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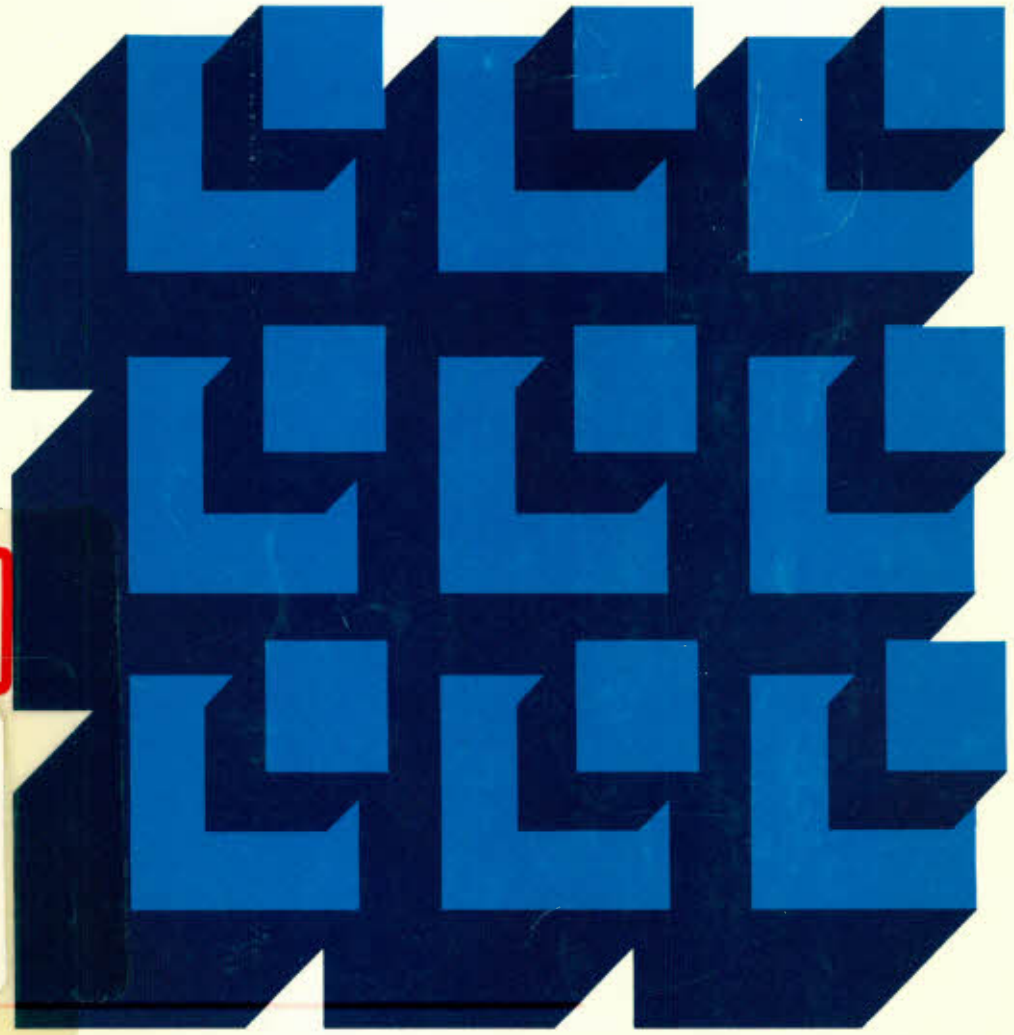

DISCUSSION PAPER NO. 315

Structural Change and Regulatory Reform in Rail Transport: Opportunities for Separating the Ownership of Track and Carriage

by

Adil Cubukgil

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RÉSUMÉ

Il est évident, depuis bien des années, qu'une réforme de la réglementation du transport ferroviaire s'impose au Canada. Pourtant, il ne se fait de vrais efforts touchant les politiques dans ce domaine que depuis peu de temps. La présente étude porte justement sur cette question, ainsi que sur les moyens de favoriser la concurrence dans cette industrie. L'auteur considère une société ferroviaire classique comme une entreprise à intégration verticale, qui s'occupe de fournir à la fois une infrastructure (les voies ferrées) et les services de transport proprement dits (les trains). Les coûts de l'infrastructure étant irrécupérables, on peut dire qu'un chemin de fer est un "monopole naturel incontestable". Étant donné le contrôle qu'une telle société exerce sur l'utilisation de son infrastructure, elle étend aussi son pouvoir monopolistique aux services qui y sont assurés. S'il était possible de dissocier de l'ensemble la propriété de l'infrastructure seulement, les caractéristiques des coûts du transport ferroviaire en soi permettraient une libre concurrence dans le domaine des transports en général, sans une trop grande réglementation économique. Cependant, vu l'état actuel des choses (la propriété de l'infrastructure ferroviaire et celle des services de transport eux-mêmes étant intégrées), une déréglementation pourrait favoriser une concurrence intermodale efficace dans certaines parties du marché, mais, à long terme, il est probable qu'elle nuirait à la concurrence intramodale et favoriserait une plus grande concentration des sociétés dans cette industrie.

S'appuyant sur les propositions théoriques formulées à la section 2, l'auteur examine plus en détail, à la section 3, l'idée de dissocier, dans le domaine ferroviaire, la propriété de l'infrastructure de celle des services. Dans la section 4, il examine les répercussions de ces concepts sur les politiques dans ce domaine, tant au Canada qu'aux États-Unis. Le moment paraît opportun pour certains changements fondamentaux dans l'industrie ferroviaire canadienne et pour la mise en oeuvre de certaines des propositions formulées dans ce rapport. Le fait qu'une infrastructure ferroviaire soit propriété publique n'entraîne pas nécessairement la nationalisation des services de chemin de fer, comme c'est le cas aux États-Unis, mais peut au contraire en faciliter la privatisation.

SUMMARY

The need for regulatory reform in Canadian rail transportation has been evident for a number of years, but only recently have policy efforts been directed toward this need. This study addresses the issue of regulation and offers ideas on how to promote competition in the industry. A conventional railway company is seen as a vertically integrated firm engaged in the provision of both infrastructure (or track) and transportation services (or carriage). The sunk nature of infrastructure costs make the railway an "uncontestable nature monopoly" in track operations. By virtue of the control it exercises over the use of its infrastructure, however, the railway firm extends its monopoly power to transportation services as well. If the ownership of the infrastructure can be separated, the cost characteristics of railway carriage are such that open competition could be sustained in transportation operations without much economic regulation. Under the current industry structure (where the ownership of rail infrastructure and carriage is integrated), on the other hand, deregulation may promote effective intermodal competition in certain market segments, but in the long run, it is likely to inhibit intramodal competition and encourage further corporate concentration in the industry.

Starting from theoretical propositions advanced in section 2, the concept of separating the ownership of rail infrastructure from rail carriage is examined in more detail in section 3. The policy implications of these ideas both in the U.S. and Canada are examined in section 4. The time is now opportune for fundamental changes in the Canadian rail industry, for putting into action some of the ideas advanced in this report. The concept of a public rail bed does not require nationalization as it does in the U.S., and on the contrary, provides opportunities for privatization in the rail industry.

TABLE OF CONTENTS

		Page
FOREWORD		ix
ACKNOWLEDGMENTS		xi
1. INTRODUCTION		1
2. THEORETICAL CONSIDERATIONS		5
	2.1 Scale Economies	5
	2.2 Horizontal Scope Economies	11
	2.3 Vertical Scope Economies	13
3. OWNERSHIP OF TRACK AND CARRIAGE		17
	3.1 The Utility Concept and Competing Carriers	17
	3.2 Operational Concerns	22
	3.3 Review of Current Industry Relations	26
	3.4 A Contractual Framework	28
4. OPPORTUNITIES FOR STRUCTURAL CHANGE		32
	4.1 Prospects for Structural Change in the U.S.	32
	4.2 Debate on Running Rights in Canada	37
	4.3 Railbed Utility Concept and Canadian Rail Policy	43

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 by Adil Cubukgil falls into the latter category. It attempts to look at the implications of government ownership in freight rail in the context of a more general review of the opportunities for structural change and increased competition in this sector. The latter is an important issue, and it is a particularly topical one given the government's current plans to reform the framework of rules and regulations governing the freight rail industry.

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1. INTRODUCTION

The need for regulatory reform in Canadian rail transportation has been evident for a number of years, but only recently have policy efforts been directed toward this need. Unlike their U.S. counterparts, Canadian railways have enjoyed substantial freedom in rate-making since the 1967 National Transportation Act. At the same time, they have enjoyed protection from intramodal competition and have been permitted to engage in collective rate-making. This has allowed the railways to improve their financial performance and to compete with other modes more effectively. However, in the absence of intramodal competition it is questionable whether the interests of shippers captive to rail have been served well. Moreover, the Canadian railways have not been as innovative, aggressive, or cost-conscious as they could have been in a more competitive environment.

The reforms that are now being proposed by the Minister of Transport are cognizant of the fact that more intramodal competition is required to enhance the efficiency of Canadian rail transport. The principal mechanism proposed to promote intramodal competition is confidential contracting. This practice is expected to allow shippers to negotiate more effectively with the railways and force the railways to compete more aggressively with each other. It is obvious, however, that such negotiation and competition could take place only to the extent that the networks of the two railways overlap, offering shippers a choice. Even where that choice exists, the industry remains an "uncontestable duopoly." It is rather unrealistic to expect that such an industry structure could be conducive to effective competition. In fact, structural changes are essential before intramodal competition can be unleashed.

The reforms that are now being considered in Canada (particularly confidential contracting) are, of course, greatly influenced by the recent U.S. experience. In the U.S., it has now been ten years since regulatory reforms began with the 1976 Railroad Revitalization and Regulatory Reform Act and five years since the passing of the 1980 Staggers Act. It is

increasingly evident that structural problems seriously impede competition in the U.S. rail industry. Increased merger activity, joint rate and route cancellations, and inactivity in reciprocal switchings are all cause for concern.[1] In the absence of sufficient competition, the interests of captive shippers began to receive serious public policy attention.

The Staggers Act in 1980 introduced rate freedom in all cases except where the railways enjoy "market dominance." The Interstate Commerce Commission (ICC) can now object to rates only if they fall below variable costs, which, at least in theory, provides a measure to prevent railways from engaging in predatory pricing. The railways can sign confidential contracts with shippers, enhancing their ability to invest in new facilities with more confidence and security. After many decades of malaise and stagnation, the lifting of regulatory controls certainly marked the beginning of a very dynamic era in the rail industry.[2] In many market segments the shipping community is enjoying the benefits of more flexible and innovative services, particularly in the intramodal area (e.g., dedicated container train services from the West Coast). In a fairly short period of time, industry observers have noted substantial productivity gains and predict a healthy financial outlook for the rail industry at large.

Despite the rather encouraging industry outlook, however, regulatory concerns continue. These are most apparent with respect to "captive shippers" in cases where the railways enjoy "market dominance." Certain interest groups engaged in fierce opposition to deregulation during the Congressional debate leading to the Staggers Act and continue to exert

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1. See for example Curtis M. Grimm, "Promoting Competition in the Railroad Industry: A Public Policy Analysis," Transportation Research Forum Proceedings - Twenty-Fifth Annual Meeting, Vol. 25, No. 1 (1984), pp. 222-227.

