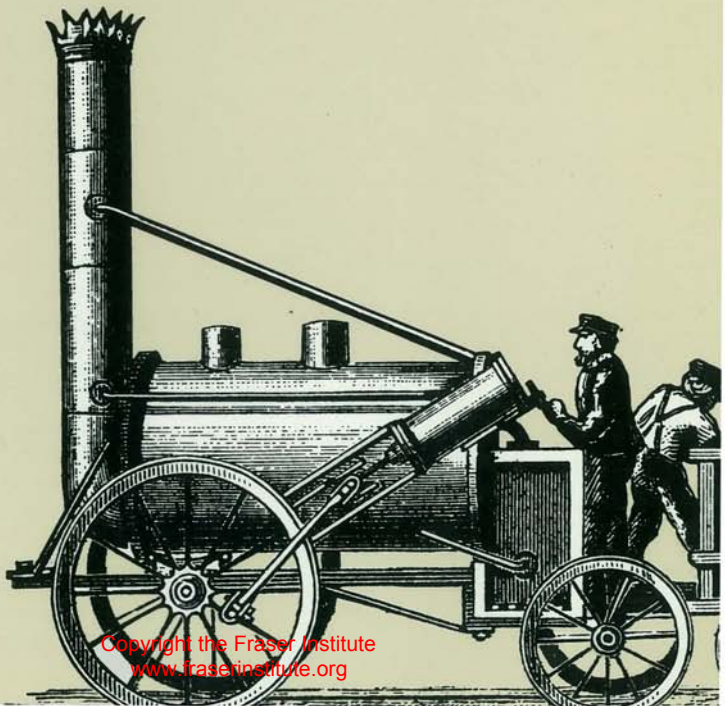
THE ECONOMICS
OF THE SERVICE SECTOR
IN CANADA

An Economic Analysis of Canada's Ground Transportation Sector

John P. Palmer



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PREFACE AND SUMMARY

This study examines the trends and outlooks for four different ground transportation industries in Canada: bus passenger service, railway service, trucking, and taxis. Ground transportation is less spectacular in its growth and outlook for the future than air transportation. Nevertheless, rail and truck freight revenues have consistently been more than 3 percent of Canada's GNP during the past decade, with value added in just these two industries somewhere between 1.5 percent and 3 percent of GNP. These nominally small percentages are actually quite large for two industries as narrowly defined as these two have been for this study.

In all four of these industries, there has been a tendency toward increased specialization with firms serving increasingly narrowly defined market niches. This finding holds for all four of the industries studied, despite their considerable differences in both past growth and projected future growth. The primary reason for the observed increases in specialization is that the costs of specialization have declined, especially for communication and organization tasks.

In the bus industry specialization has occurred in three different segments. The larger firms tend to provide most of the service on the longer intercity runs; smaller firms specialize in shorter trips and contract services, such as school bus services. In addition, tour operations and charter services are a growing segment of the industry. This last category is becoming sufficiently important that independent data for it are now being collected by Statistics Canada.

In the passenger service segment of the railway industry, some service has been discontinued while other service has been improved. The longer-trip service has been substantially displaced by airline service, and so the bulk of rail passenger service is commuter-type or half-day trip business. Much rail passenger service is operated at a loss, more for political than profit-oriented purposes.

During the past decade, rail freight service probably changed less than the other industries included in this study. The bulk of its business remained long-haul, with items of comparatively low value-to-weight ratios. At the same time, however, changing fuel prices along with changing international economic and political conditions, induced a slight but noticeable shift in this industry away from intraprovincial shipping by rail. This decline was more than offset by sizeable growth in shipping from

the western and prairie provinces to marine ports for reshipment to international customers.

Trucking experienced just the opposite trend. During the past decade, long-haul trucking either declined or grew only modestly. Simultaneously, short-haul, intraprovincial trucking grew considerably. Changing fuel prices, which increased the costs of frequent starts and stops more for trains than for trucks, caused these opposite changes in the mix of services provided by rail freight and trucking.

