539.2 million. As \$129.8 million was raised from the statutory grain rates, the revenue needed for full compensation would have been \$409.6 million, or 11 per cent of the two carriers' total freight revenue in 1980.

The rate levels established by the railways reflected the general demand for transport and the modal cross price elasticities.⁶⁵ In general, manufactured goods, with their high value and low freight rates embodied in final good price, had less elastic general transport demand, but high modal cross price elasticities due to the (often) availability of competing truck carriers. Owing to geographical factors that limited alternative modes and by exercising cartel constrained intra-rail competition, the railways appeared to have set rates on bulk commodities shipped from the West on the basis of general transport elasticities rather than on modal cross price elasticities.⁶⁶

By 1981, total (direct and indirect) rail charges as a percentage of output (valued in producers prices sold domestically) was 7 per cent for coal (38 per cent for exported coal), 5.3 per cent for iron mines and 8.1 per cent for other non-metal mines (see Table VI). Among the manufacturing industries, the percentage for the shoe industry was 0.2 of a per cent and 0.8 of a per cent for motor vehicle manufactures (see Annex A.2).

As the long run costs of transporting export grain grew in excess of the fixed Crow rates, a growing portion of the railways' fixed costs could not be covered. Such costs had to be borne by non-grain traffic, and the railways could be expected to increase rates on traffic that exhibited less elastic demand for rail transport. Given the cartel established rates that maximized profits, the subsidization of losses on export grain by means of more "efficient" cross-subsidization was not possible. The most efficient form of rate discrimination was being practised. As a result of increasing grain exports, however, losses from the Crow rates increased, and as compensating rate increases on other traffic were not possible, downward pressure on the railways' rate of return could be expected to have occurred.

Elements within the Prairies, whose grain farmers, thanks to the Crow, were the recipients of what was in effect an income maintenance supplement, perceived the Crow to have two adversely distorting effects. Firstly, the retention of rates on export

grains lower than for processed grain products created an incentive to export the former rather than the latter, which in turn discouraged grain processing industries on the Prairies. Secondly,⁶⁷ it was perceived that bulk commodities, in particular coal and potash that were exported primarily from the West, bore not only a disproportionate share of the railways' fixed costs at the expense of the real incomes of the region, but also incurred the higher rates compensating for the revenue lost from transporting export grain at rates below long run marginal cost. There were two other related assertions concerning rate distortions perceived to be to the disadvantage of the West and the Prairies in particular. These were the so-called raw materials versus finished products and the long-haul, short-haul discrimination. It was asserted⁶⁸ that as in the case of grain, further processing and manufacturing were hindered in the Prairies because finished goods were charged higher freight rates than raw materials. Long-haul rates, which usually applied to products shipped from Central Canada to the West Coast were often lower than rates to points on the Prairies because shippers faced water competition using the Panama Canal and low priced, off-shore imports from Pacific rim countries.

Although empirical evidence⁶⁹ modified or refuted most of these perceptions and assertions concerning the incidence of the

railways' rate discrimination, they retained political credibility in the Prairies and were to play a part alongside the forces urging the dismantling of the cartel.

C. Capacity Utilization

To railways vertically integrated into carriage and track, and characterized, over ranges and combinations of outputs, by economies of scale and scope, Ramsay pricing offers the prospect of acceptable cost recovery. So long as the rate charged to the price elastic shipper is higher than the incremental cost of the service, the rate contributes to the railways' fixed costs.⁷⁰

While yielding advantageous outcomes, such rate discrimination also produced sets of rates at demands that under utilize capacity. The retention of rates on export grain at below variable costs also placed a constraint on the railways' exercise of Ramsay pricing that added to the creation of excess capacity. Similarly, the constraints imposed by government on the railways' withdrawal from freight and passenger markets at a time of increasing productivity in carriage contributed to excess capacity in track.

Constituent parts of the rail network, such as track, locomotives, cars and marshalling yards, can be conceived as having a range of outputs, beyond which average or incremental

costs rise. Determining and estimating these ranges has not been attempted. Instead, assuming that optimal flow (supply) is proportional to capital stock, measures of the use of track and rolling stock have been estimated in an attempt to obtain an indication not of the potential capacity of the railway network, but rather an indication of the average use of its constituent parts and their relationship to changes in demand, abandonment and labour policies.

Contemporaneous changes in motive power and rolling stock saw shifts away from steam into the more powerful diesel-electric locomotion and a movement away from the requirement of commodities to fit into the freight cars available into equipment built specifically for commodities. Introduced in 1948, diesel electric locomotives had replaced steam by 1965, their average horse power reaching 1917 in 1975, rising to 2,056 in 1981.⁷¹ In rolling stock, there was a movement away from box cars towards specialized cars such as piggybacks, refrigerated cars, hopper cars and unit trains.⁷² In piggybacks, the unit of transport is the track trailer instead of the box car, making the service available on a door to door basis. As a result, the piggyback permitted the combination of lower terminal costs of trucking with the lower line haul costs of rail. Unit trains were developed to enable more efficient transport of coal, the longer trains allowing substantial reductions in switching expenses. Hopper cars, with their large capacities, yielded lower costs of carrying grain by

their facilitation of higher utilization, lower maintenance and terminal costs.

In aggregate, average freight car capacity reached over 66 tons in 1980, an increase of over 27 per cent over the average for the period 1958-67 (see Table VII). Utilization of freight cars over the period 1967-80 showed, for the most part, a steady increase, with downturns occurring with the economy in 1975, as did car load factors (see Table VII). While increased productivity resulted from greater average payloads and higher utilization, much of the technical change contributing to this increase productivity, such as improved rolling stock, electronic control and improvement in maintenance, also contributed to excess capacity. More traffic could be carried on fewer roadways.

Measures of output and track utilization - revenue ton miles and freight and passenger train ton miles - indicate a not surprising close correlation between output and utilization (see Table VII). Yearly movements since the passenger of the NTA suggest a trend of increasing utilization, with a downturn in output and utilization in the mid-70s. In the early 1960s ton-miles per mile of track began steadily to rise as a result of increasing demand without significant increase in track mileage. After 1975, track mileage started to decline, while demand increased, resulting in rapid increases in ton-miles per mile of track. Although CP achieved a higher rate of utilization than CN, the gap narrowed in the late

1970s, in part because CN was able to shrink its route mileage over the period 1975-80 by 6.7 per cent in comparison with CP's shrinkage of 5.0 per cent.⁷³

D. Labour Productivity and Total Factor Productivity

The introduction of the diesel locomotive, higher capacity freight cars, improved signals and automated classification yards permitted the operation of longer, higher capacity trains requiring smaller crews. Automation of train control and clerical operations further reduced manpower requirements, and so added to the potential for negotiation between unions and the railways.

Threatened by unemployment, organized labour, which, by 1950 represented 90 per cent of the workers⁷⁴ in the industry, was resistant to change.⁷⁵ Elaborate work rules had been built up, the result of successive bargaining by the unions in response to occupational risks. In the face of irregular operations, in which work assignments had led to discrimination and favouritism, the unions had bargained for seniority. Work rules and seniority constituted a rigid system, and this was no more so than in the running trades (locomotive engineers, firemen, conductors and trainmen). Remunerated on a dual basis,⁷⁶ combining miles traveled and time taken, the running trades entered the 1970s, almost two decades since the widespread introduction of the diesel engine, with a payments system that was based on the much slower

steam engine. Senior employees, with their first choice of runs, received high wages, or, by limiting their monthly wages, lengthy periods of leisure.

Union railway agreements have generally provided for uniform scales across the country and have usually been based on historical relationships between trades. Rail rates of pay differed substantially from regional averages (see Table VIII).⁷⁷ In the case of the Maritime provinces, rail wage rates were considerably in excess of the average wage.⁷⁸ Such a rail wage structure, however, complimented a general government policy that instead of permitting lower wage rates in regions of heavier unemployment, favoured reductions in non-labour input costs. Transport costs, for instance, on goods exported from the Atlantic provinces were subsidized, in part, on the understanding that they would increase the region's export sales, and which in turn would enhance employment, income and growth.

The relatively high wages earned by railway workers in the areas of higher unemployment intensified the pressure to resist manpower reductions, with the result that government as well as the participants in the bilateral negotiations played a role in the resolution of labour deployment. CN, the crown carrier, with its inherited capacity in the higher areas of unemployment in the east, was to incur the more frequent intervention from the government.⁷⁹

Although there was a growth in revenue ton-miles, a drop in employment of 30 per cent between 1967-80, the average payroll remained roughly the same percentage of total expenses until the advent of VIA (Table VIII). Such proportions testify to the success of the unions at retaining labours' share of the cartel's return and their priorities of sustaining wage rates and work rules rather than employment levels. Although CN initiated its "profit centres" policy in the mid-70s,⁸⁰ examination of the employment figures for the whole of the period 1967-80 indicates CP was able to reduce employment at a greater rate than was CN. By 1980, total employment at CP was down by 44 per cent over the average for the period 1960-67, while CN's was down by 25 per cent (see Table VIII).

An examination of labour categories suggest differences in employment levels between the two carriers according to whether labour contracts were the result of joint CN-CP negotiation with the unions or between the individual carrier and the union. In the latter category were the contracts in the road and equipment maintenance. While CN was able to reduce its employment in road maintenance over the period 1967-80 by 12 per cent as against CP's 14 per cent, it actually experienced an increase in employment in equipment maintenance of 2 per cent as against a contraction of 10 per cent by CP. In contrast, employment in road freight crews, with which work rules were governed by jointly negotiated contracts, CN achieved a reduction in employment of 12 per cent as against 2 per cent by CP.⁸¹

Using unweighted aggregates of revenue passenger miles and freight ton miles, indicators of average labour productivity suggest that CP had some 25 per cent greater average labour productivity than CN by 1980 (see Table IX). The inability of CN to reduce its employment in the categories of equipment and road maintenance, general (or "overhead") as quickly as CP are reflected in lower labour productivities. In the case of labour directly employed in rail passenger transport, although CP was able to reduce employment at a faster rate than CN - by 46 per cent, the substantially longer passenger hauls of CN meant the crown carrier enjoyed higher productivity.⁸² The more rapid reduction in manpower in the category of road freight crews achieved by CN was reflected in the crown carrier's relatively higher productivity.

Such partial indicators of labour productivity have the major limitation of being unable to account for the effects of other input levels on labours' productivity. Measures of total factor productivity (TFP), by measuring the ratio of total output to total economic resources used, offer a broader index of productivity, which is defined as the change in output not accounted for by the change in inputs. TFP is an aggregate measure of productivity, of which an increase in efficiency gained by the exploitation of a shift in the cost function is only one component. Three other probable component sources of increases in output are technical progress, the underlying characteristics of

the production process, such as scale economies, and the deviations between marginal costs and rates.