2. For a discussion of the benefits of deregulation, see Thomas G. Moore, "Rail and Truck Reform - The Record So Far," Regulation (Nov-Dec, 1983), pp. 33-41.

considerable pressure to tighten regulatory controls. Unlike trucking, where the principal resistance to the 1980 Motor Carrier Act came from the industry's own organization, the American Trucking Association, certain segments of the shipping community are leading the opposition to the deregulation of the rail industry. Most vocal among the lobby groups is the utility and coal industry coalition. Highly dependent on rail transport, these industries claim that they had to bear the brunt of rate deregulation.

More recently, opposition to deregulation, has been fuelled by the proposed Railroad Anti-Monopoly Act of 1985. Supported by representatives from the areas where railways are alleged to exploit their "market dominance," the bill attempts to provide rail access by other carriers on infrastructure owned by the dominant railways. The bill would essentially prohibit railways from denying the use of their facilities by competing carriers, as long as these carriers agree to operate under reasonable terms, and offer adequate compensation to the host railways. This is obviously seen as a measure to protect captive shippers from the monopoly powers of dominant railways. The opponents of the bill, on the other hand, claim that in most cases there is adequate market and/or intermodal competition to prevent the railways from exercising their monopoly power. They claim, therefore, that the interest of shippers who appear captive are protected. In cases where such competition is not sufficient, they argue that there are adequate provisions in the Staggers Act for direct ICC intervention.

The debate and the legislative struggle over deregulation will no doubt continue for many years to come. However, whether the opposition to the Staggers Act is warranted or not at this time, complete economic deregulation ought to raise serious and well-founded concerns. The current industry structure and the inherent cost characteristics of rail transport are not conducive to sustaining open competition, free from all forms of economic regulation. The basic problem lies with the sunk and indivisible nature of infrastructure costs. These characteristics give rise to sustainable

natural monopoly conditions and present entry barriers which make the railways "uncontestable." As long as these conditions prevail, regulatory concerns will remain.

This study addresses the issue of regulation and offers ideas on how to promote competition in the industry. A conventional railway company is seen as a vertically integrated firm engaged in the provision of both infrastructure (or track) and transportation services (or carriage). The sunk nature of infrastructure costs make the railway an "uncontestable nature monopoly" in track operations. By virtue of the control it exercises over the use of its infrastructure, however, the railway firm extends its monopoly power to transportation services as well. If the ownership of the infrastructure can be separated, the cost characteristics of railway carriage are such that open competition could be sustained in transportation operations without much economic regulation. Under the current industry structure (where the ownership of rail infrastructure and carriage is integrated), on the other hand, deregulation may promote effective intermodal competition in certain market segments, but in the long run, it is likely to inhibit intramodal competition and encourage further corporate concentration in the industry.

Starting from theoretical propositions advanced in section 2, the concept of separating the ownership of rail infrastructure from rail carriage is examined in more detail in section 3. The policy implications of these ideas both in the U.S. and Canada are examined in section 4. The time is now opportune for fundamental changes in the Canadian rail industry, for putting into action some of the ideas advanced in this report. Unlike in the U.S., the concept of a public rail bed does not require nationalization; in the U.S., on the contrary, it provides opportunities for privatization in the rail industry.

2. THEORETICAL CONSIDERATIONS

In any industry, policy concerns, and particularly regulatory issues, cannot be divorced from that industry's structure and cost characteristics. It is therefore important to touch on those aspects of railway costs which pertain to the structural characteristics of the industry. The literature on the topic is very extensive, but for the purposes of this study it is neither necessary nor feasible to review this literature at great length.

The following discussion is highly selective, focussing on issues that are of immediate relevance to the particular theme of this study: structural change in the railway industry through the separation of track and carriage. First, scale economies are discussed as a basis for testing natural monopoly conditions and the contestability of the railway firm. Second, scope economies are discussed to test the multi-product natural monopoly hypothesis. Lastly, the railway is examined as a two-product firm, vertically integrating the provision of track and transportation services.

2.1 Scale Economies

The railway economics literature has dealt extensively with the issue of density economies. The first attempts to explore the relationship between density and unit costs date back to the first quarter of the century.[3] In the late 1920s, the Interstate Commerce Commission staff undertook a detailed statistical analysis of railway costs, exploring the relationship between marginal and average costs.[4] The relationship between unit costs and traffic density was later pursued by George Borts and John Meyer in their seminal studies on railway costs throughout the 1950s. The

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3. The first statistical analysis of railway costs is generally credited to M.O. Lorenz, "Cost and Value of Service in Railroad Rate Making," Quarterly Journal of Economics, Vol. 30 (February 1916), pp. 205-18; and J.M. Clark, Studies in the Economics of Overhead Costs (University of Chicago Press, 1923).

4. These studies were described later by John R. Meyer, Merton J. Peck, John Stenason and Charles Zwick, The Economics of Competition in the Transportation Industries (Harvard University Press, 1959).

methodological problems surrounding the estimation of railway costs and scale economies became the subject of many articles written by these and other authors.[5]

Although most of these earlier studies addressed the issue of density economies, empirical results on the issue were documented most extensively by George Borts in a 1960 article.[6] In this article, Borts presented the results from a cross-sectional analysis of freight costs for Class I railways in the U.S., based on data from the 1950s. The results indicated some economies of density for southern and western railroads, but diseconomies of density for eastern ones. Borts adopted the earlier ICC method of allocating costs between freight and passenger services on the basis of gross tonne-miles. As first pointed out by John Meyer (and confirmed later by many others), this method overstates freight costs and understates passenger train costs. In the Borts study, this would have overestimated the freight-related costs on the more passenger-intensive railroads in the east, thus giving rise to the estimation of diseconomies, rather than economies, of density in this region.

Shortly after Borts, Kent Healy published the results of his study dealing explicitly with traffic (i.e., density) economies.[7] His results revealed traffic economies up to a density of about 3 million revenue tonne-miles of freight per mile of track. His results were also likely to have been biased due to the measurement of output in terms of total revenue (from both freight and passenger services). Since high-density routes tend to be

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5. See George Borts, "Increasing Returns in the Railway Industry," Journal of Political Economy, Vol 62 (August 1954), pp. 316-333; John R. Meyer and Gerald Kraft, "The Evaluation of Statistical Costing Techniques as Applied in the Transportation Industry," American Economic Review, Vol. 51 (May 1961), pp. 313-335; George Borts, "Statistical Cost-Estimation-Discussion," American Economic Review, Vol. 48 (May 1958), pp. 235-238.

6. George A. Borts, "The Estimation of Rail Cost Functions," Econometrica, Vol. 20 (January 1960), pp. 108-131.

7. Kent T. Healy, "The Merger Movement in Transportation," American Economic Review, Vol. 52 (May 1962), pp. 436-444.

also more passenger intensive, the results would have underestimated output or overestimated unit costs on these routes where the railways were experiencing substantial losses from passenger train operations. Thus, density economies present at the higher end of the density scale could have gone undetected.

The more recent studies on the topic are more conclusive and suggest that density economies continue to be realized at much higher traffic densities than the earlier estimates (e.g., Healy's estimate of 3 million tonne-miles per track mile). Further analysis on the same data and methods confirmed that Borts' results were indeed biased due to the allocation of costs on the basis of tonne-miles.[8] A number of other empirical studies, based on data from the late 1960s and early 1970s, found strong evidence of increasing returns on traffic density.[9] Since these studies use different methods of cost estimation (e.g., Cobb-Douglas production or investment functions, or linear total cost functions), the actual results are difficult to compare. In a recent survey of this literature, however, Theodore Keller observes that most of these studies yield cost functions that flatten out (or the difference between average and marginal costs becomes negligible) at roughly the same density range of 8 to 10 million tone-miles per route mile. Reviewing the actual traffic densities observed in most parts of the U.S. railway system, Keller concludes that "a large fraction of the nation's rail system operates subject to increasing returns to traffic density, while the

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8. Ann F. Friedlaender found density economics to exist on most U.S. railroads across the country, "Social Costs of Regulating the Railroads," American Economic Review, Vol 61 (May 1971), pp. 226-234.

9. Theodore E. Keller, "Railroad Costs Return to Scale and Excess Capacity," Review of Economics and Statistics, Vol. 56 (May 1974), pp. 201-208; Robert G.Harris, "Economics of Density in the Railroad Freight Industry," Bell Journal of Economics, vol. 8 (Autumn 1977), pp. 467-482; Edward Miller, "Economics of Scale in Railroading," Proceedings - 14th Annual Meeting, Transportation Research Forum, Vol. 14, No. 1, (1973), pp. 683-701; and Richard C. Levin, "Regulation, Barriers to Exit, and Railroad Investment Behaviour," in Gary Fromm (ed.), Studies in Public Regulation (MIT Press, 1981), pp. 181-224.

more important mainlines are more likely to operate at near-constant returns to traffic density."[10] The results of later studies, based on more flexible translog cost functions, also confirm the presence of increasing returns on traffic density.[11]

Although there has been some confusion in the literature concerning the distinction between economies of firm size and economies of density, a number of empirical studies have tried to measure returns to firm size, holding traffic density constant. With perhaps one exception[12], none of the recent empirical studies have found any evidence of increasing returns to firm size in the railway industry. Keller found constant returns, while Friedlaender and Spadey actually discovered some evidence of decreasing returns, which could be attributed to managerial diseconomies.

Even in the absence of economies of firm size, increasing returns on traffic density could give rise to a natural monopoly situation. Along a specific route, it may be more efficient for a single firm to handle all the existing traffic than for two or more firms. In the absence of economies of firm size, the natural monopoly will, of course, only be a local one. With increasing returns on density, competition will drive all but the most efficient of the competing railways on the same route out of business. Once the most efficient firm is left alone on that route, however, it does not follow that the firm will be able to extract full monopoly rents.

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10. Theodore E. Keller, Railroads, Freight, and Public Policy (The Brookings Institute, 1983), p. 57.

11. Ann F. Friedlaender and Richard H. Spadey, Freight Transport Regulation: Equity, Efficiency and Competition in the Rail and Trucking Industries (MIT Press, 1981); Douglas W. Caves, Laurits R. Christensen and Joseph E. Swanson, "Productivity Growth, Scale Economies, and Capacity Utilization in the U.S. Railroads, 1955-1974," American Economic Review, Vol. 71 (December 1981), pp. 994-1002; and Donald J. Harmatuck, "A Policy Sensitive Railway Cost Function," Logistics and Transportation Review, Vol. 15 (May 1979), pp. 277-315.