In the taxi-cab industry, firms in high-population-density markets are less dependent on telephone and dispatch business. They are able to generate considerable business from hotel taxi stands and from cruising the streets. In markets with lower populations densities, however, nearly all business is done via telephones and dispatching systems. In many of the larger markets, firms and drivers are able to specialize, with some providing service to telephone customers and others specializing in pickup business along the streets and at taxi stands.

The growing specialization observed in each of these industries is the result of two dominant economic forces. The first is that increased specialization is being sought in the marketplace: customers and clients are willing to pay a premium for the services of firms which satisfy their own particular requirements. The second is that co-ordination, communication, and administration costs have fallen in comparison with other costs over the past decade. Consequently the surviving firms in these industries are the ones that experimented successfully with alternative service delivery techniques; these firms found lower cost ways of providing more specialized services for their customers.

The outlook for these industries is mixed. As all good economists know, the only correct answer to any question is, "It all depends," and for prognostication this answer is all the more appropriate. First, uncertainty about the future of fuel prices is causing firms to be wary of mass commitments to any specific strategy. Second, apparent moves toward deregulation in some of the industries are also inducing firms to prepare for several different scenarios. Finally, each of the industries will be affected differently as real GNP in Canada changes over the next few years.

If fuel prices rise considerably relative to the GNP deflator, we will see more substitution of labour for fuel in all the industries. However, the overall employment in them may not increase much and may even decline if higher transportation prices have a large impact on the amounts of the services demanded. Alternatively, if the Middle East becomes less worrisome politically and if the OPEC cartel breaks down completely,

firms will be induced to substitute fuel for labour. Because of the resulting lower transportation prices, though, the increased provision of transportation services could actually lead to an increase in labour demanded in the industries.

Deregulation is all but complete in the railroad industry, and is proceeding on an ad hoc, piecemeal basis in the bus industry. The trucking industry will likely soon face considerable deregulation as well. Deregulation, if it ever occurs in the taxi industry, will be a long time in coming. The effect of deregulation will generally be to drop current requirements of cross-subsidization of costly services from the more highly profitable segments of each industry. Hence, firms will specialize even more in the future. Competition will force most prices downward, and even for the least profitable services, potential competition will keep prices from rising as much as many people have feared. The overall effect of deregulation will be both improved productivity and efficiency as well as growing demand for transportation services. While the increased demand for transportation services will in turn lead to an increased demand for labour, improved productivity may dampen this demand somewhat.

Finally, future trends in GNP will also affect these industries. While the demand will grow with an increase in GNP for trucking, rail service, and taxis, the demand for bus services actually declines as GNP grows. Bus service seems to be what economists call an "inferior good."

ACKNOWLEDGEMENTS

Putting together a study encompassing so many different industries requires a great deal of assistance. I would like to thank especially Ruth Islington and Paul Renquist for their research assistance. In addition, several referees made helpful contributions to an earlier draft. Also Dennis De Melto of DRIE made a number of useful suggestions which have greatly improved the analysis. Finally, Herb Grubel made innumerable comments and criticisms which have helped this study immeasurably.

ABOUT THE AUTHOR

Professor Palmer has taught Economics at The University of Western Ontario since 1971. His teaching and research specialties include the study of regulated markets, and he has published numerous books and academic journal articles about transportation regulation. Some of his more recent work has extended his earlier analyses to other aspects of legal institutions. In 1979, Palmer initiated the Economics and Law Workshops at The University of Western Ontario.

Palmer has been the Director of the Centre for the Economic Analysis of Property Rights since 1980. In that capacity he has co-ordinated and carried out research on various economic issues involving legal entitlements, including copyrights, patents, parenthood rights, and the legal rights of individuals owning operating authorities in regulated industries.

Since 1984, Palmer has also directed The Economics Institute for Journalists. This program involves an intensive two-week course in economics for working journalists. Also as part of the programme, two-day sessions are held on specific topics in various cities across Canada.