In calculating the cost function of railroads similar to CN and CP, Caves and Christensen⁸³ concluded that in the region of freight and passenger output levels produced by the two Canadian railways, the hypothesis of constant returns to scale could not be rejected. By assuming the two railways exhibited constant returns to scale, the authors implied that scale effects did not contribute to the railways' productivity, and, so they inferred, measures of TFP provided them with measures of productivity that could be interpreted as being due to improvements in technical change and managerial efficiency.

Interested in the relative efficiency of the government owned as against the privately owned railway, the authors attempted to use TFP as a measure of efficiency, testing which of the two railways, operating so they asserted, in a competitive market, was the more efficient.

The authors' estimates of TFP indicated that,

"although the CN had a lower level of total factor productivity at the beginning of the period it has caught up with the CP by 1967; thereafter the CN record of productivity growth was approximately equal to that of the CP."⁸⁴

The authors ignored the existence of the Canadian rail cartel, contending that the railways were engaged in intramodal as well as intermodal competition,

"Not only was the CN instructed to operate on a commercial basis under a management insulated from politics, it was also placed in direct competition with both the privately owned railroads and with highway and water transport."⁸⁵

Their conclusion was that,

"public ownership is not inherently less efficient than private ownership - that the oft-noted inefficiency of government enterprises stems from their isolation from effective competition rather than their public ownership per se."⁸⁶

In a later study, Caves, Christensen, Swanson and Tretheway⁸⁷ extended the data from 1975 and 1979, and, more significantly, redefined the relationship under study. They inquired into the effects on economic performance of ownership (public versus private)⁸⁸ and regulation, rather than competition. Regulation, according to the authors, by restricting freedom to enter or exit from specific markets and to set prices on services prevents or shields firms from freely competing in their product markets. The authors suggest Canadian railways had been directly competitive for over fifty years:

"These two railroads (CN and CP) are roughly equal in size, and have been direct competitors throughout most of Canada since the 1920s."⁸⁹

TFP growth rates suggested no substantial differences between CN and CP, prompting the authors to suggest that rather than ownership, regulation, and in particular a lack of rate regulation, has provided the Canadian railways with a flexibility in offering services and rates that had led to their higher productivities over the regulated, privately owned American railroads.

A later study by Freeman et al.,⁹⁰ which measured gross TFP, and hence did not infer from the measurements the relative efficiencies of the two carriers, observed (see Table X) that CN had higher growth rates than CP during the 1960s, while during the 1970s the order was reversed.⁹¹ Roy and Cofsky's gross TFP estimates found that aggregate inputs fell by an annual average of 0.6 for CN and 0.9 for CP over the period 1960-81, while aggregate outputs grew by 3.1 and 3.0 respectively.⁹² Over the period 1970-81, the average annual change in TFP of both railways was estimated to be 2.9 (see Table X).

Measurement of TFP such as these provide a number of observations. Firstly, with only two comparable carriers, there are formidable statistical difficulties involved in decomposing gross estimates of TFP. It would appear that while increased productivity was accounted for by improvements in technology, managerial efficiency and the quality of the inputs, it was not possible to ascribe the relative contribution of these factors.

In consequence, TFP estimates must be considered as inadequate tests of relative carrier efficiency. Secondly, the rail cartel was able to substantially reduce inputs of labour and fuel, while the annual average growth rates of TFP showed a substantial degree of association with changes in output and consequent changes in utilization. Thirdly, most estimates of average annual growth rates of gross TFP suggest from the late 1960s CN's productivity, which had lagged behind CP's, approached that attained by CP. From the middle of the 1970s, CN's productivity equalled and in some years exceeded that of CP's. The convergence of productivities, rather than being caused by the competition between the two carriers, would more plausibly appear to be a result, on the demand side, of the government owned carrier practicing discriminatory, cartel pricing policies within an explicitly legally supported structure since 1967 and, on the supply side, as a result of adopting profit oriented policies in the mid-70s, successfully shedding substantial parts of its labour force and some of its uneconomical branch lines.

In consequence, the Canadian railways, unlike the American railroads, were able to discriminate between markets which in turn facilitated the selective introduction of more efficient equipment which could not be justified in all markets. In contrast, the American railroads were dissuaded from introducing lower cost equipment in selective markets because regulation stipulated reduced rates across markets, including markets which did not

warrant decreases.⁹³ Alternatively, collective rate making by Canadian railways, in which the lower cost carrier agreed to charge a higher rate to accommodate the higher cost carrier, could have similarly thwarted the introduction of lower rates reflective of efficiencies stimulated by technical improvements.

V STAGGERS AND THE CANADIAN-US RAIL CARTEL

Prior to the 1980 Staggers Rail Act a congruity⁹⁴ existed in the cartel supporting regulatory systems of Canada and the United States. For the most part rail traffic between points in both countries and overhead traffic⁹⁵ were subject to international joint through rates, which in turn were filed and published. Enjoying immunity from antitrust and anticombines legislation, joint through rates were set collectively by the railways and at levels that preserved parity with the longer hauls in the domestic US market. The result was an equalization of rate levels over numerous route combinations.

In practice, if an international joint through rate originated in Canada,⁹⁶ the proposal was taken to the Canadian Freight Association for approval. If supported, the rate would then go to an international rate bureau, consisting of the two Canadian railways and the American railways effected directly or indirectly by the proposed rate. American carriers would deliberate as to whether the proposed rate threatened their existing traffic, and would in turn insist that the rate had parity with their comparable domestic routes.⁹⁷ The originating carrier tended to determine the choice of the route. Southbound traffic moved over the Canadian railways' preferred routing, which was usually the longer route in Canada. Approval would be followed by a secret apportionment of the revenue among the carriers participating in

the traffic. With such a "division" settled, the rate would be filed with the CTC and the Interstate Commerce Commission (ICC).

Rejection by the tariff bureau would leave the alternative of taking independent action, involving the combination of rates to and from the international border. As such action would have caused conflicts with dissenting railways, it was rarely undertaken. In general practice, the CTC granted changes in rates in the Canadian portion of the international rates whenever the ICC decided to do so on the US portion of the rate.

Of the \$48.1 billion in Canadian exports to the United State in 1980, rail carried 28 per cent. Fifteen per cent of the \$7.1 billion United States exports to Canada were carried by rail.⁹⁸ Although high percentages, they had been falling, comparable estimates indicating that in 1964, 44 per cent of the value of Canadian exports to the United States were carried by rail and 38 per cent of Canadian imports from the United States.⁹⁹

Staggers diminished much of the regulatory support to the US rail cartel. Exemption from rate regulation was removed from a substantial portion of traffic, confidential rates and rebates were permitted on much traffic and intramodel competition was encouraged. By removing the antitrust immunity formerly enjoyed

by US carriers, Staggers exposed collectively established international joint rates to the Sherman Act.¹⁰⁰

The removal of rate transparency placed the American railroads at a competitive advantage over the Canadian carriers. Knowing the published rates of the Canadian carriers, American carriers were able to win traffic by striking confidential contracts and offering rebates on their long-haul route. Unable to make confidential contracts and to offer rebates, Canadian carriers saw an increasing portion of their \$870 million¹⁰¹ U.S. - Canadian rail revenue eroded as shippers moved away from the Canadian long-haul routes on to the shorter more direct routes to and from the United States.

A. Breaches in the Canadian Cartel

In response to the growing competitive pressure from American rail carriers, the Minister of Transport requested the CTC to report on the implication of Staggers. Commissioned in July 23, a preliminary report of inquiry was released to the public for comment in April 1984. The Inquiry officers, after reviewing the evidence, stated they were not persuaded "that changes in Canadian law are necessary or desirable."¹⁰² The Minister of Transport responded, however, by requesting a further and broader inquiry in which a panel of three from the Railway Transport Committee was appointed. A Staff Report,¹⁰³ outlining issues of concern was

released in August 1984, and in the same month a series of public hearings were held, ending in October 1984.

A Final Report of the Committee dealing exclusively with international traffic was issued in December 1984.¹⁰⁴ The Committee recommended carriers be allowed to enter confidential contracts with shippers on the Canadian portion of the movement of rail traffic between Canada and the United States. Such contracts were recommended to be filed with the CTC and were to be published in summary form. The railways were not to collude in setting such contracts. Overhead traffic, involving freight originating and destined for points within the United States but which travels via Canada, was recommended to be no longer subject to tariff regulation.¹⁰⁵

Such measures, if implemented, would have limited the cartel's power over international movements but would have left it intact in the domestic market. The result would have been a dual regulatory system, much to the advantage of those shipping from the U.S. into the Canadian market and to the disadvantage of Canadian shippers competing in the domestic market. Partly in response to this possibility, the Minister of Transport requested the Committee, in February 1985, to broaden the set of issues by considering the implications of regulatory change on the domestic rail market.¹⁰⁶ The Inquiry commenced in March 1985 and reported in June 1985.

Of the 20 shipper associations giving testimony, 15 advocated the introduction of confidential contracts, increased intrarail competition, the removal of rail collusion over rates and immunity from the anticombiners legislation.^{107, 108} Among the strongest advocates of domestic rail deregulation were the Canadian Chemical Producers Association, the Canadian Manufacturing Association and the Motor Vehicle Manufacturing Association. Dissent was expressed by some associations who perceived their members to be captive to a rail carrier and with no prospects of alternative, competing modes. The Coal Association of Canada expressed such concerns, as did the Council of Forest Industries of British Columbia, who also stated that while 45 of their member opposed deregulation, 62 were in favour.¹⁰⁹

Eight of the 34 individual shippers giving testimony opposed either confidential contracts, intrarail competition or both. Michelin Tires (Canada) Ltd. opposed confidential contracts because it believed it should know what its competitors were paying for transport.¹¹⁰ Dofasco, Canada's largest fully integrated basic steel producer, argued that if confidential contracts were permitted, CP, which controls Algoma Steel, might offer its steel subsidiary,

"an attractive rate, possibly to the detriment of the other steel producers."¹¹¹

Stelco, a steel producer, in its testimony strongly supported deregulation, and commented that it did not perceive that CP negotiating confidentially with Algome would be to Stelco's disadvantage.¹¹² Ontario Hydro advocated confidential contracts, and, under cross-examination, revealed that Canadian coal was costing 50 per cent more than American coal, a substantial portion of which was related to transport costs.¹¹³ The most forceful case for deregulation was presented by the Potash Corporation of Saskatchewan Sales Ltd., which stated that 40 per cent of their delivered price was accounted for by transport costs.¹¹⁴ The Potash Corporation went beyond advocating intra-rail competition by arguing for a considerable expansion in carrier running rights. The Saskatchewan government also testified strongly in favour of rail deregulation, although representatives from the two other Prairie governments were opposed.