12. Caves, Christensen and Swanson, op.cit., found some increasing returns.

Increasing returns to density is not a sufficient condition for the single firm to behave as a monopolist. As long as there are no barriers to entry or exit and free access to the same technology, the single firm will operate under the threat of "hit-and-run" entry. This will make the firm a "contestable natural monopoly," imposing the same discipline on the firm as perfect competition.[13]

The condition that gives rise to a natural monopoly in the railway industry is density economies, but the issue of contestability requires further discussion of the actual causes of increasing returns on density that a railway firm enjoys. Density economies in railway operations can be attributed to two factors. First, there are scale economies involved in line-haul operations.[14] This issue has not received much attention in the econometric literature, and empirical evidence is scarce. However, operational considerations clearly suggest that crew, fuel and even switching costs decline with train size.[15] The railway's ability to assemble large trains is determined by the volume of available traffic. As traffic volumes increase, the railways can also utilize their equipment more effectively, reducing both the capital and maintenance costs of rolling stock. At higher densities therefore, the railway can perform line-haul

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13. John C. Panzar and Robert D. Willig, "Free Entry and Substantiability of Natural Monopoly," Bell Journal of Economics, Vol. 8 (Spring 1977), pp. 1-22. For a more extensive review of contestability, see William J. Baumol, John C. Panzar and Robert D. Willig, Contestable Markets and a Theory of Industry Structure (Harcourt Brace Jovanovich, 1982).

14. Such density economies were discussed by Edward Miller, "Economies of Scale in Railroading." Proceedings-14th Annual Meeting Transportation Research Forum, Vol. 14, No. 1, (1973), pp. 683-701.

15. In parametric cost models, for example, most of these items would be mainly a function of train kilometres, with only a small portion varying with additional car kilometres.

operations more efficiently.[16] However, even if such density economies arising from line-haul operations were significant enough to lead to a natural monopoly situation on a given route, they should not raise serious concern. These types of density economies will in no way inhibit the contestability of the railway. There is nothing inherent in the nature of the rail carriage business (i.e., line-haul operations) that would pose an entry or exit barrier. The resources that are committed in the carriage business are quite mobile, allowing the firm engaged in rail carriage to exit without having to incur any significant costs.

Second, density economies arise from fixed costs associated with the rail infrastructure (i.e., the right-of-way and track). These costs are "sunk" in the strictest sense of that concept, since once the resources are committed they basically become immobile. In other words, infrastructural investments in rail transport violate the basic conditions of "free exit," and by the same token, represent barriers to entry. In railways' current cost accounts, sunk costs may represent relatively small items since in the absence of any new construction for so many decades, railways' fixed assets have been largely depreciated; in other words, the infrastructural investments have been written off in accounting terms. From the standpoint of contestability, however, the more important consideration is the replacement cost of the basic infrastructure, since it is this amount that the new firm would have to invest in order to enter the market. From an economic perspective, therefore, sunk costs in rail infrastructure are indeed large in magnitude, representing a significant barrier to entry. Moreover, in view of the difficulties of acquiring new rail right-of-way in today's already built-up environment, such a barrier is probably insurmountable. Thus,

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16. Although this issue has not been addressed directly in econometric studies of rail costs, it has been confirmed that high route density results in higher profits: Robert G. Harris and Theodore E. Keller, "Determinants of Railroad Profitability: An Econometric Study" in Kenneth T. Boyer and William G. Sheppard (eds.), Economic Regulation: Essays in Honour of James R. Nelson (Michigan State University Press, 1981), pp. 37-54.

whether fixed infrastructure costs represent a significant item in today's operating environment or not, their sunk nature gives rise to a natural monopoly and makes that natural monopoly uncontestable.

2.2 Horizontal Scope Economies

The natural monopoly conditions were discussed above in a single product setting. Since the railways' output mix is quite diverse, it is necessary to extend the natural monopoly discussion to the multi-product case. The recent literature on scale economies and natural monopoly in multi-output production is quite extensive, but again it is not necessary to engage in a technical review of this material. For the purposes of this study, it is sufficient to touch on some of the more pertinent issues.

The conditions for a multi-product natural monopoly (MPNM) are much more complex, but in principle quite similar to the single product case.[17] The concept of MPNP is simple: it must be more efficient for one firm to produce a given output set than for a number of competing firms producing that same output set (or its subsets in any combination). The basic difference from the single product case is that for an MPNP to exist, there must be scope economies as well as product-specific scale economies.[18]

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17. See for example, John C. Panzar and Robert D. Willig, "Economics of Scale in Multi-Output Production," Quarterly Journal of Economics, Vol. 91 (August, 1977), pp. 481-494; William J. Baumol, Elizabeth E. Bailey, and Robert D. Willig, "Weak Invisible Hand Theorems on the Sustainability of Multi-Product Natural Monopoly," American Economic Review, Vol 67 (June 1977), pp. 350-365; Robert D. Willig, "Multi-Product Technology and Market Structure," American Economic Review, Vol. 67 (May 1979), pp. 346-351. Most of this material is contained in William J. Baumol, John C. Panzar and Robert D. Willig, Multi-Product Technology and Market Structure (Harcourt Brace Jovanovich, 1982).

18. Stated simply, product-specific scale economies for any product must exist for all output levels for that product and for all combinations of outputs of other products that the same firm is producing. In addition, at all levels of output, the unit costs of producing any product in combination with other products must be lower than in the case where the product is produced by itself. William J. Baumol, "On the Proper Cost Test for Natural Monopoly in a Multi-Product Industry," American Economic Review, Vol. 67, (December 1977), pp. 809-822.

In a recent review of the literature, Theodore Keeler noted that "because little work has been done to empirically test the criteria for multiproduct natural monopoly in the railroad industry, (he could not) provide anything close to definitive evidence on the extent to which analysis in a multi-product framework would affect the results."[19] The only empirical study referred to in Keeler's review is on a small sample of Class III railroads in the U.S. where the existence of MPNM conditions is tested.[20] This study hypothesizes that if "way-and-structure costs were included, there would be enough economies of scale and scope to guarantee natural monopoly at the low densities at which the Class III railroads operate." It is, of course, difficult to generalize from these results, based on a very restrictive sample, to the railroad industry at large. Keeler, however, notes that the results make good intuitive sense:

> At low densities, different types of freight share both trains (with more than one type of commodity on the train) and track. As more commodity types are carried on a given route, they are carried at lower costs, because the trains are longer and the tracks are better utilized. And as increases in any one commodity type allow for longer trains and better plant utilization, scale economies as well as economies of scope result (p. 61).

Despite his qualifying remarks, Keeler's generalization is questionable. The evidence does not necessarily suggest anything more than increasing returns on density, which are known to exist, at least until the available track capacity is fully utilized. Most railways do, of course, handle different types of traffic. The reasons they expand their output mix is, however, to generate sufficient traffic to utilize their available capacity, and not necessarily to take advantage of any inherent scope economies in joint production.

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19. Theodore E. Keeler, Railroads, Freight and Public Policy (The Brookings Institute, 1983), pp. 58-59.

20. Sergio Jara-Diaz and Clifford Winston, "Multi-Product Transportation Cost Functions: Scale and Scope in Railroad Operations" (Massachusetts Institute of Technology, April 1981).

In fact, it would be to the railway's advantage to standardize its output mix to the extent possible, since specialization is likely to simplify operational requirements and even reduce certain costs (e.g., equipment maintenance). Taking a more specific example, it is not difficult to see that in the assembling of a train, the mixing of rail hopper cars with boxcars or flat cars would not necessarily offer any operational or cost advantages. The only reason why the railways would engage in such mixed operations is to assemble efficient-sized trains, and utilize existing track capacity efficiently, with whatever traffic is available.

Thus, a search for scope economies in rail carriage would not likely be too fruitful. The critical issue is density economies, which the railway will try to realize by expanding its output. It is difficult to see why the particular mix of that output would be important in examining the natural monopoly characteristics, particularly the contestability, of the railway.[21] As noted by Keeler and many others, however, there is very little, if any empirical evidence on the subject. Accordingly, the hypothesis that is posed here in conceptual terms would naturally benefit from further empirical study.

2.3 Vertical Scope Economics

Instead of disaggregating the railway's output mix at the carriage end of the business, a "vertical" distinction is more helpful in understanding the production characteristics of the industry. A railway company can be viewed as producing two very distinct sets of outputs: track capacity and transportation service. Treating track capacity separately, it is obvious that there would be product-specific scale economies arising from fixed infrastructure costs (both right-of-way and track). Moreover, due to the

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21. This should not suggest that the output mix is of no relevance to the railway. Both the revenue and cost characteristics of different types of output are clearly different, as well as the directional and seasonal variations in demand. The railway will clearly consider these factors in designing an efficient output mix which would fully utilize its capacity.

sunk nature of these costs, the resulting natural monopoly would be an uncontestable one. In the case of the transportation (or carriage) service, there may also be product-specific scale economies (e.g., unit costs declining with train size). However, it is difficult to imagine that such scale economies would be significant enough to give rise to a natural monopoly. Even if this were the case, there is no reason to suggest that such a natural monopoly would be uncontestable. As long as other firms had access to the same track, the natural monopoly would always be subject to effective hit-and-run entry.

Looking at the natural monopoly in the two-product setting, the critical question is whether there would be scope economies involved in the joint production of track capacity and transportation service. This is a difficult question to address empirically since joint production is the general industry practice. The only exceptions are the rail passenger authorities (i.e., Amtrak in the U.S. and VIA Rail in Canada) operating on other railways' track, and cases where there are running right agreements for one railway to operate over another railway's track. It would clearly be difficult from these isolated cases to infer the production cost characteristics of the rail freight industry at large. However, some discussion on the joint production of track capacity and transportation service may help to shed light on the issue of scope economies.

In this two product setting, a natural monopoly would exist if it was cheaper for one firm to provide both the track capacity and the transportation service, than two firms performing these functions separately. In the first instance, the current industry structure where the two functions are largely integrated may well suggest that this is indeed the case for rail transportation. However, the matter has not been studied sufficiently to demonstrate that there are indeed scope economies involved in joint production. On the one hand, it could be hypothesized that the railway cost characteristics and the inherent scope economies have given rise to the particular industry structure that is observed today. On the other hand, historical factors and regulatory policies might have given rise

to the status quo, which might not necessarily represent the most efficient industry structure today. Without more rigorous empirical study, it is, of course, difficult to address these questions. All that can be done at this stage is to suggest an alternative conceptual framework which may provide further insights into industry structure.

The firm owning the railbed represents a classic case of an uncontestable natural monopoly due to the sunk nature of its costs. By virtue of the monopoly power it enjoys, the firm also has the choice of selling its output (i.e., track capacity) or using it to engage in the next stage of production. If the firm were to choose the former option, other firms will step in and purchase track capacity from the monopolist as input to the provision of transportation service (or carriage). If the scale economies in this second production stage are not sufficient to give rise to a natural monopoly, there would be multiple firms competing to provide the transportation service. In this framework, the uncontestable monopolist owning the railbed would be in a position to extract full monopoly rents from the competing carriers.

On the other hand, the producer of track capacity could choose not to sell its output to others, and instead extend its monopoly power to the transportation end of the business as well through vertical integration. In other words, the firm can choose to produce both outputs as a natural monopolist. As long as the firm is uncontestable at the track end of the business, it can continue to provide transportation service as an uncontestable natural monopolist as well. The historical evidence may suggest that it is in the railway firm's best interest to choose this vertically integrated production pattern. Historically, however, the decision to vertically integrate the transporation services with the provision of track capacity has not been a conscious industry decision. The modern railway firm came into being as an integrated entity. The railways in the U.S., as well as in Canada, were constructed to open up new transportation markets. Later, the owners of the railbed did not see it in their best interest to divest

themselves of the actual carriage business. There were clearly no cost advantages in separating the two functions.