Palmer first became associated with The Fraser Institute in 1985, when he began teaching in the Summer Institute for Economic Education, a two-week programme organized by The Fraser Institute and held at The University of Western Ontario. He owns a Fraser Institute Adam Smith necktie.

Professor Palmer received a B.A. in Economics from Carleton College in 1965. He attended The Chicago Theological Seminary for two years, and then he received his Ph.D. in Economics from Iowa State University in 1971. He is married and has three children.

CHAPTER 1

INTRODUCTION

Sir John A. MacDonald viewed transportation as so vital for Canada that he risked his political reputation on establishing the Canadian Pacific as a transcontinental railway. Transportation, taken as a whole, is just as vital today, as it enables people to choose from a greater variety of living and producing locations. It also contributes to people's abilities to consume more and better goods at lower costs. Low-cost and high-quality transportation is important to people in different ways in the different regions of Canada, and hence government policies affecting the provision of transportation services are equally important.

This study limits itself to four different industries which provide ground transportation: (1) bus passenger service, (2) rail service, (3) trucking, and (4) taxi-cabs. This selection is admittedly somewhat arbitrary, in that it excludes air transportation, private automobile transportation, water surface shipping, urban transit, and pipeline transmissions. These limitations have been imposed on this study not because the other types of transportation service are unimportant. Rather, they result from a desire simply to limit the scope of each of the studies undertaken in this series of volumes. These four industries were selected for this study because of the intersection of interests in them by the Department of Regional Industrial Expansion (DRIE), The Fraser Institute, and the author.

The importance of these industries to the Canadian economy can be seen in a comparison of their sales and value added relative to GNP. Table 1 shows the revenues of the trucking, bus, and railway industries, and compares these revenues with GNP.

As can be seen, the revenues of these industries were fairly consistently between 3.2 percent and 3.6 percent of GNP. However, comparisons of industry revenues with aggregate production are frequently meaningless since revenues include more than just productive activity. It might be more

TABLE 1
REVENUES AS A FRACTION OF GNP

	1975	1976	1977	1978	1979	1980	1981	1982	1983
Trucking Rev ($M)	2572.8	2863.8	3270.1	4021.0	4665.7	5223.2	5687.1	5588.5	5753.0
Bus Revenues ($M)	162.8	186.5	217.3	227.7	232.2	269.6	276.5	327.3	342.9
Railway Rev ($M)	2733.8	3192.4	3538.1	3882.3	4752.4	5333.9	6144.6	6301.4	7027.4
Total (in $billions)	5.46	6.24	7.02	8.13	9.65	10.82	12.10	12.21	13.12
GNP (in $billions)	169.0	194.4	213.3	235.7	268.9	302.1	344.7	362.2	393.7
Transp Rev ÷ GNP	0.032	0.032	0.033	0.034	0.036	0.036	0.035	0.034	0.033

Sources: Revenues, Appendix Tables A1, A4, and A5; GNP *Bank of Canada Review*, various years.

appropriate to compare value added in these industries with GNP. While the precise data for making these comparisons are not readily available, the data compiled in the Appendices to this study do allow some interesting generalizations. At the lower limit, if all the value added in these three industries emanated from labour sources alone, the value added would have averaged about half of the reported revenues. At the other extreme, fuel expenses averaged about 10 percent of revenues in these industries, indicating that the value added was generally more than half but less than 90 percent of revenues. Consequently, it appears that the value added by just these three industries accounted for between 1.5 percent and 3 percent of GNP on average during the past decade.

These percentages may not seem very high. Nevertheless, they are generated primarily by only the rail and trucking industries, both of which are quite narrowly defined. In contrast, the broadly defined health services sector of the economy has accounted for between 6 and 8 percent of GNP over the past decade. For these two industries to account for between 1.5 percent and 3 percent of all domestic value added is fairly impressive, and these figures indicate the continuing importance of ground transportation in Canada's economy. They also indicate the importance to the rest of the economy of government policies concerning transportation.