The Commissioners recommended the extension of confidential contracts and rebates to Canadian shippers and carriers. In contrast, while recommending that the railways should not collude over confidential contracts, they recommended collective rate making should continue to be allowed,¹¹⁵ although in a modified form. They recommended the essence of 279 of the Railway Act should be retained, but with the "cost" portion separated from the "rates" portion and that 279 should not apply to allow the railways to exchange rate information.¹¹⁶ It was further recommended that the railways continued to be exempt from the

anticombines legislation.¹¹⁷ In line with their reluctance to extend intramodel competition, the Commissioners stressed the practical operational and safety consideration of extending the use of tracks to other than established railway companies, and recommended no changes to the current legislation relating to running rights.¹¹⁸

B. The Removal of Legislative Support to Collusion

The government in the meanwhile formulated its own response in July 1985, with the publication of a policy paper on regulatory reform. The White Paper, Freedom to Move¹¹⁹ endorsed the proposals of the CTC allowing confidential contracts on domestic and international rail routes¹²⁰ but argued against retention of Section 279 of the Railway Act, which enables the carriers to exchange cost information and establish common rates.¹²¹ The proposed removal of the legal supports to the rail cartel were accompanied with recommendations to both encourage intramodel competition¹²² and to enhance the position of the captive shipper¹²³ (see Table XI). The Paper proposed to allow shippers captive to one rail line to have access to the lines of competing rail carriers through provisions in legislation for a joint-line rate from the traffic's origin to its destination.¹²⁴ Further increases in intramodel competition were to be encouraged by the proposal to empower the Governor in Council, where "considerations of the economy and efficiency of the rail system justifies,"¹²⁵ to

impose upon the railways joint-track usage or shared running rights. The new regulatory agency would be authorized to determine appropriate compensation for the use of the right of way concerned.

Following extensive hearings held by the House of Commons Standing Committee on Transportation, the Minister of Transport tabled, in June 1986, Bill C-126. As in the White Paper, the Bill proposes to eliminate collective rate making and exemption from the anticombines legislation, and permit rebates and confidential contracts, the latter to be filed with the proposed new National transportation Agency (the Agency). Summaries of the non-confidential components will be published. The Bill, unlike the White Paper, proposes, under the public interest, to permit investigations concerning confidential contracts. Agreed changes, which the White Paper proposed to remove, will continue,

"primarily as a transition measure, since a number of shippers currently benefit from them."¹²⁶

Similarly, the Bill, unlike the proposal in the White Paper, retains minimum rate regulation,

"in the interest of fair competition between railways and between truckers and railways."¹²⁷

Minimum compensatory rates will be deemed to be those covering the variable cost of the movement of the traffic concerned.

Appeals to the Agency, which is empowered to require the carrier to substitute a compensatory rate, is seen as a means of preventing predatory pricing.¹²⁸

The means of increasing intrarail competition largely follow the proposals contained in the White Paper. If considered to be in the public interest, the Governor in Council may request a railway to consider joint or common use of the same right of way.¹²⁹ The interswitching limit is to be increased from 4 to 18 miles (30 km). Within 30 miles (50 km) of any interchange point, a carrier will be able to exercise "terminal running rights" by seeking to pick-up, carry and deliver over the tracks of another railway.¹³⁰ Shippers captive to one carrier and at a distance from an interchange point, will, if they are able to arrange a deal with a second carrier, be able to apply to the Agency to establish a competitive line rate to the interchange point.¹³¹

In line with recommendations contained in the White Paper, Bill C-126 proposed a shortened process of application for abandonment of non-protected branch lines, a consideration of alternatives to abandonment and a specification of costs and subsidies. A railway must give at least 90 days notice that it intends to apply for abandonment,¹³² and when the notice is received, shippers and other interested groups have 60 days to file an objection.¹³³ The Agency, however, may consider alternatives to abandonment, such as approving sale of the branch

line to another operator,¹³⁴ providing assistance not to the railway but to shippers, provincial governments or to others to develop less costly means of transport.¹³⁵ Alternatively, the Agency may recommend to the Minister to order one railway to interconnect its branch line with another railway.¹³⁶ If such alternatives are deemed unsuitable, but it is decided the line has economic potential, then it will be retained with a subsidy for three years, and will then be again under review.¹³⁷ In such calculation branch line costs have been defined to include only those costs directly incurred by the railway in operating the line. If the line is deemed not to have economic potential, the line will be abandoned within six months after the application.¹³⁸

VI RAILWAY COMPETITION NOT CARRIER COMPETITION

The proposed legislation would appear to reverse the protectiveness of much of the regulation and to transform the role of the regulatory Agency. By removing the exchange of cost information and the setting of common rates, the 1986 National Transportation Act withdraws the legislative protection afforded the fifty year old rail cartel. The Agency, with its proposed direction over running rights, joint-track usage and joint-rates, is empowered to facilitate, rather than limit intramodal competition. Yet in empowering the Agency to establish competitive joint-rates for the captive shipper the legislation suggests that intra-rail carriage will be insufficient to provide competitive rates. The Agency, in fact, can be expected to be a more stringent regulator of rates than its predecessor, the CTC, regulating rates to the captive shipper and establishing minimum, compensatory rates.

Despite the expected role of the Agency in facilitating intrarail competition for captive shippers, the incidence of such competition can largely be anticipated in markets where shippers perceive benefits from intrarail competition. In markets where rail competition is possible, such as is available to urbanized manufacturing plants in Eastern Canada, rates can be expected to move downwards from the cartel rate towards the costs of the lower cost carrier. There would, however, appear to be little incentive

for the railways to initiate direct, intrarail competition. Although unable to engage in collusion, the legislation, by permitting confidential contracts and rebates, facilitates individual carrier rather than cartel rate discrimination. The overall result of some markets in which rail competition will be stimulated by shippers and in other in which the railways will engage in individual rate discrimination will be a rate structure devoid of the vestiges of rate parity that existed under the collective, blanket rate structures and instead will be characterized by differential rates reflecting relative advantages of shippers and regions competing in an increasingly competitive, continental market.

Indeed, there are doubts whether the proposed measures to release intramodal rail competition will sustain increasing carrier competition. Although shippers' choices could be expanded by extending running rights, so providing alternative routing and increasing the competition for carriage, the industry would still consist of a duopoly, with the two railways each possessing their own track along with exclusive rights to operate.

The potential disfunctioning of competition within such a market structure springs in part from the sunk costs incurred by the railways and some shippers. The railways' sunk costs, such as grading of the land on which the track rests, along with the specificity and longevity of much of the capital embodied in the

track, present barriers to entry. The sunk costs of the shipper makes them captive to a single carrier. Possessing exclusive right of carriage over their track, the railways are able to limit competition in carriage. With restricted entry and exit of suppliers and shippers, such a market structure is far from contestable. There is uncertainty, furthermore, as to the resulting outcome of competition between just two suppliers of rail services, one of which moreover, is government owned and financed.

Such uncertainty, however, can be expected to be negligible, for the proposed policy essentially involves removing the legal support to the rail cartel without substantially increasing carrier competition. The proposed measures to increase carrier competition are to extend running rights and joint-track usage. They will not be extensively granted, for while recognizing the necessity of such practices "as appear just or desirable to the Agency, having regard to the public interest,"¹³⁹ the Bill states the Agency will "report on whether significant efficiency and cost savings would result from such joint or common use."¹⁴⁰

It is uncertain who will request joint-running rights and joint-track usage. It is difficult to envisage the Agency extending the running rights if there are no requests from shippers or the railways. The most probable source of requests will come from shippers who perceive they can gain from striking a confidential

contract. The railways can be expected to keep to their markets, attempting to retain their shares, rather than invading their rival's market by offering shippers attractive, confidential rebates and requesting running rights. An active market in running rights could only be expected to develop if there were a substantial number of competing carriers operating rolling stock for-hire or for private shipments.

VII CONCLUDING COMMENTS

The proposed legislation would appear to remove the legal incongruity between Canadian and American railway practice, but to increase only marginally rail competition. In consequence, the proposals will not satisfy one of the Bill's prime objectives of encouraging competition "both within and among the various modes of transportation."¹⁴¹ In order to introduce effective and sustainable intra-modal rail competition it would appear essential that new carriers be allowed to enter and compete for traffic. New carriers, including companies specializing in aspects of the carriage business, such as container trains, should be encouraged to enter the industry. Similarly large shippers, such as those in the potash, hydro and coal industries, should be encouraged to enter private carriage by owning or leasing rolling stock and using the track owned by the railways. Such competition in carriage could be encouraged by facilitating the extension of running rights but not only where "significant efficiency and cost savings occur."¹⁴² Similarly, operating authority and running rights should be readily granted by the new regulatory authority to new carriers, including private and for-hire carriers. As a result of such changes, the rail shipper would have some of the advantages enjoyed by those shipping by truck. The shipper would be able to provide its own freight cars, and could even provide an entire train with cars and locomotives. Service by two railways

would give the shipper alternatives, but each railway would still control service over its respective tracks.

Competition in rail carriage could be more substantially enhanced by separating the railway's ownership of the infrastructure from that of carriage.

Separation of track from carriage would make the rail mode similar to the operations in the highway, water and air transport sectors. The track company would own all tracks except tracks and yards owned by shippers and serving shipper-owned facilities. All carriers would be allowed to use the track, just as carriers share use of the fixed ways in other modes. The track company would control all train movements over its network, applying a common set of rules to all carriers. The company would assume the fixed track costs, and would have the incentive to stimulate economies of traffic concentration and track coordination, converting track fixed costs in track tolls for the carrier. Joint use of the track would free most of the captive shippers by removing the rail carrier monopoly. The ensuing carrier competition would remove the vestiges of discrimination between commodities, shippers and regions, and instead the resulting rate structure would more reflect cost of service.

Underlying the transformation of an industry into two separate entities is the assumption that the two aspects of the railway

can be operated so as to maintain, at an overall level of efficiency at least equal to the existing method of operation. Defenders of a method of operation founded in Victorian England suggest that a separation of track and carriage would lead to problems. Unclear signals, it is argued, would be sent concerning track construction and maintenance, and that there would be considerable cost in introducing train control systems. The numerous advocates of separation counter by suggesting the techniques facilitating smooth operation are available, just as they are in the separated highway, air and water modes in which the agencies maintain the fixed way, provide traffic control, set operating rules and licence individuals to operate vehicles.