This observation in and of itself, however, cannot be taken as evidence of the fact that there are significant scope economies involved in the integration of the two functions. With the appropriate regulatory means, the separation of track and carriage could have been achieved. This might have imposed certain additional operational and/or contractual costs on the railways, but at the same time, have led to other social benefits resulting from a more competitive rail carriage industry. As argued later in this report, the need for more competition in rail transport is great, while the additional costs of separating track and carriage are not likely to be significant.

In summary, the railway firm can be characterized as a producer of two vertically integrated products or services. At the track end of the business, it is an uncontestable natural monopoly due to large sunk costs. It extends its monopoly position to the provision of transportation services by virtue of being able to restrict access to the railbed it owns. If this entry barrier set up by the owner of the railbed did not exist, the cost characteristics of the carriage business are such that effective competition (or at least contestability) can be sustained without any regulatory intervention. In the vertically integrated structure, the product the railway firm sells in the marketplace is, of course, the transportation service. As a result, it is the provision of transportation service that is regulated. It is quite feasible, however, to shift the regulatory onus to the provision of track capacity, which is the real cause of the natural monopoly. This could then bring more market competition to bear on the provision of transportation service. Such a shift would require a separation of the ownership of the railbed from that of the means of transportation, or at least, would deny the owner of the railbed exclusive carriage rights. This is the subject of the next section.

3. OWNERSHIP OF TRACK AND CARRIAGE

As discussed in the previous section, sunk costs in the right-of-way and track make the railway "uncontestable" in the provision of infrastructure. Since it controls the use of the infrastructure, however, the railway extends its monopoly power to the provision of transportation services as well. If, on the other hand, competing firms were to be provided with free access to that infrastructure, rail transport could sustain open competition; there is nothing inherently monopolistic in the carriage end of the business. The ownership of rail transport can, therefore, be conceived in a dual structure: the infrastructure can remain an uncontestable natural monopoly, and rail carriage can become competitive if it can be separated from the infrastructure.

In the following sections, the concept of separating the ownership of track infrastructure from the carriage business is examined. The discussion starts with an overview which draws on quotations from those who have advocated the concept over the years. The operational concerns associated with the concept are reviewed, but found to be largely unwarranted. The discussion then turns to the industry experience with shared track arrangements, which provides ample evidence that the concept is indeed technically feasible. Finally, a fairly standard trackage right agreement is suggested as a basis for the contractual arrangements between a roadbed utility and independent carriers operating on it.

3.1 The Utility Concept and Competing Carriers

In principle, the basic concept of separating the ownership of infrastructure from carriage is a simple one. The infrastructure can be nationalized and operated as a publicly owned utility for private carriers to compete on. Alternatively, the infrastructure could be separated from carriage and left in private ownership to be run as a utility. In either case, the owner of the railbed would be prevented from extending its monopoly powers into the carriage business by simply being able to integrate the two operations. Under this model, rail infrastructure would in all likelihood have

to be regulated, either as a privately or publicly owned utility, since it possesses uncontestable natural monopoly characteristics. This would require some mechanism for controlling the prices that the infrastructure owner could charge independent carriers, as well as contractual guidelines for operating agreements between the two parties. Independently owned carriers could operate on the infrastructure with very little additional economic regulation.

This concept, of course, is not new. In the early days, railroads were simply fixed ways on which operations closely resembled the other transport modes of the era, turnpikes and canals. Only in the mid-1880s did the current industry structure emerge with railways becoming integrated companies owning the roadway as well as providing carriage on it. By the end of the century, the separation of the ownership functions was being talked about again. In 1889, a leading railroad lawyer of the time, W.D. Dabney, made the following observations:[22]

> The modern function of the railroad company as the exclusive carrier upon its road has become so familiar, that it is somewhat difficult to realize fully the original conception of its function, as a highway upon which numerous carriers might compete for business...But there is no necessary connection between the two functions of furnishing the road and carrying upon it. Much less is there any legal reason why the railroad company should be the exclusive carrier over its road. It is undoubtedly true that "in practice, as a general thing, railroads are only operated by companies that own them, or by those with whom they have permanent arrangements for the purpose. The companies have a practical if not a legal monopoly of their use." (However) the general course of legislation "sufficiently demonstrates the fact, that in the early history of railroads it was quite generally supposed that they could be public highways in fact, as well as in name."....it has been judicially declared, that the exercise of the right of eminent domain, in the construction of railroads, and the levy of taxes to raise subsidies in their aid, are justified only by the fact that railroads are public highways.

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22. W.D. Dabney, Public Regulation of Railways, quoted in Daniel J. Overbey, Railroads - The Free Enterprise Alternative (Quorum Books, 1982), pp. 113-115.

> ...the application upon any railroad line of the theory of free competition, might, in some branches of trade and transportation, be highly beneficial, and might result in a partial solution, at least, of many of the most perplexing problems of railroad transportation.

Although the ideas date back to the past century, it is indeed surprising that after so much has been written on railway economics, the idea of separating the ownership of track and carriage has received so little attention. Perhaps the only comprehensive treatment of the concept to date is by Daniel Overbey.[23] Before reviewing Overbey's proposal, written under the slogan "Railroads: The Free Enterprise Alternative," it may be instructive to mention the few cases where the underlying concepts have received some attention. A more comprehensive account of these discussions can be found in Overbey's book including the original quotations from W.D. Dabney cited above.[24]

In the 1940s, Charles Dearing and Wilfred Owen examined the concept of user fees as a means of assuring equal treatment for all transportation modes.[25] They recognized that the particular structure of the rail industry posed serious policy problems:

> Desirability of user charges in their capacity to reflect the relative economy of the various transport agencies would of course be increased, if the same method of financing applied to the railroads...It is obvious, because of the public nature and joint use of highways, waterways, and airways, that the goal of uniformity should not be sought by imposing the railroad financial pattern on these undertakings. On the contrary, comparability among transport agencies would suggest that the basic facilities of the privately owned railroads - terminals, right-of-ways, roadbed and track - be publicly provided with privately owned equipment operating over the public ways...This possibility suggests a more desirable solution than the alternative of ultimately resorting to complete public ownership of the railroads (pp. 129-130).

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23. W. Daniel Overbey, op.cit.

24. ibid, pp. 113-125.

25. Charles L. Dearing and Wilfred Owen, Natinal Transportation Policy (Brookings Institute, 1949)

In the same vein, James C. Nelson (1959) advocated full cost recovery in all transport modes, but recognized the special case of the railroad industry:[26]

> Complete neutrality in treatment of competing agencies will be difficult without government ownership of rail roadways, thereby converting way capital costs and fixed expenses into variable user charges, making government expenditures available as a source of capital investment as conditions may require, and enabling the railroads also to escape the burden of capital costs merely by curtailing or abandoning operations (pp. 429).

More recently, Charles P. Zlatkovich advanced the concept of an Interstate Rail System (IRS), similar in scope and function to the Interstate Highway System.[27] This involved "the selection of the preferred routes from among the various alternate routes and consolidation of available through traffic on the preferred routes." His proposed consolidated system (consisting of nearly 40,000 miles of roadway selected from the entire 200,000-mile rail network in the U.S.) would have the advantage of rationing badly needed capital improvements for selected parts of the existing network, while abandoning less desirable routes. He suggested that the IRS could be developed by making public funds available to various individual railroad companies for designated improvements. Alternatively, however, the public sector could acquire the rail infrastructure and invest in capital improvements directly. The latter option, he argued, "would place rail transportation on the same basis as air, highway, and inland waterway transportation, all of which involve private operation of publicly owned facilities."

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26. James C. Nelson, Railroad Transportation and Public Policy (Brookings Institution, 1959).

27. Charles P. Zlatkovich, "The Interstate Rail System," Transportation Research Forum, Proceedings, Sixteenth Annual Meeting (Volume 16, 1975), pp. 42-45.

At about the same time Daryl Wyckoff advanced a similar concept:[28]

> I propose that the federal government undertake a project to purchase major segments of railroad track and right-of-way for the purpose of developing a modern high-speed railroad track system for public use...The railroads would be responsible for development of classification yards and track connecting their own roads with the Federal Track System. This feeder track would be analogous with the secondary road that now connects the Federal Interstate Highway System....Charges for use of this track system would be made on a user tax basis, again shifting fixed costs of railroading into variable costs, more like the cost structure of the motor carriers...As it would be a government-provided facility, it makes sense for several operators to use it (Federal Track System) jointly.

In the more comprehensive treatment of the concept, Daniel Overbey put forth a proposal for a complete restructuring of the rail industry:[29]

> Rail roadways would be owned by regional "toll road" companies, unaffiliated with any particular carrier company. Carriers would be privately owned, and all types of carriers would be allowed to use the roadway network: common, contract, and private.
>
> Unlike previous proposals which envisioned government ownership of rail roadways, the free enterprise alternative proposes private ownership of rail roadways in the form of regional roadway companies. All roadways in a given geographical area would be owned, maintained and operated by a regional railroad company....The functions of the roadway companies would be similar to those performed by the State Highway Departments for highway carriers except that the roadway companies would be private enterprises....Roadway companies would be natural monopolies, like utility and telephone companies, and would require stringent yet protective economic regulation.
>
> Existing railroad companies would become carrier companies by transferring their roadways to the regional roadway companies....The numerous carrier companies would operate in a highly competitive environment and would be subject to little or no economic regulation....Many carrier companies of different types would share use of the entire roadway network, allowing rail shippers to receive competitive service over the same track from a number of carriers. Shippers would have the option of operating their own trains as private carriers. Common use of all rail roadways would encourage competition while eliminating captive industries and monopolies of service.

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28. Daryl D. Wyckoff, Railroad Management (Lexington Books, 1976).

29. Daniel L. Overbey, op.cit., pp. 127-29.

The concept has not been forgotten in the post-deregulatory literature either. Although it may not be at the centre of any major policy debates, it is still discussed, at least by those who recognize that the Staggers' Act was not the final answer to industry problems. John Spychalski ends a recent article on the effects of deregulation as follows:[30]

> A far more audacious and politically difficult course of action (but not a new idea) would be to introduce greater intramodal competitive pressure via a change in industry structure that would separate the ownership of intercity rail infrastructure (right-of-way, track, and train movement control) facilities from the ownership of entities engaged in the supply of movement services. Infrastructure ownership could be vested in either quasi-independent self-financing public authorities or regulated private companies drawing their revenues from charges paid by firms that would operate trains over the infrastructure facilities. Access to the infrastructure would be open to all technically qualified parties seeking usage. Yard and terminal facilities could be provided in some instances by intercity infrastructure entities and in other situations by train-operating firms. If the institutional obstacles and operational problems relating to this approach can be overcome, it might well provide a more efficient alternative than any attempt to regulate commercial behavior in the railway industry as currently structured.

3.2 Operational Concerns

The idea of separating the ownership of track and carriage operations tends to raise concerns that are perhaps understandable, since the concept defies conventional wisdom. The most common objections are raised on technological grounds. The following views held by Theodore Keeler, for example, are fairly typical:[31]

> ...rail technology is unlike highway and air technology in that it offers much less opportunity for one train (or vehicle) to pass another without stopping or slowing down, going in either opposite directions or the same direction. The result whenever the trains of one railroad operate on the tracks of another is often a bitter dispute about whose trains will get priority. The potential for conflict rises considerably if the trains travel at different speeds, as is inevitable with different degrees of service-sensitivity of traffic.