Of course, there are some overlaps between the industries that are included in this study. For example, most bus passenger firms also offer shipping services for small parcels; the railroad industry offers passenger service which nearly always faces competition from passenger buses; the railroad and for-hire trucking industries offer both complementary and substitute services; and taxi-cabs sometimes, but infrequently, provide intercity service for passengers and small parcels.

In addition, some railroad firms operate passenger buses to provide connecting services for customers in some locales. They also have at times owned large firms in the for-hire trucking industry. Complicating the picture a bit more are the emergence of other sectors of these industries for which data are either not collected or not easily collectible. In the bus passenger industry, only recently have separate data for tour operators and exclusively charter operators been collected. Yet bus tourism has apparently become a growing segment of the industry, thus prompting the collection of these additional data by Statistics Canada. In the trucking industry, the growing use of in-house trucking services has led Statistics Canada to try to collect data on this segment of the industry, referred to as private trucking. In the taxi-cab industry, non-licensed operators offer considerable competition for the licensed operators in some markets. In all of these industries, the data that are available are quite likely the best that

could be collected at a reasonable cost to society, but the problems of coverage and industry definitions at times can and should cause one to exercise some caution in the analysis of industry trends.

With this caveat in mind, one nevertheless feels reasonably confident in drawing some general inferences from the material which follows in the next five chapters of this study. These inferences are based on a general presumption about the Canadian economy at large, namely, that the costs of providing communications, co-ordination, and organizational services have fallen during the past decade relative to the costs of providing many other types of products and services. It will become clear, as this study unfolds, that this presumption is consistent with the trends observed in the data for the industries under study.

If, in fact, communication and organization costs have experienced a relative decline (in large measure due to technological advances in these areas relative to the actual provision of transportation services), then we should expect that these functions would have taken on increasing importance for the firms providing transportation services. This importance should be reflected either through increased expenditures made outside the firms for these services or through relative growth in the provision of these services within the firms. It is the latter case which shows up consistently in the data collected for this study.

Furthermore, as communication and organization costs have declined, it has become relatively less expensive for firms in these industries to improve their scheduling and planning for their revenue equipment (i.e. buses, trucks, freight cars, etc.) and for their employees. Improved planning and scheduling should have resulted in improved productivity measured in terms of output per worker or output per vehicle. It should also have led to increased segmentation of the industry into different firms providing different types of more specialized services to different types of customers.

The data and analyses presented in the next four chapters, for the most part, bear out these expectations. Chapter 2 analyzes the bus passenger industry, noting its comparative decline in real revenues over the past decade and the growing differences within it between the larger and the smaller firms. In Chapter 3 the railroad industry is discussed in two separate subsections: passenger service and freight service. But because the joint overhead costs for the two services are so large, much of that analysis had to be carried out for the industry as a whole.

Chapter 4 presents data and a discussion of the for-hire trucking industry. Here, as in all four industries, evidence is presented that firms

respond in predictable ways to changes in the relative prices of inputs. In Chapter 5 the taxi-cab industry is discussed, utilizing primarily data from sources other than Statistics Canada. Finally, Chapter 6 sums up and relates the conclusions for each industry to each other. It also provides some speculative outlooks for future employment and productivity trends in each industry.

CHAPTER 2

THE PASSENGER BUS INDUSTRY

During the past decade and a half, the Canadian passenger bus industry has been buffeted about by several important economic changes. Some of these changes reflect long-term economic trends, while others can more aptly be described as the result of political changes, both in Canada and in the rest of the world. In particular, the provision of passenger transportation by competing modes has continued to erode the market share of the bus industry relative to other industries. In addition, as people's incomes have risen through time, they have sought out transportation alternatives which are quicker, more convenient, and/or more comfortable.

On the political side, entry conditions, fuel pricing policies, labour standards, and public ownership have all had an impact on the evolution of the industry. In this section of the study, Statistics Canada data are used to illustrate the extent and the effects of these changes.