In providing traffic control for many users, the track company could employ methods used in managing the airways. Similarly, standardized licensing procedures could be employed for locomotive engineers, as is used for aviation licences, while highway sign practices could serve as a guide for rail sign applications. Enforcement by track police could be considered. Maintenance would be executed by departments similar to the engineering and maintenance of way departments of existing railway companies. Toll changes would have to be sufficient to provide the necessary rate of return while reflecting the costs of individual roadway segments and types of train service. Examination of trackage right agreements in North America suggest they are made without any major operational difficulties or management problems,

suggesting that the railways engage in such contracts at their own convenience, and opposing them in principle when they threaten to open up competition.

A number of organizational arrangements could be considered for the separated track operation. A privately-owned track could be considered, or alternatively, a track-owned and operated by a government agency. While there would be expected efficiencies from a privately-owned track, a government-owned track would allow retention of the symbol of the unifying "national spine." As more than two-thirds of the Canadian rail track network is already owned and operated by the government-owned Canadian National, public ownership of the rail track need not involve the nationalization of privately-owned track.

Having initiated increased carrier competition by extending running rights, it is recommended that a further step towards increasing carrier competition be undertaken by transforming CN from an integrated railway company into a government track company serving an increasingly diverse, multi-firm rail carriage industry.

CN's infrastructure in Canada would be transferred to the new crown corporation, and would become essentially a commercial, privately-owned rail carrier. In order to most effectively

fulfill this specialized role, CN would undertake to rationalize its holdings in activities unrelated to rail carriage.

The establishing statute would state the commercial goals of the new crown corporation, instructing the corporation to adjust its network to meet the changing market demands in order to earn adequate income, to remain economically viable and to attract and generate the required capital to meet future requirements. In adjusting its network, the crown track corporation would have to be able to effectively expand and contract its track so as to compete effectively with other modes and other railways, particularly U.S. railways. There should be no exclusion, however, of other organizations entering as track builders and owners.

In transferring track to the new crown track corporation, consideration would have to be given as to whether the uneconomical branch lines should be included, and if they were, as to how their costs should be covered. Direct subsidies from government authorities could be considered along with cross-subsidies generated within the crown track corporation. An alternative would be to consider encouraging institutional arrangements of ownership and operation of short lines that have proved successful in the United States. Two such institutional arrangements are ownership of the right-of-way and trackage by a municipality (or special district) or incorporation of the short lines as a cooperative of shippers. The owning entity would in

turn lease the line to a private short-line operator. Government subsidies, if needed, could then be channeled into maintaining the right-of-way and track rather than in subsidizing operating losses.

The increasing carrier competition can be seen in stages, the first being where new carriers, who will probably be large shippers, engage in private carriage over CN and CP's track networks. During this first stages it will be important for the new regulatory agency to facilitate access of new carriers on to both railway networks, and, in order to protect CP's captive shippers, to encourage CP to grant running rights to other carriers. The second stage would be where the newly founded crown track corporation engages in contracting with the full range of carriers, including contract, private and common carriers. Many of the contract carriers can be expected to operate unit trains linking mines and power plants and transporting hazardous products. Private carriage will develop where it suits the shipper's needs, and will probably attract a considerable amount of traffic currently moving in expensive truck operations.

Common carriage can be expected to approximate contract carriage, with the difference that the common carriers could provide it without a contract on an "as - needed" basis to any shipper. When used with a short train of a few cars, the common carrier in effect resembles an irregular route trucking company.

Some common carriage could be financially unattractive to the carriers, such that during the transitional phase, there could be a sharp contraction in the supply, causing hardship to the affected shippers and communities. In order to ease such transitory adjustment, it is recommended that rather than requesting CN and CP to sustain common carriage out of cross-subsidies, that the effected shippers and communities negotiate, for a specified finite period, subsidies to sustain common carrier services. Finally there is the issue raised by CN's ownership of railways in the United States. The problem is that current American regulation, in contrast to those proposed here, consolidates the exclusivity of carriage by the railways. In the short run, it would appear prudent for CN's railways in the United States to operate as integrated operations. In order to further the trade in rail services, however, it is recommended that the Canadian government undertake bilateral discussions with officials in the United States government into considering regulatory changes that would permit the separation of track from carriage of American railroads, and so permitting reciprocal rights for track and carrier companies in the two countries.

Table I

Regulatory Support to and Constraints on Rail Cartelization

Activity	Regulation	Date	Description
<u>Interswitching</u>	Order No. 4988	1908	Interswitching limit up to four miles from the point of the interchange. Rates established
	Order 252	1918	Order provided for and compelled the service to be given.
<u>Pooling</u>	Railway Act C. 37, S. 316	1906	Prohibition of physical and money pools.
<u>Exchange of Information and Collective Pricing</u>	Canadian National-Canadian Pacific Act S.C. 1932.33.C.33 16.1	1932	"Agree...for purposes of effecting economies and providing for more remunerative operations".
	Railway Act 279	1967	"Railway companies shall exchange such information with respect to costs as may be required under this Act and may agree upon and charge common rates under and in accordance with regulations or orders made by the Commission.
	Transport Act Part IV	1938	Railways authorized to make contracts of agreed charges with shippers. Board's approval could not be given unless all railways joined in making the agreed charge.
	Transport Act Section 32 (2)	1967	No agreement for an agreed charge for the transport by rail from or to a competitive point, or between competitive points, on the lines of two or more carriers by rail shall be made unless the competing carriers by rail consent thereto in writing or join in making it.
	Section 32 (9)		Where an agreement for an agreed charge has been made between a carrier and a shipper, any other shipper may with the consent of the carrier become a party to the agreement.
<u>Rates: Authorization</u>	Railway Act S.325 (5)	1903	Board had power to "fix, determine and enforce just and reasonable tolls".
	S.325 (1)		Board had power to disallow the tariff, order a substitute tariff or prescribe other tolls.
	Railway Act	1967	The Commission's general power to disallow, suspend or prescribe tolls was written out of the Act.
<u>Equality</u>	Railway Act Es.1927, C170 S.314	1903	Equality as to tolls and facilities.
	Railway Act S.336	1952	The national freight rates policy was to subject the railways to charge, in respect of all freight traffic of the same description, tolls to all persons at the same rate.
	National Transportation Act S.3(a)	1967	The National Transport policy was enacted in place of the concept of equality of tolls, premised on "the ability of any mode of transport to compete freely with any other mode of transport".
<u>Filing</u>	Railway Act S.330, 331	1903	Standard freight tariffs were to be filed with and subject to the approval of the Board. Once approved, they were required to be published 'in at least two consecutive weekly issues of the Canada Gazette'. Special freight tariffs had a statutory notice period of 30 days.
<u>Rebates and Confidential Contracts</u>	Railway Act 401	1906	Prohibition of rebates and confidential contracts.
<u>Maximum and Minimum Rates</u>	Railway Act S.276, S.277, 278	1967	'All freight rates shall be compensatory' Commission given jurisdiction to disallow non-compensatory rates. The upper limit established by the captive shipper provision: such a shipper could apply to the Commission to have the probable range of a fixed rate established.
<u>Discrimination</u>	Railway Act RS.C.1952.C.234 Section 317, 319 (3), 320 (1), 332-24, 328	1903	Prohibition of 'undue and unreasonable discrimination'.
	National Transportation Act Section 23	1967	The Commission may investigate where a case has been made concerning an Act, commission or rate that has prejudicially affected the public interest.

Table II

Statutory Rates Applied to Rail Traffic

Date	Statute	Description
1897	<u>Crows' Nest Pass Act and Agreement, between (Canadian Pacific Railway and the Government of Canada)</u>	In exchange for a subsidy to build a rail line from Lethbridge, Alberta through the Crow Nest Pass to Nelson, B.C. the railway agreed to reduce eastbound rates on grain and flour to the head of navigation (the Lakehead) and westbound rates on "settlers effects".
1901	<u>Manitoba Agreement</u>	In return for financial and other assistance from the Manitoba government, the Canadian Northern railway built a line from Winnipeg to Thunder Bay. The Agreement provided for the reduction in grain rates below that provided under the Crows' Nest and 15 percent reduction on westward commodities.
1955		The Manitoba Agreement ended with the introduction of the equalized class rate scale in 1955.
1925	<u>Railway Act Amendment</u>	Special rates for settlers' effects ended, but the Railway Act incorporated the principal elements of the CNP Act including a continuation of the special rates for eastbound grain and flour on all present and future railways and an expansion of the number of shipping points from which the rates applied.
1927-61		The Crow rate extended to: grain and flour shipped to the west coast (1927); milling, distilling and brewing industries, as well as certain feed grain products (1927-45); grain shipped to Churchill, Manitoba (1931). By the 1980's 50 commodities moved at the statutory rate.
1983	<u>Western Grain Transportation Act</u>	The Crow Benefit (the gross railway revenue shortfall), defined as the additional revenue the railways would need in order to cover variable costs of operation as well as an (arbitrary) contribution to overhead costs estimated at \$651.6 on a base year crop of 31.1 million tonnes. Under the Act the government agreed to: <ol style="list-style-type: none"> 1. Pay the entire crow benefit, beginning with the 1983-84 crop year, to the railways. 2. A distance-related base rate scale established for the movement of grain by rail. The annual rate scale will be the base rate adjusted for railway price indices established by the CTC. 3. Shippers responsible for the first three percentage points of any increase in annual railway costs until 1985-86, when their share rises to the first six points, with the government in each instance making up the remainder.
1927	<u>Maritime Freight Rates Act</u>	Reduction of 20 per cent in railway tolls within the maritime provinces. The 20 per cent was the measure of any disability resulting from "national, imperial and strategic considerations, and this differential was to be applied to rates within the "selected territory" and to the portion of rates applicable within the select territory on traffic proceeding out of the select territory.
1957		The benefit on westbound interterritorial traffic was increased to 30 per cent on the portion of the haul within the selected territory.
1969	<u>The Atlantic Region Freight Assistance Act</u>	Provided for similar levels of subsidies on goods moving westbound by truck and on the movement of goods within the select territory.
1951	<u>Railway Act Amendment "The Bridge Subsidy"</u>	Subsidy paid on traffic moving at other than competitive or agreed rates between Sudbury and Thunder Bay, Ontario. Under the provision of the subsidy, rates on traffic passing over the Bridge Territory were to be reduced by the amount of a grant (\$7 million) paid to the railways to compensate them for the costs of maintenance of the allegedly unproductive sections of their transcontinental routes.
1967		The bridge subsidy abolished.
1959	<u>Freight Rate Reduction Act</u>	Freight rates were "rolled back" and in return the railways were compensated. Between 1959 and 1967, over \$500 million paid by the government to cover the shortfall in revenue due to the rate freeze.
1967	<u>Railway Act Section 272 "At-and-East" Rates</u>	Rates applied to export grain and flour transported by ship from the Lakehead to Georgia Bay ports and from there by train to Montreal, Halifax and other east coast ports. Prior to 1967 the Board set these rates to stop diversion of traffic through Buffalo. In 1967, the rates were frozen by a federal statute at the 1960 level. The difference between the compensatory freight rate, as determined by the CTC and the actual rate frozen at the 1960 level is covered by a federal subsidy.