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30. John C. Spychalski, "Progress, Inconsistencies, and Neglect in the Social Control of Railway Freight Transport," Journal of Economics Issues, Vol. 27 (June 1983), pp. 433-442.

31. Theodore E. Keeler, Railroads, Freight, and Public Policy (Brookings Institution, 1983) pp. 130-131.

It is also not surprising that, on similar grounds, the concept has always been opposed by the rail industry as evidenced Daryl Wykoff's summary of the position taken by the Association of American Railroads:[32]

1. Complicates the problem of optimizing track construction and maintenance standards with equipment design, operating policy and traffic growth expectations. The result will necessarily be some increase in the overall cross of rail transportation.

2. Presents difficult (although not insurmountable) problems in train control and operations, problems that will necessarily increase the cost associated with the installation and operation of train control systems, to say nothing of the cost of the additional trackwork, which probably will also be involved.

3. Presents special difficulties (not readily surmountable) in terminal design and operations, difficulties that will further increase both capital and operating costs.

4. Generally insures an increase in the cost of providing railroad fixed plant, because of the intrusion both of politics and of bureaucratic inefficiencies into management decisions.

5. Generally politicizes decisions on:

   - Fixed plant improvement and maintenance
   - The abandonment of uneconomic and redundant rail lines
   - Railroad operating lights
   - Use of terminals
   - Grade crossing elimination
   - Railroad labour contracts, including most importantly, contracts with operating crafts

6. Opens up the use of railroad fixed plant to private and restricted-commodity carriers, who will enter into rail operations under the guise of providing "competition" for existing common carrier railroad operating companies. These new carriers will skim the cream (heavy, longhaul, base load traffic) off the railroad common carrier market, all to the direct benefit of the largest industrial corporations.

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32. Daryl D. Wykoff, op.cit., pp. 132-133.

Wykoff notes that "these operating objections may not be as telling as the Association of American Railroads would suggest." They are put forward to protect the entrenched interest of the railways, but it is questionable whether they have any real foundation. As discussed in more detail later, current industry practices provide plenty of evidence to suggest that the problems could be, and are indeed, overcome. The position taken by the industry can simply be part of a strategy to fend off additional competition. It is obviously in the industry's best interest to receive public assistance (e.g., public funds toward capital improvements), without having to forego any of their monopoly power by opening up to new competition.

A study done for the United States Railway Association makes the following unequivocal statement on the advantages of joint track operations:[33]

> The principal attraction of joint operations is the possibility of reducing operating cost for tenant and owner through utilization of excess capacity of owner plant and elimination or down grading of the tenants' existing facilities. Where excess capacity exists and the number of trains diverted does not bring overall traffic density to a high level, train operating costs are not appreciably increased...A major operational saving from trackage rights agreements is reduced maintenance-of-way costs to both parties.

This particular study on trackage rights estimates delay costs, but does not cite any additional operating costs incurred as a result of track sharing. The delay costs are, of course, capacity related and have little to do with whether the track is used exclusively by the owner or shared by others. If the railway company (the conventional owner-operated railway) does not incur additional costs associated with leasing part of its track capacity to other railways, there is little reason why railway operations under the scenario proposed, for example, by Daniel Overbey would be any more costly or problematic than the conventional owner-operated railway.

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33. Thomas K. Dyer, Incorporated, Trackage Rights Study (United States Railway Association, 1975).

There may be some additional costs associated with the logistics of sharing and contracting among different parties, but it is difficult to imagine that these costs would be great enough to undermine the feasibility of the entire concept.

In a major study done for the Canadian government to relieve the railways of their roadbed costs, a consortium of railway consultants (R.L. Banks & Associates, P.S. Ross & Partners, M.P.S. Associates, and M.W. Menzies Group) and prominent railway economists (George H. Borts and George W. Wilson) reach the following conclusion about separating the ownership of the railbed from rail carriage:[34]

> In discussing these alternatives, two basic assumptions have been made. First, it has been assumed that there is no technological barrier to the operation and maintenance of railway equipment by an entity separate and distinct from one operating and maintaining the roadbed. Second, it has been assumed that, after an appropriate period of adjustment these two aspects of a railway can be managed and run as separate entities while maintaining an overall level of efficiency at least equal to the existing method of operation. Objection may be taken to these assumptions, because of their implicit alteration of conventional railway wisdom to the effect that all operating and engineering functions of commercial railway service must be managed by a single entity from a point of common control. At a time of accelerated institutional change in the world's railways, there is believed to be nothing sacred about organizational structures rooted in early Victorian England. In other transport modes, air and water, for example, a distinct separation between entities responsible for infrastructure (whether private or public) and those providing for-hire carriage (be they public or private) is taken for granted. It will perhaps be argued that the fixed-guideway technology of railways somehow mandates the continuation of such total function hierarchies as have heretofore prevailed. It is believed that the burden of that proposition rests on those who advance it.

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34. R.L. Banks, et al., Roadbed Costs and Cost Relief Options for Canada's Contiguous Railways (Federal-Provincial Committee on Western Transportation, 1975).

3.3 Review of Current Industry Practices

In order to demonstrate the feasibility of separate ownership of track and carriage operations, it is instructive to review the extent of trackage rights currently exercised in the industry. A useful review of the subject (trackage rights together with interchange, detouring, joint track, pair track, and car-handling contracts) was undertaken a few years ago by Jerry Pinkepanke.[35] The basic definition of trackage rights is "the use by one railroad of the tracks of another for an agreed fee, in which the tenant line furnishes its owns motive power crews and the owning line performs maintenance of way and dispatching." The tenant railway may also be granted traffic rights, which basically allows it to pick and deliver traffic from the facilities of the owner. Some of the major trackage rights cited by Pinkepanke add up to 5,500 miles of route distance, including:

- Conrail on Amtrak in the Northeast corridor (557 miles)
- Boston & Maine, CP Rail and Central Vermont variously share Connecticut River Valley line in Vermont and New Hampshire (134 miles)
- Norfolk & Western (X-Wabach) on Canadian National from Windsor to Blackrock, New York (228 miles)
- Union Pacific on Santa Fe from Daggett to Riverside Junction, California (101 miles)
- Burlington Northern on Illinois Central Gulf from Mexico to Kansas City (163 miles)
- Southern Pacific on Western Pacific from Weso to Flamingan, Nevada (151 miles)

A special case of trackage rights is the paired track arrangement, by which two railways combine two separate single-line operations into one double-track operation, achieving a substantial increase in joint track capacity. The longest paired track operation cited in Pinkepanke's review is in Nevada (between Winnemucca and Wells) jointly operated by Southern Pacific and Western Pacific (190 miles).

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35. Jerry A. Pinkepank, "When (and Where and Why) Railroads Share Track," Trains (January 1979), pp. 20-29.

Distinct from trackage rights, there are also joint track agreements. Irrespective of the actual ownership of the railbed, two or more railways can jointly operate track, either on a cooperative basis or by setting up a subsidiary at arm's-length. Examples given by Pinkepanke include:

- Rock Island and Fort Worth and Denver (a Burlington Northern subsidiary) are co-owners of 225 miles of track in Texas, which they operate by rotating the responsibility for operations and maintenance every five years.
- Part of the former Chicago and Eastern Illinois mainline (81 miles) became joint line after its sale to Louisville & Nashville.
- Camas Prairie railroad is a Burlington Northern and Union Pacific joint operation in Idaho.

Other examples of joint-track operations include various terminal railways owned jointly by connecting linehaul railways. Examples include the following:[36]

- In the Chicago area there are three major terminal railways: The Belt Railway Company is owned jointly by eleven linehaul railways, Indiana Harbour Belt Railroad Company owned by two connecting lines but providing service to all the railways serving the area, and Baltimore and Ohio Chicago Terminal Railroad Company owned by the Chessie System.
- Houston area is served by two terminal railways: The Houston Belt and Terminal Railway Company co-owned by, and performing switching operations for four different railways; and Port Terminal Railroad Association performing switching services, jointly owned by the principal linehaul railways in the area and the Port of Houston Authority.
- Kansas City area is served by 12 different railways which jointly own and operate the Kansas City Terminal Railway company.
- St. Louis is served by two terminal railways: Terminal Railroad Association of St. Louis provides access to the area by all linehaul railways; Alton and Southern Railway Company provides access to the local industries by its two principal owners, Missouri Pacific Railroad and the St. Louis-Southwestern Railways.

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36. For a more detailed review on the subject, see R.L. Banks and Associates, Effectiveness of Joint Terminals in the United States, A Report to the Government of Saskatchewan (May 1982).

Railways grant trackage rights or engage in joint track operations when such practices are mutually beneficial. The need for such practices may arise in non-competing situations where two railways approach a city from different directions and need each other's track to provide service to the opposite end of the city. Alternatively, competing railways may engage in such practices to avoid the cost of duplicate facilities for serving the same area. Similarly, competing railways may exchange trackage rights in different areas if such reciprocal arrangements appear mutually beneficial. If two railways have excess capacity in their respective systems along the same route, one of them may decide to abandon its own railbed and utilize its competititor's excess capacity, a mutually beneficial practice that would reduce one railway's operating and maintenance costs and generate revenue for the other. In other cases, temporary trackage rights may be granted in an emergency (e.g., derailment) situations or during construction periods - a practice which is generally referred to as detouring.

All these arrangements are, and have been for a long time, common industry practices. There is little evidence that such practices cause general operational problems or give rise to significant additional expenses. In other words, the body of experience accumulated over more than a century attests to the feasibility of joint operations, or the sharing of the same track by multiple rail carriers. The railways engage in such practices at their own convenience, but oppose them in principle when they are promoted to make the industry more competitive. Their position, therefore, can only be interpreted as a defensive strategy against more competition, rather than a real concern based on operational and economic considerations.

3.4 A Contractual Framework

The relevant question is not whether trackage rights arrangements work in practice, but rather, how they work. In this regard, it is instructive to review the contractual arrangements that govern the relationship between owner and tenant railways in both the granting of trackage rights and joint track operations. The aforementioned Trackage Rights Study by

Thomas K. Dyer (1975) reviewed the wide selection of existing trackage rights agreements and prepared a set of guidelines to be followed in the future. The study identified twelve contract components (service rates, control and management, maintenance, liability, arbitration, cancellation provisions, limitations on use, user charges, renegotiation provisions, return on investment, additions and betterments, and miscellaneous provisions) most widely used in contracts that were already in place, and recommended a contract format consisting of nine articles:

Article 1 - Joint Operations: defines the scope of joint operations, specifies service rates that are granted together with trackage rights and describes the establishment of communication lines.

Article 2 - Management and Control: establishes the owner's exclusive control over the facilities and specifies the operating rules and regulations that the tenant has to comply with, establishes dispatching preferences (generally providing equal access to tenants' trains), sets out timetables, and makes necessary provisions for delays and service interruptions.

Article 3 - Maintenance: rests the responsibility for maintenance with the owner (standards to be set by the owner as deemed necessary or desirable) and makes provisions for sharing the cost of accident clearance between the owner and the tenant.