Data Description

Between 1975 and 1984, data have been reported for bus firms in different class sizes. These class sizes are demarcated according to the revenue of each firm: firms with revenues of $500,000 or more are in classes I and II; those with annual revenues between $100,000 and $500,000 are in class III; and smaller firms and new firms are assigned to other classes. Unfortunately, not all the data items are available for firms in each class for each year. The figures that are available have been compiled for several years and are presented in the Appendix Tables A1, A2, and A3. The last two columns of Tables 1A and 3A reflect the growth in each item between 1977 and 1983 and between 1975 and 1984. In addition, the penultimate column of Table A2 reflects the growth in some items between 1974 and 1984. The items from each of these tables will be presented here as well, as they are discussed.

Data for the larger size classes are more detailed than for the smaller size classes. Appendix Table A1, which reports data for only the firms with annual revenues exceeding $500,000 (size classes I and II) provides data on employee compensationas well as slightly more detailed information on several other items. These data are not available for the smaller size classes. It turns out, of course, that the smaller size classes represent only a very small segment of the bus passenger industry, and so the numbers for the entire industry can in most cases be fairly proxied using only the numbers from the larger size classes.

Where comparisons are possible, however, they are made, and these comparisons illustrate that quite likely most of the smaller firms in the industry serve specialized market niches with quite different market conditions from those faced by their larger cousins. As can be seen from Table 2, the revenues of the firms in size class III never amounted to more than 1 or 2 percent of the revenues of the firms in size classes I and II.

As one might expect, the data reported for the larger firms are more reliable than the data reported for the smaller firms. Larger firms tend to have more formal and comprehensive accounting systems. Also, the Statistics Canada coverage of the smaller firms has often been incomplete and variable from year to year, despite their best efforts to obtain reliable data from these firms.

One interesting feature of the data is that the boundaries of the size classes have not changed during the past decade; but due to inflation, bus fares (Line 2, Table A7; Figure 40), and hence bus revenues (Line 2, Table 2; Figures 1, 2, and 3), have increased tremendously. As will be highlighted below, real output in the industry has not increased much during the past decade; there is a strong case to be made, in fact, that among the firms surveyed real output actually declined. Consequently, it is possible that some firms have moved to larger nominal size classes without having increased their real output at all during the period.

It is clear from Table 3 that, although bus revenues increased less rapidly during the past decade than either the Consumer Price Index or an index of bus fares, they nevertheless doubled during that time period. And while bus fares more than doubled, and revenues doubled, the class size boundaries did not change. Although the data are not available to indicate how many smaller firms became categorized in size classes I or II during the decade, it is at the very least plausible that some did. In the next two sections, the numbers of firms and the movements of revenues over time are more closely examined.

TABLE 2

BUS REVENUES: CLASS III vs. CLASSES I & II

(In Thousands of Dollars)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84/75
Revenues, Class III	2535	2345	4652	3044	2952	3946	2882	3829	2706	6978	2.753
Revenues, Classes I&II	160331	184224	212648	224634	229202	265607	273623	323513	340241	315378	1.967
III as a % of I & II:	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	1.400

Sources: Appendix Tables A1 and A3.

TABLE 3

BUS PRICE AND REVENUE INDICES

		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Bus Fares,	1981=100	57.7	63.0	68.6	74.5	79.6	89.2	100.0	120.8	130.5	137.6
Bus Revenues,	1981=100	58.5	67.3	77.7	82.0	83.7	97.0	100.0	118.2	124.3	115.2
CPI,	1981=100	58.5	62.9	67.9	73.9	80.7	88.9	100.0	110.8	117.2	122.3

Sources: Appendix Tables A1 and A7.

Numbers of Firms and Market Structure

The number of establishments in the bus passenger industry has varied between 25 and 38 during the past decade. Among the larger firms, the numbers varied only between 18 and 22, while among the smaller firms, the numbers ranged from 7 to 18 as can be seen in Table 4.