Table III

Passenger Trains: Abandonment and Subsidies, 1968-77

Year	Abandonment decisions	Subsidies ¹		Ratio of subsidies to passenger revenue ²		Passenger Train miles 1968-100		Subsidies ³ per passenger train mile		Passenger ⁴ revenue per passenger mile		Subsidies ⁵ per passenger mile	
		CN	CP	CN	CP	CN	CP	CN	CP	CN	CP	CN	CP
1977	7	201.572	48.301	1.65	2.11	58	71	1.36	1.36	5.10	6.27	15.30	19.43
1976	2	191.353	44.835	1.37	1.96	59	72	1.28	0.86	4.59	6.24	13.99	18.22
1975	2	163.989	39.432	1.29	1.75	45	72	1.41	0.75	4.44	5.14	12.29	13.67
1974	1	130.384	31.468	1.12	1.37	59	72	0.87	0.21	4.39	4.22	9.74	8.98
1973	9	112.316	27.214	1.33	1.79	52	67	0.85	0.29	3.38	3.86	9.43	9.14
1972	41	95.398	86.479	0.92	1.01	56	77	0.66	0.44	3.19	3.89	6.18	5.91
1971	10	60.542	24.926	0.62	0.93	60	79	0.39	1.53	2.78	3.28	3.64	5.51
1970	9	-	26.332	-	0.97	70	86	-	0.43	2.71	2.89	-	5.11
1969	-	-	-	-	-	76	97	-	-	2.65	2.83	-	-
1968	1	-	-	-	-	100	100	-	-	2.45	2.72	-	-

- 1 Subsidies are those issued under Section 261 of the Railway Act plus the 20 per cent borne by the railway carriers.
- 2 Subsidies refer to those issued under Section 261 of the Railway Act; passenger revenue includes passenger revenue, baggage, sleeping and parlour car revenue, mail and express revenue.
- 3 Subsidies refer to those issued under Section 261 of the Railway Act.
- 4 Passenger revenue refer only to passenger revenue, and excludes the items of baggage, sleeping and parlour car revenue, mail and express revenue.
- 5 Subsidies are those issued under Section 261 of the Railway Act plus the 20 per cent borne by the railway carriers.

Source Rail Economic Branch, CTC; CTC Annual Reports; Railway Transport, Part II, Financial Statistics, S.C. Catalogue #52-208 annual. Canadian National Railways and Canadian Pacific Ltd., Statistics Canada, Catalogue 52-213 annual.

Table IV
Federal Government Assistance To The Railways: Operating Subsidies Under The Railway Act.
 \$ million

Year	Section 261			Section 258			Section 256			Section 413			Section 272			Totals ¹		
	Passenger train deficits			Guaranteed branch lines			Unprotected branch lines			"Normal" payments			Eastern rates			CN	CP	Total
	CN	CP	Total	CN	CP	Total	CN	CP	Total	CN	CP	Total	CN	CP	Total			
1967	-	-	-	-	-	-	-	-	-	62.427	43.534	105.961	0.738	0.902	1.640	63.166	44.436	107.602
1968	-	-	-	-	-	-	-	-	54.967	38.261	93.228	0.160	0.519	0.679	55.127	38.781	93.908	
1969	-	-	-	-	-	-	-	-	46.591	32.404	78.995	0.497	0.721	1.218	47.088	33.125	80.213	
1970	-	21.944	21.944	12.592	1.385	1.385	1.385	1.385	38.291	-	-	0.757	2.665	3.422	39.049	38.588	77.637	
1971	50.452	20.772	71.224	15.068	1.976	3.443	1.467	1.976	-	-	-	2.892	2.902	5.794	73.433	40.719	114.152	
1972	79.499	20.066	99.565	21.073	1.857	4.727	2.870	1.857	-	-	-	4.154	4.421	8.575	107.597	41.913	149.510	
1973	93.597	22.679	116.276	27.165	1.923	5.100	3.174	1.923	-	-	-	3.573	3.281	6.854	127.511	46.571	174.082	
1974	108.654	26.224	134.878	49.738	0.324	0.569	0.245	0.324	-	-	-	4.460	3.953	8.413	163.099	62.048	225.147	
1975	136.658	32.860	169.518	51.547	0.970	0.970	-	0.970	-	-	-	8.003	5.664	13.667	196.210	83.069	279.279	
1976	159.353	37.363	196.716	55.823	0.414	0.922	0.414	0.922	-	-	-	13.319	10.250	23.569	228.911	94.037	322.948	
1977	167.572	40.251	207.823	46.432	3.301	5.722	2.421	3.301	-	-	-	16.597	11.153	27.750	233.024	110.840	343.864	
1978	176.250	37.359	213.609	63.419	8.039	20.102	12.063	8.039	-	-	-	19.189	9.994	29.183	270.923	114.892	385.815	
1979	34.374	4.893	39.267	65.265	76.519	141.784	15.510	9.827	25.337	-	-	20.404	14.324	34.728	135.555	105.565	241.120	
1980	2.005	0.196	0.196	95.867	99.067	194.934	16.084	12.993	29.077	-	-	20.900	15.170	36.070	134.857	127.427	262.284	

¹ The figures in the total column are the summation of the payments to the dollar, while the figures in the section columns are to the nearest one thousand dollars.
 Source: Rail Economic Analysis Branch, CTC.

Table V

Rates of Return for CN and CP: 1967-80

Year	Earnings ¹ (,000 \$ current)		Capital ² (,000 \$ current)		Rates of return (Per cent)	
	CN	CP	CN	CP	CN	CP
1967	140,526	149,940	4,177,878	2,453,158	3.3	6.1
1968	131,944	188,115	4,271,584	2,438,354	3.0	7.7
1969	178,287	145,946	4,424,292	2,522,480	4.0	5.7
1970	191,450	157,622	4,493,113	2,559,105	4.2	6.1
1971	191,635	165,497	4,595,199	2,598,666	4.1	6.3
1972	212,600	186,205	4,542,050	2,646,708	4.6	7.0
1973	209,273	196,365	4,663,713	2,720,122	4.4	7.2
1974	227,628	221,382	4,863,549	2,740,567	4.6	8.0
1975	43,445	224,023	5,176,805	2,920,815	0.8	7.6
1976	317,928	274,653	5,443,816	3,014,045	5.8	9.1
1977	383,217	293,405	5,760,324	3,108,546	6.6	9.4
1978	389,993	319,125	5,903,157	3,206,708	6.6	9.9
1979	520,951	391,889	6,240,229	3,372,399	8.3	11.6
1980	521,229	445,650	6,597,436	3,599,030	7.9	12.3

1 Earnings consist of:

Net railway operating income.

Income taxes.

+Income from lease of road and equipment minus rent paid for leased road and equipment.

+Road property, equipment and other equipment and machinery depreciation.

2 Capital consists of:

+Current assets minus current liabilities.

+Total road and equipment property.

+Improvements on leased property.

Source Statistics Canada, Railway Transport, Part II, Financial Statistics, Cat. 52-208 Annual.

Table VI

Average Transport Charges in Goods Producing Industries 1981

INDUSTRY GROUP	DOMESTIC SALES		EXPORTS	
	Transport charges from producers to purchasers (delivery transport cost) as a percentage of output valued in producers prices ⁴		Transport charges from producers to the Canadian border as a percentage of output valued in producers prices ⁴	
<u>Primary Industries</u>	<u>All transport modes¹</u>	<u>Rail</u>	<u>All transport modes¹</u>	<u>Rail</u>
Agriculture	3.1	0.6	6.4	2.7
Forestry	4.5	1.1	7.6	2.3
Fishing, Hunting, Trapping	2.3	1.9	3.0	0.2
Gold Mines	1.4	2.3	2.7	0.1
Uranium Mines	0.7	0.08	1.2	0.1
Iron Mines	10.8	5.3	12.8	6.4
Base Metal & Other Metal Mines	3.0	1.9	5.8	3.6
Coal Mines	9.8	7.0	53.0	38.1
Petroleum and Gas Wells	0.3	1.2	3.8	3.2
Asbestos Mines	10.3	2.4	9.0	1.5
Gypsum Mines	51.1	31.8	39.3	24.5
Salt Mines	38.6	11.6	17.0	5.1
Other Non-metal Mines	18.1	8.1	20.7	12.2
Quarries & Sand Pits	26.4	7.3	23.7	7.2
<u>Manufacturing Industries²</u>				
Fish Products Industry	3.9	0.5	1.2	0.1
Fruit and Vegetables Processing	4.1	1.8	3.6	2.0
Flour and Breakfast Cereals	4.3	2.2	3.2	1.6
Distilleries	3.9	0.4	6.2	0.7
Fiber Preparing Mills	4.0	0.3	10.3	2.6
Cordage and Twine	6.2	0.7	6.5	0.4
Sawmills	10.9	5.8	11.5	4.1
Veneer and Plywood	7.6	4.4	5.2	2.9
Wooden Box	4.5	0.3	7.6	2.1
Mis. Wood Industry	6.3	1.2	7.1	1.8
Pulp and Paper	5.2	1.9	5.3	1.9
Asphalt and Related Products	5.8	1.9	4.7	1.6
Aluminium Smelting and Ref.	5.2	1.4	2.9	0.5
Aluminium Rolling and Extruding	1.8	0.5	6.0	1.9
Cement	11.8	5.4	16.2	7.4
Lime	14.7	4.3	16.8	4.9
Concrete	9.8	1.2	5.2	0.7
Clay Products	6.2	2.4	3.6	1.4
Stone Products	7.3	3.7	8.0	6.2
Other Non-metallic Products	9.1	0.9	7.6	2.0
Other Petrol and Coal Products	10.1	3.5	8.1	2.9
Mixed Fertilizers	8.4	5.1	21.1	12.7
Average of Total ³	3.5	1.1	4.1	1.4

1 Private trucking is not included.

2 Only manufacturing industries with a substantial transport input have been displayed.

3 The average is for all 165 of the 'M' level industries rather than the smaller number included in the table.

4 Producers' prices cover the producers' costs of production.

Source Statistics Canada. Input-output models.