Article 4 - Liability: rests accident liability with the owner of the equipment involved and provides for equal sharing of liability in cases where both parties, (i.e., tenant and owner) are involved.

Article 5 - Payments by the Tenant: specifies a fixed amount to be paid for the use of facilities (a percentage of their assessed value), obliges the tenant to compensate the owner for all direct, indirect, and common operating expenses to be allocated on a per ton-mile basis).

Article 6 - Arbitration: makes provisions for settling disputes between the two parties by one arbitrator appointed by each party and a mutually selected third arbitrator in cases where the two cannot agree.

Article 7 - Term and Renegotiation: establishes a contract period of 30 years from the date of signing, and makes provisions for the renegotiation of terms and conditions every five years.

Article 8 - Termination: gives the owner the right to terminate the agreement by giving 30 days' written notice, in the event of any failure on the part of the tenant to perform its obligations under the agreement.

Article 9 - Assignments and Succession: limits the transfer of the tenants' rights to companies that succeed to its ownership.

The most critical aspect of these contracts is the determination of an appropriate level of compensation. The most widely used principle in existing trackage agreements is "rental plus maintenance and operating costs," which is also the basic principle adopted in the model agreement discussed above. The fixed portion of charges is determined as a percentage (generally half of 6%, which the ICC has historically considered a fair return) of the valuation of the joint property and facilities. The valuation of railway assets is based on the ICC's archaic "betterment" concept. According to this concept, capital investments can be translated to increased valuation only to the extent they represent actual facility improvements. This does not present a problem in the case of new facilities, but in cases such as track replacement, the concept represents grossly distorted "economic values." If, for example, $100,000 is being spent on replacing 100 lb. rail by 115 lb. rail, only about 15% can be considered as "betterment," while the remaining 85% has to be charged to current maintenance expenditures. The owner of the railbed may reap the benefits of this improvement over a number of years, but the tenant whose interest in operating on the railbed may only be in the short term has to incur its share of the full expenses immediately.

The rental portion of track charges is usually very small. The more substantial maintenance and operating charges are generally proportioned according to some measure of traffic (wheel counts or ton-miles). Before they can be apportioned, however, they have to be recorded in what is generally referred to as joint facility accounts. Although the procedures for allocating the owner railway's system costs are very crude and arbitrary, the joint facility accounts tend to be unnecessarily detailed. As a result, the financial aspects of trackage rights agreements become unnecessarily tedious and costly to manage.

A much more effective approach to adopt would be to agree on fixed prices in advance. A reasonable charge (e.g., per train mile, or even a lump

sum for a given period if traffic levels are known in advance) can be negotiated between the owner and the tenant since both parties would be familiar with industry costs. This would eliminate the bookkeeping requirements associated with joint facility accounts, and make the agreements much easier to manage. Moreover, it would provide the owner with an incentive to minimize costs, and at the same time, provide the tenant with a degree of certainty which will ease its own business decision. As it stands now, the tenant does not know its operating costs with any degree of certainty until it is billed, and unlike the case of operating its own business, has no control over expenditures.

This is the strategy adopted by AMTRAK in negotiating operating agreements with the railways. In most cases, AMTRAK pays a trip charge to cover train crew costs, and a unit road repair and maintenance cost. In addition, it negotiates cleaning service and repair charges, and as appropriate, pays facility, rental and other administrative charges. It purchases fuel from the railways directly, and in the case of accidents, reimburses the railways for the actual costs of cleanup. There are, of course, other miscellaneous charges, such as avoidable property taxes, management fees, specific depot charges, etc., that vary depending on the actual contract. Over the years, AMTRAK has tried to tighten up its operating agreements with the railways (through what are generally referred to as First, Second and Third Amendment contracts) trying to simplify the structure of the charges involved, and introducing more effective incentive payments to improve the railways' performance (e.g., timetable adherence).

In conclusion, it can be said existing trackage rights agreements do not present the railways with any major operational difficulties or management problems. However, the compensation principles that the railways tend to adopt are unnecessarily complicated. This perhaps is symptomatic of the regulatory practices that have made rail costing an "accounting nightmare" by trying to make a "science" out of cost allocation procedures and evaluation principles. In the deregulated era, as regulatory barriers have started to give way to sound practices, there is considerable room to simplify the pricing structure governing trackage rights and joint operations.

4. OPPORTUNITIES FOR STRUCTURAL CHANGE

The concept of a railbed utility is definitely consistent with the theoretical propositions advanced earlier in this report. Among other things (e.g., equal treatment of all modes), it has the inherent advantage of transforming an industry with natural monopolistic tendencies to a competitive one which could function efficiently under market forces once the sunk costs associated with the infrastructure are recognized and separated. The technical concerns are largely exaggerated and the operational difficulties could be overcome. The principal problem, however, is that the concept suffers from its inherently radical nature, requiring a major public policy commitment which is not always easy to mobilize.

The purpose of the following discussion is to assess the prospects for separating the ownership of track from carriage in today's political environment. First, the situation in the U.S. is assessed. This is followed by a discussion of the proposed regulatory reforms in Canada, with particular emphasis on the extension of running rights. Finally, a framework is provided whereby the current regulatory reform proposals can be extended to transform the Canadian National Railway into a roadbed utility promoting a competitive rail carriage industry.

4.1 Prospects for Structural Change in the U.S.

The early policy recommendations on the issue of separating the ownership of track and carriage in the rail industry, (i.e., by Dearing, Owen, Nelson), as well as the actual proposals put forward more recently (i.e., Zlatkovich, Wyckoff), all involved nationalization of the national rail system or at least substantial parts of it. This, they argued, would put rail transportation on equal footing with all other modes, resolve the public finance problem resulting from the unequal treatment of modes, and at the same time, provide opportunities for improving what many considered to be a badly deteriorated rail system. It must be recognized, however, that all these proposals would require massive public funds, initially for appropriating the existing, privately owned railbeds and later for making

capital improvements, which would be of a magnitude to render the whole concept impractical from a fiscal standpoint.

Moreover, the political implications of such massive nationalization of private property could be too farreaching for any sensible public administrator to contemplate. Overbey's proposal recognizes this latter problem (at least implicitly by his reference to private property rights embedded in the constitution) and promotes the concept as a truly "free enterprise alternative." The practical problems of transferring the ownership of the railbed from one private owner to another, presumably by some legislative means, are still too difficult to overlook. There are the immense problems of valuing the railways' assets to be overcome before any transfer of ownership could be contemplated. Radical proposals of this nature require major political commitment which is difficult to muster unless the industry is threatened by a crisis.

Although the rail industry in the U.S. has been plagued with financial difficulties throughout this century, it has required major state intervention only in exceptional circumstances. The most recent such occasion was the Northeast Railroad crisis of the early 1970s, involving the bankruptcy of Penn Central, and other smaller railroads (Lehigh Rally, Boston & Maine, Erie-Lackawanna, Reading and Jersey Central). This situation indeed presented a setting where radical, but sound ideas could be considered. At this time, a very innovative and practical proposal was put forth by Robert L. Banks in a statement before the Surface Transportation Sub-committee of the Committee on Interstate and Foreign Commerce of the United States Senate in June 1973. The proposed structure involved one railroad operated as a federal corporation (with a charter similar to the Tennessee Valley Authority or the St. Lawrence Seaway Development Corporation), two conventional railroads and one privately operated system using publicly owned rights-of-way.

The federal corporation, the U.S. Northeastern Railroad (USNER), would "assemble in a single entity most of the troublesome problems with

Northeastern railroading which patently strain or exceed the financial capability of private railroads." Its functions could be summarized as follows:

> The USNER will operate all lines, facilities, service and trains declined by private enterprise within its territory. It will charge trackage fees for the use of its lines by Penn Central, and Norfolk & Western or Chessie, and it will pay rents and user charges to the Federal Railroad Administration for use of equipment and fixed facilities acquired from the bankrupt roads. It will operate line-haul and commuter passenger services under contract to Amtrak and the several involved state and local agencies. It will operate yards, line-haul and way freight trains and switching services. It will publish tariffs, participate in divisions, and otherwise function as if it were a privately operated railroad.

The two major railways in the region, Chessie and Norfolk & Western, would continue to operate their own systems, but would also be offered first refusal running rights on certain segments of the bankrupt system taken over by the FRA. If they chose not to exercise these rights, the lines would be operated by the USNER. The then bankrupt Penn Central would become an operating franchise, after all its properties are acquired by the FRA. It would be awarded exclusive running rights over all lines it operated on the western part of its system (west of Harrisburg/Albany), and first refusal running rights on the eastern part of its system. It would operate as a tenant of FRA, defraying equipment and maintenance-of-way costs by rents and user charges paid directly to the agency.

The principal objective of the Banks plan was to "retain essential rail services under private ownership" by providing "mechanisms to relieve the private railroads of financial burdens from essential facilities and services" which did not have sufficient earning power. In doing so, however, it would also put the concept of separate ownership of track and carriage into practice. Operating arrangements would be made for private railways to operate on publicly owned railbed, paying rents and user charges to compensate FRA for capital expenditures. The plan adhered to sound financial (both public and private) principles, and recognizing the inherent problems in the industry's cost structure, was capable of promoting both

intra- and intermodal competition. As innovative and practical as it might have been, however, it defied conventional wisdom. It, therefore, did not receive much attention as a viable alternative to the conventional solution of a publicly owned railroad, Conrail.

With a lot of public money, good management, and a sound rationalization strategy, Conrail has been very successful as a conventional railway, but from a public policy standpoint, it poses the same problems as the rest of the industry (i.e., natural monopoly conditions, uncontestability, lack of competition). The creation of Conrail marks the loss of a unique opportunity, which with a plan like the one proposed by Banks, could have brought about a long-term solution that could set an example to the rest of the industry.

In principle, the opportunity still exists as consideration is being given to the privatization of Conrail. Since the railbed is already in public ownership, running rights could easily be privatized, allowing private railways to compete on the publicly owned infrastructure by paying appropriate user charges. Alternatively, the infrastructure could be owned by a private utility, selling running rights to other privately owned operating companies (i.e., independent carriers or other established railways).

However, preoccupied with the financial success of the railway industry in the aftermath of the recent regulatory reforms, and more or less oblivious to long-term structural problems in the industry, the current administration is unlikely to give any consideration to more innovative, and potentially pro-competitive, alternatives for Conrail. In fact, if the overly cautious and conservative attitudes prevail, the ownership of Conrail is likely to end up in the hands of a consortium controlled by other railroads, paving the road for further corporate concentration in the industry.

In the meantime, pressures continue to tighten regulatory controls aimed at protecting captive shipper interests. One bill which is now in front of the Congress, "The Railroad Anti-Monopoly Act of 1985," for example,

would force the issue of trackage rights in areas where one railway dominates the market. If the bill goes through, a railway cannot deny access to captive shippers by other rail carriers, as long as they are willing to meet reasonable conditions (e.g., trackage fees, other charges, and operational standards). The proponents of the bill argue that safeguards provided under the Staggers Act to protect captive shipper interests are inadequate, and that new legislation is needed.