Table VII

Use of Railway Track and Rolling Stock by CN and CP

	Output: revenue ton miles CN and CP		Track mileage		Revenue freight ton miles per miles of track operated (millions)		Freight and passenger train miles per track mileage ('000)		Average freight car capacity (tons)		Revenue ton miles per freight car ('000 ton miles)		Load factor: average car load (ton miles per loaded car mile) ²		Utilizat revenue fr carried per car capac	
	'000	Index (1945-50=100)	CN	CP	CN	CP	CN	CP	Ratio CN to CP	CN	CP	Ratio CN to CP	CN	CP		Ratio CN to CP
1980	139,342	266	37,826	3.64	3.74	3.68	0.97	—	66.23	880	882	881	85.91	20.90		
1979	137,609	262	37,996	3.52	3.76	3.62	0.93	—	65.12	848	884	863	87.91	20.75		
1978	131,236	250	39,417	3.19	3.53	3.32	0.90	2.06	64.11	791	843	813	85.15	20.79		
1977	124,605	238	41,114	2.87	3.26	3.03	0.88	1.97	63.76	743	763	751	85.35	19.88		
1976	118,790	227	41,373	2.75	3.05	2.87	0.90	1.98	63.05	677	701	687	83.12	18.57		
1975	117,512	224	41,495	2.65	3.10	2.83	0.85	1.78	61.80	652	711	676	83.23	18.34		
1974	120,282	229	41,713	2.69	3.17	2.88	0.84	1.96	60.50	683	716	697	81.15	20.27		
1973	112,527	215	41,743	2.43	3.08	2.69	0.78	1.83	59.65	631	696	659	81.23	20.21		
1972	110,957	212	41,752	2.45	2.96	2.65	0.81	1.91	58.60	640	655	647	79.26	20.03		
1971	102,867	196	41,878	2.26	2.74	2.45	0.82	1.86	57.88	591	595	593	86.09	18.76		
1970	93,952	179	41,815	2.06	2.52	2.24	0.81	1.89	57.17	533	533	533	79.55	18.36		
1969	83,640	159	41,231	1.93	2.17	2.02	0.88	1.94	55.55	493	456	476	76.09	17.42		
1968	80,014	152	41,152	1.85	2.07	1.94	0.89	2.04	54.90	479	427	455	77.37	17.66		
Annual averages																
1958-67	67,028	128	41,592	1.49	1.78	1.61	0.83	2.23	51.81	386	377	382	70.10	16.45		
1950-58	60,113	114	41,592	1.36	1.59	1.44	0.85	2.74	—	—	—	—	—	—		
1945-50	52,330	100	40,867	1.18	1.43	1.28	0.82	3.02	—	—	—	—	—	—		

1 From 1979 onwards passenger train miles were produced by VIA Rail.

2 The load factor is measured by taking the average car load and dividing by the average freight car capacity. Note that while the latter is for CN and CP, the numerator is a measure of all C railroads.

Source Canadian National Railways, 1923-71, S.C. Catalogue No. 52-201; Canadian Pacific Ltd., 1923-71, S.C. Catalogue No. 52-202; Canadian National Railways and Canadian Pacific Ltd., 1971-75, S.C. Catalogue No. 52-213; Railway Transport, Part III, Equipment, track and fuel statistics, Catalogue No. 52-209; Railway Transport, Part I, Comparative Summary, S.C. Catalogue No. 52

Table VIII

Employment and Compensation in CN and CP

Year	Average haul ratio CN/CP		Labour Compensation				Employment						
			Percentage of total expenses		Average salaries as ratio of wages in manufacturing industries		Ratio of employment to the base, average 1960-67 = 100		CN and CP				
			CN	CP	CN	CP	CN	CP	CN	CP			
	Freight	Passenger											
	(1)	(1)	(2)	(3)	(3)	(4)	(4)						
1980	1.02	0.75	59.4	44.6	1.21	1.19	0.75	0.56	0.67				
1979	1.00	4.23	63.2	48.9	1.20	1.20	0.78	0.59	0.71				
1978	0.96	1.97	63.6	49.7	1.16	1.18	0.80	0.60	0.72				
1977	0.99	2.14	66.2	50.6	1.18	1.18	0.80	0.60	0.72				
1976	1.01	2.53	66.8	51.3	1.20	1.20	0.82	0.59	0.72				
1975	1.07	2.11	67.2	55.3	1.20	1.23	0.86	0.63	0.77				
1974	0.99	1.59	70.3	56.6	1.25	1.25	0.88	0.68	0.80				
1973	0.93	2.09	70.4	56.7	1.25	1.24	0.81	0.65	0.75				
1972	0.94	1.92	72.1	61.0	1.20	1.20	0.81	0.71	0.77				
1971	0.95	1.73	73.1	61.4	1.20	1.20	0.84	0.73	0.80				
1970	0.94	1.60	74.0	61.8	1.20	1.19	0.84	0.75	0.81				
1969	0.92	1.39	72.0	62.4	1.21	1.20	0.87	0.77	0.83				
1968	0.94	1.39	71.8	62.0	1.22	1.21	0.88	0.79	0.84				
1967	0.96	1.33	64.0	62.0	1.21	1.20	0.96	0.87	0.92				

1 Revenue freight ton miles and revenue passenger ton miles.

2 Total compensation as percentage of total expenses.

3 Average salaries and wages per hour as a ratio of all manufacturing wages and salaries per hour. The figures for the railways excludes other operations, including express, highway transport, telecommunications and outside operations.

4 Employment for the period 1960-66 taken as the base, equal to 1.00.

Sources Railway Transport, Part VI, Employment Statistics, Statistics Canada, Catalogue No. 52-212 Annual.
 Canadian Pacific Limited, Statistics Canada, Catalogue No. 52-202 Annual.
 Canadian National Railways, Statistics Canada, Catalogue No. 52-201 Annual.
 Canadian Statistical Review No. 11-003.

Table XI

Removal of Regulatory Support to the Rail Cartel:
Proposals of "Freedom to Move" and Bill C-126, The National Transportation Act, 1986

Activity	Regulation	Proposed changes	
		Freedom to move	Bill C-126
<u>Exchange of Information and Collective Pricing</u>	Railway Act Section 279	Elimination of the collective rate making provision through the sharing of information and the setting of common tariffs.	Clause 339 repeals Section 279.
	Transport Act Section 32(2)	Removal of agreed changes	Sections 120-128 retain the provisions concerning agreed changes.
<u>Rates:</u> Rebates and Confidential Contracts	Railway Act 401	Removal of the prohibition on rebates and confidential contracts. Confidential contracts to be allowed on all domestic, overseas, import/export and transborder traffic, exclusive of grain traffic governed by specific legislation. No appeals to be allowed from confidential rate contracts. Rebates to be permitted.	Section 120(1). A Railway company may enter into a contract with a shipper that the parties agree to keep confidential respecting... (c) Rebates from rates set out in tariffs or confidential contracts. Section 60 (Public Interest). The Agency, when conducting an investigation, shall have regard to the following factors: (d) Whether an existing confidential contract with another shipper for transportation of substantially similar product creates an unfair advantage by providing a lower freight rate or better shipping conditions that cannot be justified by any cost or efficiency difference for shipments under substantially similar conditions.
Filing	Railway Act S.330, 331	All confidential contracts and shipments that qualify for subsidies under statutory rates will be filed. All other published tariffs will be retained for public scrutiny in the offices of the railways concerned.	Sections 120(2) and (3). Specify the filing of the contract with the Agency and the publication of the summary information in the contract.
Maximum and Minimum Rates	Railway Act Section 278, 279	The provision that all freight rates shall be compensatory will be subject to a sunset provision, under which it will be repealed in 5 years. Repeal of the captive shipper provision. Instead, there will be a series of appeal provisions encompassing mediation and final offer arbitration.	Clause 339 repeals Section 278, which provided for the fixing of maximum rates for the shipper. Section 59(2)(b) (Public Interest). Eliminates the requirement that a <u>prime facie</u> case be established before the Agency may grant leave to appeal and proceed to investigate the action which is the subject of investigation.

Table XI (cont'd)

Activity	Regulation	Proposed changes	
		Freedom to move	Bill C-126
			Section 62(1). In conducting an investigation under Section 59, the Agency may either hold public hearings or decide the matter on the basis of documents filed with the Agency.
	Joint Line Rates	Proposed to allow shippers captive to one rail-line to have access to the line of competing rail carriers by proving legislation for a joint-line rate from the traffics origin to its destination.	<p>Section 112</p> <p>(2) Every rate shall be compensatory.</p> <p>(3) A rate shall be deemed to be compensatory when it exceeds the variable cost of the movement of the traffic concerned as determined by the Agency.</p> <p>Section 134(2). ...where a shipper has access to the lines of only one railway company at the point of origin or of destination of the movement of the traffic of the shipper...the local carrier...shall on the request of the shipper establish a competitive line rate applicable to the movement of the traffic...to or from the nearest interchange with a connecting carrier.</p> <p>Section 136. On the application of a shipper, the Agency shall, within 45 days of the receipt of the application, establish...; (a) the amount of the competitive line rate.</p>
<u>Running Rights and Joint-Track Usage</u>	Railway Act Section 134	In instances where "the public interest or consideration of the economy and efficiency of the rail system" justifies the imposition of joint-track usage or shared railway running rights, the Governor-in-Council will be empowered a) to elicit railway co-operation and b) to authorize the (new) Regulatory Agency to determine appropriate compensation for the use of the right-of-way concerned.	<p>Section 147. A railway company may (b) use and enjoy the whole or any portion of the right-of-way, terminals...of any other railway company;</p> <p>(c) exercise full rights and powers to run and operate its trains on any portion of the railway of any other railway company.</p> <p>(2) The Agency...may make orders, directions and impose such conditions...as appear just or desirable to the Agency, having regard to the public interest.</p>

Table XI (cont'd)

Activity	Regulation	Proposed changes	
		Freedom to move	Bill C-126
			<p>Section 148(2). Where the Governor in Council is of the opinion that the joint or common use of the same right of way by two or more railways may result in the improvement of the efficiency and effectiveness of transport by rail or may otherwise be in the public interest, the Governor in Council may request the railway concerned to consider such joint or common use.</p>
			<p>Section 149(1). ...where a line of railway of a company intersects or crosses a line of railway of another company, either company may use and enjoy the right-of-way of the other company within a radius of 50 km of the intersection or crossing.</p>
			<p>Section 153(1). Where a line of railway of one railway company connects with a line of another railway company, the Agency may, on application...order the companies that operate those lines to afford all reasonable and proper facilities for the safe and convenient interswitching at an interchange.</p>
			<p>(2) When the point of origin or of a destination of a movement of traffic is within a radius of 30 km of an interchange or such greater distance therefore as the Agency may prescribe, no company shall transfer that traffic at that interchange otherwise than subject to the terms, conditions and rates prescribed....</p>
			<p>(5) The Agency is specified to make regulations specifying the terms and conditions applying to the interswitching limits.</p>
			<p>(7) ...the Agency shall review the regulation...no later than five years.</p>