Trackage rights would constitute a first step towards curtailing the railways' monopoly powers over infrastructure that they own. If the concept were to receive sufficient political support, the scope of the proposed legislation could be expanded. The benefits that are offered to shippers who are deemed captive, can be extended to other lines, forcing the railways to grant trackage rights on a more universal basis. This practice would be similar to imposing a new set of public obligations on the owner-operated railways. The railways could be permitted to carry their own traffic under whatever contractual arrangements they see fit, but instead of, or in addition to, their common carrier obligations of carrying freight at published tariffs, they will be obliged to accommodate other carriers operating on their system. The railways could be obliged to issue a new set of tariffs with published trackage fees and other user charges (accompanied by operational standards) that would be applicable to any rail carrier (existing railway or independent carrier). All carriers who wish to operate in this capacity could be required to meet a set of "fitness" standards regulated by the ICC. The ICC could also be charged with the responsibility for determining the fairness of the tariffs issued by the railways, not on a universal basis but through an appeal procedure which could be triggered by any shipper, independent carrier, or other railway.

The issue of universal trackage rights is now receiving strong support from many segments of the shipping community.[37] The Department of

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37. For example, the president of the West Virginia Coal Association, Gary White, supports legislation to create universal trackage rights, whereby railroads would pay user fees but could not be barred from using a competitor's tracks (Washington Business, November 11, 1985).

Transport (DOT) also lends support to the concept. In supporting the proposed Sante Fe-Southern Pacific merger, for example, DOT offered the following remedy for increased competition:

> "Rail transportation is offered to shippers by third-party agents such as shipper associations and freight forwarders, and allowing third parties to purchase the rail access rights would generate a sufficient number of purchasers to create a functioning market, thereby assuring fair market value for the rights sold" (Traffic World, October 28, 1985, p. 10).

In conclusion, this may not be an opportune time to consider a major restructuring of the rail industry. The basic industry problems, however, are not likely to vanish in the post-deregulated era. Unregulated market forces could only work to diminish intramodal competition and foster continued corporate concentration in the industry. In time, new public policy initiatives will be needed to restore a sufficiently competitive environment in which a healthy, dynamic and technologically innovative rail industry could be fostered. The concept of separating the ownership of track and carriage, applied in small doses as in the case of mandatory granting of trackage rights, may prove to be the only way of protecting the interests of shippers that are particularly prone to the abuse of railways' monopoly powers, at least without having to return to the more stringent economic regulations of the pre-deregulatory era.

4.2 Debate on Running Rights in Canada

Although there has been extensive discussion in the last ten years on regulatory reform in the bus, truck, and air modes, the topic has not generated as much interest in the rail mode until very recently. This could perhaps be attributed to the changes that were already introduced in the 1967 National Transportation Act, at least a decade prior to regulatory reform in the U.S. The NTA gave the railways substantial freedom to set rates, but at the same time, protected the railways from intramodal price competition. At the same time, the railways started to receive direct public subsidy for 80% of the losses incurred in unrenumerative

services, such as rail passenger and branch lines. As a result, the Canadian railways and the NTA relieved the railways of a significant financial, as well as regulatory, burden. In the post-1967 period, there is indeed evidence that Canadian railways have outperformed their U.S. counterparts.[38] However, although there is no empirical evidence yet, this situation is bound to have changed after the 1980 Staggers Act.

As U.S. deregulation started to affect transborder traffic, however, the Canadian railways recognized the need for change.[39] They have been losing their share of the international market, which constitutes about a quarter to a third of their total revenue base. At the same time, shippers were quick to recognize the potential benefits of deregulation as demonstrated by the U.S. experience.[40] With these pressures mounting, in 1983 the Minister of Transport ordered the CTC to examine the effects of U.S. rail deregulation. The commission's internal inquiry recommended that public hearings be held the following year (August 1984).

It was apparent at the outset that the American practice of confidential contracting, exemptions from rate regulation, and greater reliance on intramodal competition were all basically inconsistent with the

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38. Douglas W. Caves, Laurits R. Cristensen and Joseph A. Swanson, "Economic Performance in Regulated and Unregulated Environments: A Comparison of U.S. and Canadian Railroads," Quarterly Journal of Economics, Vol. 96 (1981), pp. 559-581.

39. Richard J. Lande, "How U.S. Deregulation Hurts International Trade," Columbia Journal of World Business (Fall, 1983), pp. 65-72.

40. See for example, J.R. Edgar, "U.S. Deregulation - Implications for Canadian Shippers," Logistics and Transportation Review, Vol. 19, No. 4, (1983), pp. 325-335.

very spirit of the Railway Act in Canada. The principal issues addressed during the CTC hearings were rate transparency, collective rate making, limitations of liability, rebates and surcharges. The commission also raised the issue of whether overseas import/export traffic through Canadian ports, as well as domestic traffic within Canada, should be given treatment similar to transborder traffic. Since participants in the hearings were not prepared to address these issues, however, the commission recommended that further hearings be held to investigate these issues. The commission also recommended that the scope of these hearings should not be restricted to the effects of U.S. deregulation, but should also address the general advisability of introducing more intrarail competition in Canada. The Minister of Transport concurred with this recommendation and requested the commission to hold an inquiry. Public hearings were held through the month of April 1985.

The principal issues addressed during the hearings were confidential contracts, rate-making and appeal procedures. Another important issue which was included in the commission's terms of reference was the extension of running rights to other carriers where terminals or transshipment facilities are served by only a single railway carrier. Under current legislation, running rights can be exercised either by agreement between the railways in question, or by order of the commission. Section 94 of the Railway Act (entitled "Agreement for Interchange of Traffic and Running Rights") permits the railways to enter into any agreements or arrangements "for the running of the trains of one company over the tracks of another company, and for the division and apportionment of tolls in respect of such traffic." Under section 134 of the Railway Act, the commission can order a railway to "take possession of, use or occupy any lands belonging to any other railway company, use and enjoy the whole or any portion of the right-of-way, tracks, terminals, stations or station grounds of any other railway company, and have and exercise full right and power to run and operate its trains over and upon any portion or portions of the railway of any other railway company." Under the same section of the

act, the commission may fix the amount of compensation if the parties fail to reach an agreement.

After reviewing all the evidence presented during the hearings, the commission concluded that no changes were required to the current legislative provisions relating to running rights. In reaching this conclusion, the commission noted the following:

- Various points of view were expressed ranging from support of nationalization of the railroad bed with access to all users to retention of the status quo. The majority of shippers expressed no opinion on this issue. The railways, for their part, were opposed to any change from the present system.

- The commission has, over the years, received very few requests to order running rights. This may be due to the economics of railroading which requires a significant traffic base in order to make running rights attractive to a second carrier.

- There was no evidence presented during the inquiry of any dissatisfaction with the present railway service where an area is served by only one railway. It became apparent during the hearing that there was no widespread desire for change in the present provision of running rights.

- There are certain practical operational and safety considerations in extending the use of tracks to other than the established railway companies that were not really addressed during the inquiry. Although we feel that many of these issues may well be resolvable, given the current state of rail technology, we do not feel that we are in a position, based on the record before us, to address these issues at this time.

From the standpoint of intramodal competition, the issue of running rights was of great significance to the commission's mandate. It is, therefore, regrettable that the commission did not recommend any changes with respect to running rights. In fact, there was considerably more evidence brought in front of the inquiry than what was acknowledged in the commission's final report. The extension of running rights was an essential argument in the submission by the Director of Investigation and Research, Combines Investigation Act. In an attempt to encourage increased intramodal competition, the director argued that "there should be expanded

opportunity for existing and new carriers to obtain running rights over existing infrastructure (and) running rights should create competitive access to and from Canadian ports and facilities at Canadian ports." His submission acknowledged that section 134 of the Railway Act provided sufficient scope for the commission to order running rights. It was suggested, however, that parties other than the railways themselves be eligible to apply for running rights:

> As long as an applicant were fit, willing and able to perform safe railway operations, he should be granted a certificate by the Commission thus enabling incorporation under the Canada Business Corporations Act. This would allow new entrepreneurs, shippers or others, who had invested in or leased railway rolling stock to bid for the traffic of shippers or carry their own goods to destination.

The Director's submission also included suggestions on the commission's role in executing its authority under section 134:

> We propose that on an application for running rights under section 134, the Commission would first consider the pro-competitive impact of granting the running rights to the user railway. The Commission should have regard to the potential benefits to shippers against the potential impairment of the operations of the railway which would be compelled to grant those running rights. This would not include consideration of loss due to competition....The pro-competitive aspects should govern unless it can be demonstrated that safety, operational or indemnification considerations precluded the transaction...The commission should give prime consideration to the objective of maximizing intramodal competition...Section 134 should be amended to reflect this spirit of the changes that have been proposed above.

Similar ideas were advanced in the submission of the Potash Corporation of Saskatchewan, which in general emphasized the importance of running rights in promoting intramodal competition:

> ...there might be some scope in extending the kind of regulatory action contemplated in section 134 to include shippers or companies formed by shippers with the express purpose of owning and operating motive power and rolling stock over existing rail lines. (Such companies will) in essence rent space on existing rail infrastructure in lieu of the existing railway's operating the train. The intention of this proposal...(is) to introduce a surrogate for competition without the expenditure of scarce resources in creating competitive infrastructure.

This concept had also been proposed by the Halifax-Dartmouth Port Development Commission in its submission into the 1984 enquiry (a "container train company" concept). During the 1985 enquiry the HDPDC was again supportive of the concept of extending running rights. This is, of course, an important issue in Atlantic Canada since the region's largest port, Halifax, is captive to CN. Not surprisingly, therefore, the Nova Scotia Department of Transport and the Atlantic Provinces Transportation Commission were both supportive of the concept. The only opposition in the region came from the St. John Port Development Commission which clearly has a vested interest in keeping Halifax captive, since it enjoys access by both CN and CP. Other parties which submitted evidence in support of extended running rights included the Canadian Industrial Transportation League, the Canadian Manufacturer's Association, the Canadian Pulp and Paper Association, Cariboo Lumber Manufacturers' Association, the Canada Ports Corporation, and individual shippers such as Michelin Tires and Canada Melting. In fact, other than the railways themselves, very few parties expressed their explicit opposition to the extension of running rights (the Manitoba Chamber of Commerce, InterAmerican Transport Systems, Sultran and Dofasco). Many others did not address the issue of running rights in their written submissions but provided favourable comments during their oral testimony and cross-examination.

In addition to the various shipper, carrier and government interests that were represented in front of the commission's enquiry, there were two academics who made submissions on their own behalf, representing two extreme positions on regulatory reform. Trevor Heaver of the University of British Columbia defended the status quo, taking the position that any additional intramodal competition imposed on the industry would only undermine its efficiency. John Gratwick of Dalhousie University, on the other hand, recommended a complete separation of the ownership of the rail infrastructure, suggesting that suitably licenced train operators, both commercial and private, could then use the tracks. He argued that this structural change was necessary to promote intramodal competition, as well as to make rail compatible with other modes, while noting that "joint running rights do not really offer a long-term solution to the problem."