Table IX
Indicators of Average Labour Productivity

Year	Ratio aggregate output to total labour (1960-67 = 100)		Ratio CN to CP						
	CN (1)	CP (1)	CN & CP (2)	Aggregate output to total labour (3)	Equipment maintenance (4)	Road maintenance (5)	General (6)	Direct rail passenger transport (7)	Road freight crews (7)
1980	2.13	3.38	2.50	0.76	0.87	0.72	0.89	3.42	1.24
1979	1.98	3.18	2.35	0.76	0.87	0.74	0.85	2.72	1.16
1978	1.86	3.04	2.22	0.75	0.92	0.74	0.76	1.40	1.11
1977	1.73	2.86	2.08	0.74	0.98	0.74	0.73	1.60	1.11
1976	1.67	2.72	2.00	0.74	0.98	0.73	0.73	1.69	1.12
1975	1.50	2.60	1.84	0.70	0.87	0.70	0.67	1.43	1.07
1974	1.52	2.50	1.84	0.74	0.97	0.71	0.67	1.26	1.06
1973	1.50	2.52	1.82	0.73	0.90	0.78	0.65	1.78	1.03
1972	1.52	2.22	1.75	0.83	0.90	0.76	0.67	1.61	1.04
1971	1.36	2.00	1.57	0.83	0.91	0.78	0.69	1.92	1.06
1970	1.24	1.80	1.42	0.84	0.92	0.79	0.75	1.88	1.00
1969	1.13	1.50	1.24	0.92	1.00	0.75	0.85	1.66	1.07
1968	1.06	1.42	1.17	0.91	1.00	0.77	0.87	1.70	1.11
1967	0.96	1.32	1.08	0.89	0.95	0.75	0.84	2.00	1.07

- 1 Output is the unweighted sum of revenue ton miles and revenue passenger miles, and labour refers to total labour employed by the railways, excluding express, highway transport, telecommunications and outside operations. The base period is 1960-67, and subsequent years are expressed as a ratio of this base period.
- 2 Taken from column one and two.
- 3 Equipment Maintenance includes categories 27 to 41 in Statistics Canada, Catalogue No. 52-212. Output is measured by the unweighted aggregate of revenue ton miles and revenue passenger miles.
- 4 Road maintenance includes categories 11 to 26 in Statistics Canada, Catalogue No. 52-212. Output is measured by total miles of track operated.
- 5 General refers approximately to those employed in administration, covering categories 1 to 10 in Statistics Canada, Catalogue No. 52-212. Output is measured as the unweighted sum of revenue ton miles and revenue passenger miles.
- 6 Direct rail passenger transport includes those directly employed in producing passenger services. Output is measured as revenue passenger miles. Categories included in producing such services are: road passenger conductors, brakemen and baggagemen, engineers and motormen, sleeping and parlour car personnel, dining car personnel and coach cleaners, baggage, parcel room and station attendants, restaurant personnel, news agents, motor vehicle, sleeping and parlour car personnel, dining car personnel and coach cleaners, baggage, parcel room and station attendants, restaurant personnel, news agents, motor vehicle mechanics and helpers and revenue motor vehicle drivers.
- 7 The output of road freight crews is measured by revenue ton miles and those employed include: conductors, brakemen, engineers, firemen and helpers.

Sources Railway Transport, Part VI, Employment Statistics, Statistics Canada, Catalogue No. 52-212 Annual.
Canadian Pacific Ltd., Statistics Canada, Catalogue No. 52-202 Annual.
Canadian National Railways, Statistics Canada, Catalogue No. 52-201 Annual.

Table X

Comparisons of Estimates of Average Annual Percentage
Change in Total Factor Productivity of CN and CP

Study	Study period	Average annual changes in productivity		
		CN	CP	CN & CP
1. Caves and Christensen ¹	1956-75	3.1	2.7	
2. Roy and Cofskey	1956-75	3.8	3.9	
	1956-81	1.2	0.2	
	1970-81 ²	2.9	2.9	
3. Caves and Christensen ³	1956-63	1.8	1.7	1.7
	1963-74	4.3	3.3	4.0
	1956-74	3.3	2.7	3.3
4. Caves, Christensen, Swanson and Tretheway	1956-79	3.0	2.2	
	1975-79	3.7	1.0	
5. Freeman, Oum, Tretheway and Waters	1956-81	3.1	3.5	2.5 ⁴

1 These estimates are derived from the use of unweighted ton miles.

2 These estimates are taken from the same model form, but published in, The Productivity and Cost Structure of Firms within the Rail and Air Transport Industry, Transport Review: Trends and Selected Issues, 1985, CTC, Research Branch, Cat. No. TT12-5/1985, Chapter 4.

3 Estimates of a specification using four output indexes, including weighted passenger miles and ton mile indices.

4 The average annual growth rate of total factor productivity for both railways was calculated after controlling for the effects of changes in outputs and route miles.

Sources

D. W. Caves and L. R. Christensen, Productivity in Canadian Railways, 1956-75, CTC, Report No. 10-78-16, August 1978.

Roger J. P. Roy and D. Cofskey, An Empirical Investigation for Canadian Class I Railways of both Performance and Industry Cost Structure, Canadian Transport Research Forum, 20th Annual Meeting, Toronto, May 1985, Proceedings.

D. W. Caves and L.R. Christensen: The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads, Journal of Political Economy, 1980, Vol. 88, No. 51, pp. 958-76.

D. W. Caves, L. R. Christensen, J. Swanson and M. Tretheway, Economic Performance of U.S. and Canadian Railroads: The Significance of Ownership and the Regulatory Environment, in W. T. Stanbury and F. Thompson, editors, Managing Public Enterprises, Praeger, 1982, pp. 123-60.

K. D. Freeman, T. H. Oum, M. Tretheway and W. G. Waters II, Measuring and Identifying the Causes of the Productivity Performance of the Canadian Class I Railroads, 1956-81, The Logistic and Transportation Review, Vol. 21, No. 3.

Annex A.1

**Transport of Grain Moving under the Statutory Rates:
Revenues and Costs, 1980
(\$ millions)**

Item	CN	CP	Total
Total Variable Costs	280,066	259,515	539,521
User Revenues	66,507	64,214	130,721
Per Cent of Costs	23.8	24.7	24.2
Gross Revenue Shortfall	213,499	195,301	408,800
Per Cent of Costs	76.2	75.2	75.7
Federal Government Payments	78,825	89,106	167,931
Per Cent of Costs	28.2	34.3	31.1
Statutory Rate Revenues	66,065	63,815	129,880
Variable Costs to Statutory Rate Revenues	4.3	4.1	4.1
Total Freight Revenues 1980	2,189,400	1,546,800	3,736,200

Sources 1980 Costs and Revenues Incurred by the Railways in the Transportation of Grain under Statutory Rates. Snavey, King and Associates, Transport Canada, January 1982, prepared for the Grain Transportation Directorate.

Railway Transport, Part II, Financial Statistics 1980, Statistics Canada, Cat. No. 52-208.

Annex A.2

Average Transport Charges in Goods Producing Industries, 1981

Industry group	Domestic sales		Exports	
	Transport charges from producers to purchasers (delivery transport cost) as a percentage of output valued in producers prices		Transport charges from producers to the Canadian border as a percentage of output valued in producers prices	
	All transport	Rail	All transport	Rail
Agriculture	3.1	0.6	6.4	2.7
Forestry	4.5	1.1	7.6	2.3
Fishing, Hunting, Trapping	2.3	0.1	3.0	0.2
Gold Mines	1.4	0.2	2.7	0.1
Uranium Mines	0.6	0.08	1.2	0.1
Iron Mines	10.8	5.3	12.8	6.4
Base Metal and Other Metal Mines	3.0	1.9	5.8	3.6
Coal Mines	9.8	7.0	53.0	38.1
Petroleum and Gas Wells	0.3	0.01	3.8	3.2
Asbestos Mines	10.3	2.4	9.0	1.5
Gypsum Mines	51.1	31.8	39.3	24.5
Salt Mines	38.6	11.6	17.0	5.1
Other Non-metal Mines	18.1	8.1	20.7	12.2
Quarries and Sand Pits	26.4	7.3	23.7	7.2
Services Incidental to Mining	0.05	0.003	3.7	0.2
Slaughtering and Meat Processors	1.7	0.2	2.1	0.5
Poultry Processors	1.9	0.6	1.7	0.4
Dairy Factories	2.0	0.1	2.2	0.1
Fish Products	3.9	0.5	1.2	0.1
Fruit and Vegetable Processing	4.1	1.8	3.6	2.0
Feed Mfgs.	2.1	0.4	3.9	1.1
Flour and Breakfast Cereals	4.3	2.2	3.2	1.6
Biscuit Mfgs.	2.0	0.1	2.3	0.2
Bakeries Mfgs.	2.2	0.2	3.2	0.3
Confectionary Mfgs.	3.5	0.6	4.3	0.7
Sugar Refineries	2.2	0.5	8.0	1.9
Vegetable Oil Mills	3.9	2.5	6.3	4.1
Miscellaneous Food	3.4	1.2	4.3	1.9
Soft Drink Mfgs.	1.9	0.1	1.3	0.1
Distilleries	3.9	0.4	6.2	0.7
Breweries	1.6	0.4	2.3	0.7
Wineries	2.7	0.1	3.6	0.1
Leaf Tobacco Processing	0.7	-	2.6	-
Tobacco Products Mfgs.	1.7	0.3	2.7	0.4
Rubber Footwear Mfgs.	1.3	0.1	1.7	0.2
Tire and Tube Mfgs.	3.5	0.7	3.6	0.7
Other Rubber	2.4	0.3	2.7	0.5
Plastic Fabricators	2.1	0.5	2.5	0.6
Leather Tanneries	1.6	0.01	3.1	0.01
Shoe Factories	1.8	0.02	1.4	0.2
Leather Glove Factories	3.4	0.002	2.2	0.05
Small Leather Goods Mfgs.	2.6	0.8	3.7	0.85
Cotton Yarn and Cloth Mills	1.4	0.1	2.3	0.6
Wool, Yarn and Cloth Mills	1.5	0.08	3.3	0.1
Synthetic Textile Mills	1.6	0.1	2.1	0.2
Fiber Preparing Mills	4.0	0.3	10.3	2.6
Thread Mills	1.2	0.01	1.2	0.01
Cordage and Twine	6.2	0.7	6.5	0.47
Narrow Fabric Mills	1.8	0.09	2.7	0.21

Annex A.2 (cont'd)

Industry group	Domestic sales		Exports	
	Transport charges from producers to purchasers (delivery transport cost) as a percentage of output valued in producers prices		Transport charges from producers to the Canadian border as a percentage of output valued in producers prices	
	<u>All transport</u>	<u>Rail</u>	<u>All transport</u>	<u>Rail</u>
Pressed and Punched				
Felt Mills	2.4	0.2	3.6	0.4
Carpet, Mat and Rug Ind.	2.8	0.5	3.9	0.7
Textile Dyeing and				
Furnishing	0.5	0.06	1.5	0.02
Canvas Products	2.8	0.3	3.0	0.3
Cotton and Jute Bag Ind.	4.9	0.3	5.5	0.2
Misc. Textile	2.8	0.8	2.3	0.6
Hosiery Mills	4.1	0.7	2.8	0.4
Other Knitting Mills	2.4	0.4	2.3	0.1
Clothing	3.2	0.2	2.7	0.1
Sawmills	10.9	5.8	11.5	4.1
Veneer and Plywood	7.6	4.4	5.2	2.9
Sash. and Door and				
Planing Mills	1.9	0.7	4.6	1.7
Wooden Box Factories	4.5	0.3	7.6	2.1
Coffin and Casket	5.5	3.3	6.2	3.7
Misc. Wood Inds.	6.3	1.2	7.1	1.8
Household Furniture	2.9	0.07	2.0	0.07
Office Furniture	2.7	0.04	1.9	0.3
Other Furniture	2.6	0.05	3.0	0.7
Electric Lamp				
and Shade	3.6	0.004	3.0	0.02
Pulp and Paper	5.2	1.9	5.3	1.9
Asphalt and Related				
Products	5.8	1.9	4.7	1.6
Paper Box and				
Bag Mfgs.	2.3	0.3	5.1	1.0
Other Paper				
Converters	3.7	0.8	3.9	0.9
Printing and				
Publishing	1.6	0.1	0.3	0.4
Engraving,				
Stereotyping	3.0	0.7	5.7	0.9
Iron and Steel	3.8	1.6	4.1	1.6
Steel Pipe and				
Tube Mills	4.1	1.4	4.4	1.5
Iron Foundries	4.4	0.6	3.6	0.5
Aluminium Smelting				
and Ref.	5.2	1.4	2.9	0.5
Other Smelting and				
Refining	2.4	1.0	2.6	0.5
Aluminium Rolling				
and Extruding	1.8	0.5	6.0	1.9
Copper and Alloy				
Rolling	3.0	0.2	1.9	0.2
Metal Casting and				
Extruding NES	4.9	1.4	5.4	1.8
Botler and Plate				
Works	2.7	0.5	2.8	0.4
Fabricated Struct.				
Metal	1.7	0.6	3.8	1.1
Ornamental and				
Arch. Metal	2.0	0.1	3.3	0.5
Metal Stamp. Press				
and Coat	2.7	0.5	2.1	0.5
Wire and Wire				
Products Mfgs.	3.2	0.3	3.6	0.3

Annex A.2 (cont'd)

Industry group	Domestic sales		Exports	
	Transport charges from producers to purchasers (delivery transport cost) as a percentage of output valued in producers prices		Transport charges from producers to the Canadian border as a percentage of output valued in producers prices	
	<u>All transport</u>	<u>Rail</u>	<u>All transport</u>	<u>Rail</u>
Hardware Tool and Cutlery Mfgs.	2.6	0.2	3.3	0.3
Heating Equipment Mfgs.	2.5	0.4	2.6	0.5
Machine Shops	1.6	0.3	2.8	0.4
Misc. Metal Fabricating	3.3	0.5	3.2	0.6
Agricultural Implement	2.0	0.3	1.4	0.3
Misc. Machinery and Equipment Mfgs.	2.1	0.2	3.1	0.3
Comm. Refrig. and Air Cond. Mfgs.	1.5	0.7	1.0	0.4
Office and Store Machinery Mfgs.	2.6	0.03	1.7	0.02
Aircraft and Parts Mfgs.	1.1	0.09	0.7	0.1
Motor Vehicle Mfgs.	1.9	0.8	1.0	0.5
Truck Body and Trailer Mfgs.	2.1	1.0	2.5	1.0
Motor Vehicle Parts and Access Mfgs.	1.8	0.5	1.8	0.5
Railroad Rolling Stock	1.1	0.4	1.7	0.8
Shipbuilding and Repair	0.4	1.2	1.3	0.3
Misc. Transportation Equipment	2.3	0.6	1.7	0.7
Small Electrical Appliances	2.3	0.3	1.1	0.1
Major Appliances Elect. and Non	2.3	0.7	2.4	0.7
Radio and Television Receivers	1.1	0.01	2.1	0.01
Communications Equipment Mfgs.	1.2	0.06	2.1	0.06
Mtgrs of Electr. Ind. Equip.	1.4	0.1	2.1	0.1
Battery Mfgs.	2.2	0.2	1.2	1.3
Mfgs of Electric Wire and Cable	2.1		4.0	0.9
Mfgs. of Misc. Elect. Products	2.9		2.4	0.3
Cement Mfgs.	11.8	5.4	16.2	7.4
Lime Mfgs.	14.7	4.3	16.8	4.9
Concrete Product Mfgs.	9.8	1.2	5.2	0.7
Ready-mix Concrete Mfgs.	2.4		5.9	1.3
Clay Products Mfgs.	6.2	2.4	3.6	1.4
Refractories Mfgs.	3.8		2.0	1.2
Stone Products Mfgs.	7.3		8.0	6.2
Other Non-metallic Products	9.1	0.9	7.6	2.0
Glass and Glass Products Mfgs.	3.3	0.7	3.7	0.8
Abrasive Mfgs.	4.6	0.5	4.8	0.6
Petroleum Refineries	2.6	0.6	3.5	1.4
Other Petrol and Coal Products	10.0	3.5	8.1	2.9

Annex A.2 (cont'd)

Industry group	Domestic sales		Exports	
	Transport charges from producers to purchasers (delivery transport cost) as a percentage of output valued in producers prices		Transport charges from producers to the Canadian border as a percentage of output valued in producers prices	
	<u>All transport</u>	<u>Rail</u>	<u>All transport</u>	<u>Rail</u>
Mfgrs. of Mixed Fertilizers	8.4	5.1	21.1	12.7
Mfgrs. of Plast. and Synth. Res.	1.7	0.7	2.6	1.2
Mfgrs. of Pharm. and Medicines	1.6	0.1	1.0	0.07
Paint and Varnish Mfgrs.	3.2	0.3	1.8	0.5
Mfgrs. of Soap and Cleaning Comp.	3.5	0.7	3.4	0.8
Mfgrs. of Toilet Preparations	2.9	1.0	2.6	0.8
Mfgrs. of Industrial Chemicals	4.9	2.2	5.3	2.8
Other Chemical	4.3	1.1	4.1	1.3
Scient. and Prof. Equip. Mfgrs.	1.3	0.08	1.6	0.1
Jewelry and Silverware Mfgrs.	1.4	0.1	2.8	0.1
Broom, Brush and Mop	2.4	0.7	2.0	0.3
Sporting Goods and Toy	1.8	0.1	1.6	0.1
Linoleum and Coated Fabrics	2.4	0.2	4.7	0.3
Signs and Display	2.4	4.1	1.6	0.3
Misc. Manufacturing Ind. NES	3.7	0.6	2.3	2.6
Pipeline Transport	0.03	0.02	0.2	0.1
Communication Ind. NES	0.02	-	0.1	-
Electric Power	-	-	0.01	0.01
Gas Distribution	-	-	0.1	0.08
Wholesale Trade	1.7	0.3	0.2	0.06
Retail Trade	0.03	-	1.4	0.2

Source Statistics Canada. Input-Output models.

Annex A.3

ok Values of Rates of Return on Selected Class 1 Railroads,
U.S.A. 1966-79

Railroad	1966-70	1971-75	1976-79
	(Per cent)		
Alabama Great Southern	---	---	8.9
Atchison, Topeka, Sante Fe	6.1	7.0	8.2
Baltimore and Ohio	5.5	7.0	8.2
Bessemer and Lake Erie	---	---	14.7
Boston and Main	---	---	0.4
Burlington Northern	5.1	4.6	5.1
Central of Georgia	---	---	10.9
Chesapeake & Ohio	6.6	7.1	4.7
Chicago, Milwaukee, St. Paul & Pacific	3.4	2.3	-4.9
Chicago and Northwestern	3.0	7.0	6.7
Chicago, Rock Island and Pacific	1.6	-2.0	-2.0
Cincinnati, New Orleans and Texas Pacific	9.2	12.8	17.6
Clinchfield	---	---	21.2
Colorado and Southern	---	---	2.6
Denver and Rio Grande Western	9.8	10.2	10.8
Delaware and Hudson	---	---	4.9
Detroit, Toledo and Ironton	---	---	5.1
Duluth, Missabe and Iron Range	---	---	5.1
Elgin, Joliet & Eastern	---	---	17.6
Florida East Coast	3.7	9.6	8.6
Grand Trunk Western	---	---	3.9
Inninois Central Gulf	5.2	5.0	2.5
Kansas City Southern	---	---	8.9
Louisville and Nashville	6.2	6.7	6.2
Missouri-Kansas-Texas	---	---	2.1
Missouri Pacific	5.9	6.8	9.4
Norfolk and Western	8.8	9.0	10.8
Pittsburgh and Lake Erie	9.6	7.7	11.3
Richmond, Frederickburgh & Potomac	12.2	13.6	13.2
Seaboard Coast. Line	5.7	5.9	7.8
Soo Line	5.7	8.4	10.7
Southern	9.3	9.0	9.2
Southern Pacific	6.8	6.9	5.8
St. Louis-Southwestern	---	---	10.5
Union Pacific	8.0	9.6	10.8
Western Maryland	---	---	8.7
Western Pacific	3.9	4.7	6.7

Source Theodore E. Keeler, Railroads, Freight and Public Policy. Studies in the Regulation of Economic Activity. (The Brookings Istitution/Washington D.C.), Tables 1-2 and 1-3, pp. 9-10.

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