In conclusion, it is somewhat puzzling that the commission reached the conclusions that it did concerning the extension of running rights. There are a number of factors that might have influenced the commission's thinking in this respect. First, one of the commissioners made it publicly known that the concept was impractical. Second, there is always too much weight attached to the railways' opposition on technical grounds, not recognizing their obvious vested interest in retaining the status quo. Third, the supportive evidence tends to be too general, with little emphasis on the specific opportunities that may arise as a result of liberalizing the system along the lines suggested by the Director, and the PCS. More specific operational concepts, such as the "container train company" proposed by the Halifax-Dartmouth Port Development Commission, would certainly add credibility to the idea. Lastly, and perhaps most importantly, the focal point of the commission's enquiry was certainly confidential contracting, which was seen as the principal mechanism for promoting intramodal competition. This bias was perhaps carried over from the earlier hearings on transborder traffic, but nothing was done to change the emphasis.

4.3 Railbed Utility Concept and Canadian Rail Policy

The concept of a railbed utility is not new to Canadian rail policy. Most recently, the issue was examined seriously in a study commissioned by the Federal-Provincial Committee on Western Transportation.[41] This study examined roadbed costs and cost relief options for Canadian railways and recommended that the railways be provided with some relief. The specific suggestion was the nationalization of the railbed as a means of achieving this objective. This move would have transferred all the investment responsibilities to the public sector, and depending on the extent of cost recovery objectives, the railways could be relieved of a portion of railbed costs. Even under full cost recovery, the railways would not have to incur major investments, but instead would pay for the use of infrastructure in user charges that they could recover in their freight revenue.

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41. R.L. Banks, et. al., op.cit.

The idea was appealing from a public policy perspective (and certainly consistent with the theoretical propositions advanced in this report), but was quickly forgotten, or purposely buried. The reasons behind this move are certainly open to speculation, but it was probably the combined effect of policy makers' reluctance to try radical ideas and the railways' resistance to forego their interests in the infrastructure that killed the concept. Instead, the railways continued to lobby for direct capital subsidies to relieve themselves of roadbed costs, and the policy makers continued to consider such requests since maintenance of an efficient railway system commanded top priority on the public policy agenda.

The need for structural change in Canadian rail transport surfaced once again with the regulatory reform debate initiated by the federal government. In June 1985, the Minister of Transport issued a statement, "Freedom to Move: A Framework for Transportation Reform", proposing major changes to Canada's transportation policy. The government's new policy emphasis is on "competition," and to this end, its intention is to eliminate economic regulation to the greatest extent possible and leave the transportation industry in the hands of market forces. The proposed changes in the airline and extra-provincial trucking industries are guided by these principles, and can be regarded as virtual "economic deregulation". Given the structure of the rail industry, complete economic deregulation can never a practical alternative; the best the government could hope for was a regulatory reform package to promote more competition than what has been possible under the 1967 National Transportation Act.

Based on the policies outlined in Freedom to Move, the government has recently tabled new legislation. The proposed Bill C-127 introduces the following key changes in rail transport:

- The railways will be able to enter into confidential contracts with shippers but will not be able to engage in collective rate making.

- Captive shippers will benefit from increased inter-switching limits, terminal running rights, competitive line rates, and improved dispute resolution procedures.

- When public interest or other economic efficiency considerations justify, the Governor-in-Council will be empowered to impose joint track usage arrangements or shared railway running rights.

- There will be opportunities for new operating companies (short-line railways) to take over branch lines.

These changes go considerably beyond the Canadian Transport Commission's earlier recommendations, but the government's position with respect to rail transportation still appears to be considerably more compromising than in air and truck transportation. Although there may well be a commitment to set a new direction for future rail policy, there is still a great deal of reluctance to take bold steps in that direction. The government appears to have recognized the virtues of intramodal competition, but the proposed measures are not likely to introduce sufficient intramodal competition to effectively "regulate" the Canadian railway industry.

The introduction of confidential contracting is seen by both policy-makers and shippers as an effective means of promoting intramodal competition. Although this practice may serve the interests of most large shippers, there is a tendency to grossly exaggerate the potential benefits of confidential contracting. It is often forgotten that the industry will still remain a duopoly, and even at that, the shippers that have access to both railways (both at origin and destination) will be limited to the extent that the two railway networks overlap. There are naturally limits to how much intramodal competition can be sustained within this duopolistic industry structure.

If there was frictionless entry and exit, and access to the same technology, the existence of multiple firms would not be a prerequisite to the functioning of the market under conditions of perfect competition. In the rail industry, however, sunk infrastructure costs (together with exclusive operating rights held by the owner of the infrastructure) constitute a barrier to entry, thus making the railways uncontestable. Given these conditions, it is unrealistic to assume that free competition could be sustained in a duopolistic railway industry. The two railway companies would each possess considerable market power and engage in various strategies to avert competition, rather than responding to it as they would under conditions of perfect competition. The actual effects of such strategies can be understood only in the specific context in which they take place (e.g., by game-theoretic approaches), and not on the basis of general principles of economic theory (e.g., that competition would necessarily result in the most desirable outcome).

In order to introduce effective and sustainable intramodal competition into the Canadian rail industry, it is essential to allow new entrants in order to break the duopoly structure. This could have been accomplished through more generous running rights provisions, particularly to parties other than the two national railways. Through such provisions, new companies specializing in certain aspects of the carriage business (e.g., container trains or other types of piggy-back services) could be encouraged to enter the industry utilizing the existing rail infrastructure. Similarly, large shippers (e.g., Potash Corporation, or Ontario Hydro) could make use of such provisions by becoming private carriers to move their own traffic by rolling stock that themselves own and operate (using their own crews) on roadbed owned by one of the existing railways. As discussed in the previous section, these ideas were advocated by the Director of Investigation and Research, Combines Investigation Act, and supported by other shipper interests. However, the commission's report did not lend any support to the concept.

Running rights provisions did not receive much attention in Freedom to Move either. The necessity for running rights and joint-track usage

provisions was recognized in cases where "public interest or consideration of the economy and efficiency of the rail system justifies". However, this was immediately qualified by the statement that "this power would be used only in exceptional circumstances where significant efficiencies and cost savings would be certain to result". The example given in this regard was the sharing of roadbed down the Fraser-Thomson corridor of British Columbia, where substantial capital investments could be averted through joint operations, instead of both railways trying to increase their respective capacities by double-tracking. There was no intention, however, to impose running rights or joint-track usage in a more general effort to promote intramodal competition. The interests of captive shippers received considerable attention during the debates leading to and after the publication of Freedom to Move, but competitive line rates (i.e., whereby the captive shipper could get access to another railway by paying a bridge rate proportional to the rate negotiated with the other railway) were seen as a more appropriate remedy than the extension of running rights.

The most fundamental issue that is being overlooked in the proposed legislation is, therefore, that the Canadian rail industry will still remain duopoly even after the introduction of confidential contracting, improved appeal procedures, competitive line rates, extended inter-switching and terminal running rights provisions. It is unrealistic to expect competitive forces to flourish unless the scope of competition can be expanded with the introduction of new carriers. In order to restore a reasonable degree of competition to the industry, it was necessary to extend running rights, not only in exceptional cases where efficiency considerations dictate, but also in cases where they are warranted to encourage competition. Moreover, it was necessary to include in the proposed reform package provisions to grant operating authorities and running rights to new carriers (private and for-hire) in order to break the duopoly structure. These opportunities might have already been lost with the introductin of new legislation, but nevertheless, it is important to recognize the shortcomings of the proposed changes.

The federal government's regulatory philosophy laid out in Freedom to Move clearly gives primacy to market forces and reflects a commitment to dismantle regulatory barriers that inhibit competition. Consistent with this philosophy, there are indeed promising opportunities for structural change in the Canadian rail industry. These opportunities principally lie with the separation of carriage from infrastructure. It is the large sunk costs in the latter that give rise to "uncontestable natural monopolies" which can never be totally divorced from economic regulation. In other words, it is the difficulty of building new infrastructure that inhibits entry into the rail industry. Once infrastructure costs are removed, there is nothing inherent in the railway carriage business that would inhibit competition. It is, therefore, quite possible to establish a competitive rail carriage industry by removing the entry barriers that are erected by the railways themselves through the integration of infrastructure with the carriage function. The resulting model would involve rail infrastructure being operated as a regulated utility (publicly or privately owned), with independent carriers buying running rights from that utility under competitive conditions.

As noted above, the concept of a railbed utility is not new to Canadian rail policy, but it has always been considered as a proposal to nationalize the railbed. This naturally raises not only philosophical objections, but also practical problems of assessing the value of railway assets and raising the necessary public funds to compensate the railways. The debate always seems to overlook the fact that two-thirds of the Canadian rail system is already in the possession of a publicly owned crown corporation, Canadian National. This company operates as a conventional railway providing the infrastructure and performing the carriage function on that infrastructure. The concept of a public utility owning the rail infrastructure does not, therefore, involve any nationalization of private property. On the contrary, separation of the ownership of infrastructure provides ample opportunity to privatize the rail carriage business.

In fact, the separation of CN infrastructure from carriage can be seen as a logical extension of the current government's national transportation

policy. If the government wants to give market forces and competition primacy in its long term rail policy, a strategy can be developed to transform CN from an integrated railway company to a publicly owned roadbed utility. The first stage of this strategy would involve permitting new carriers to operate on CN's system; this has already been proposed as an effective means of promoting intramodal competition. The latter stages of this strategy would involve CN divesting itself gradually from the carriage business. In the process, some large shippers (mainly large companies in the bulk commodity business) may start to perform their own carriage function dealing directly with the roadbed utility, or with CN at the earlier stages of the strategy. Other companies may establish themselves as specialized carriers engaged in the movement of containers or providing other intermodal services. It is also possible that a new grain transportation authority could be established operating its own trains, or contracting to other independent carriers. Via Rail can enter into contracts with the roadbed utility, operating like Amtrak does outside the Northeast corridor. New branch line operators may come into existence, operating as short-line railways without direct responsibility over infrastructure. In sum, the monolithic crown corporation, CN, can be transformed into a roadbed utility supporting a diverse, multi-firm carriage rail carriage industry.

This strategy has implication for the privately owned Canadian Pacific, but does not effect the company's ownership structure. CP can be left in tact, operating as a conventional railway in competition with other privately owned carriers operating on the public railbed. In order to protect CP's captive shippers, however, the government may have to oblige the company to offer running rights to other carriers, or introduce the same competitive line rate provisions already contained in the proposed legislation. The latter will serve the interests of captive shippers much more effectively with a wider choice of carriers than in the present duopoly structure. At the same time, CP can be offered running rights on the public roadbed providing the company with opportunities to rationalize its own network by abandoning routes and/or lines as it sees fit.

In conclusion, the proposed legislative changes in rail transport may be some of the most radical economic reforms considered to date, but the potential benefits should not be overstated. The legislation will no doubt provide large shippers with greater negotiating power, but there are limits to how much intramodal competition can be sustained in the current duopolistic structure. As part of a longer term rail policy, the government ought to be considering more structural changes through the privatization of rail carriage on railbed which is already publicly owned. It may already be too late to influence the course of legislative change over the next year, but it is still important to sustain lively debate over these issues so that the country does not enter into another two decades of silence. Since the debate leading to the passage of the 1967 National Transportation Act, the country's policy-makers have been too proud of the railways and their performance to consider alternative policy options. Now that the current debate has mobilized some support for change, it would be unfortunate to lose the momentum.