In some ways these numbers understate the market power of the firms in the industry, and in some ways they overstate the degree of market power. They understate market power because very few city pairs are served by more than one bus firm. In that sense, each firm might be thought of as a monopolist or a duopolist. Be that as it may, the degree of market power held by these monopolists or duopolists is typically quite small, for there are many close substitutes available for passenger bus service.

The close substitutes for passenger bus service include primarily private automobiles, especially for shorter distances, and airline service, especially for longer distances. Other competition is provided on most major routes by VIA rail train service or by local commuter train or bus services, many of which are owned and operated by provincial or municipal governments. And in some instances, commuter airlines are beginning to provide effective competition to major cities with small airports near the city centre, such as Edmonton, Montreal, or Toronto.

Bus Revenues

The total transportation revenues in the passenger bus industry from 1975 to 1984 are displayed in Figures 1 and 2 (Figure 1 shows the revenues for only classes I and II; Figure 2 shows revenues for classes I - III). As noted, these revenues have grown considerably over the past decade, but most or all of the revenue growth has been due to higher fares, and not to growth in real output. The total distance travelled by all buses has barely increased, and the total number of passengers carried has actually decreased between 1975 and 1984.

The total kilometres travelled by passenger buses has not changed very much (see Table 5; also see Figure 24, which shows the total kilometres travelled).

In addition, the number of passengers carried generally remained constant or declined (see Lines 43 - 45, Table A1; Lines 35 - 37, Table A2; Lines 29 - 31, Table A3, all summarized in Table 6 ; also see Figures 19 and 20).

TABLE 4

NUMBER OF ESTABLISHMENTS BY SIZE CLASS

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	83/77	84/75
# establishments (I&II)	19	18	20	22	21	19	19	20	20	20	1.000	1.053
# establishments (III)	10	7	15	12	14	15	12	12	13	18	0.867	1.800
# establishments I-III)	29	25	35	34	35	34	31	32	33	38	0.943	1.310

Source: Appendix Tables A1 - A3.

TABLE 5

TOTAL KILOMETRES TRAVELLED BY ALL BUSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1984÷1975
Total Kms. (000's)	173164	177296	194057	187789	186341	199496	182843	195104	192887	179169	1.035

Source: Appendix Tables A1 - A3.

TABLE 6

TOTAL PASSENGERS CARRIED ON ALL BUSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1984÷1975
passengers (000's)	33493	31952	34747	32506	33043	32846	29215	29772	29646	25574	0.764

Source: Appendix Tables A1 - A3.

Figure 1

BUS OPERATING REVENUES

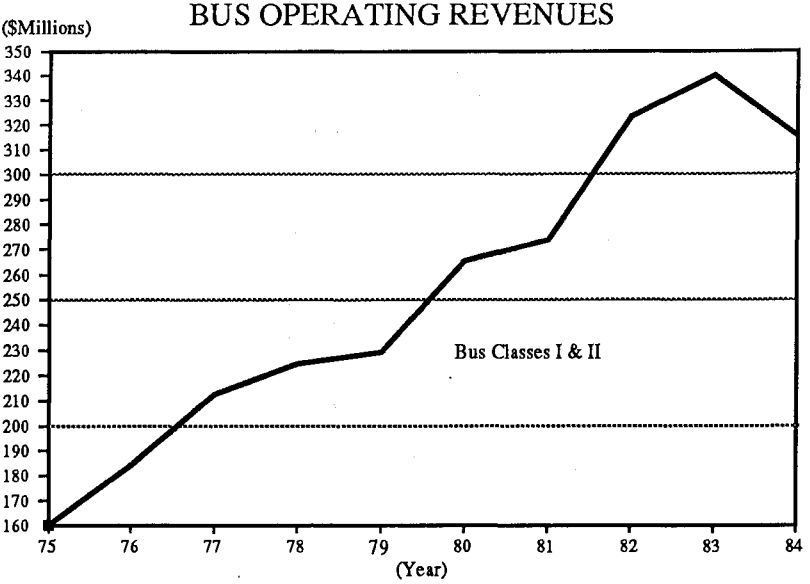
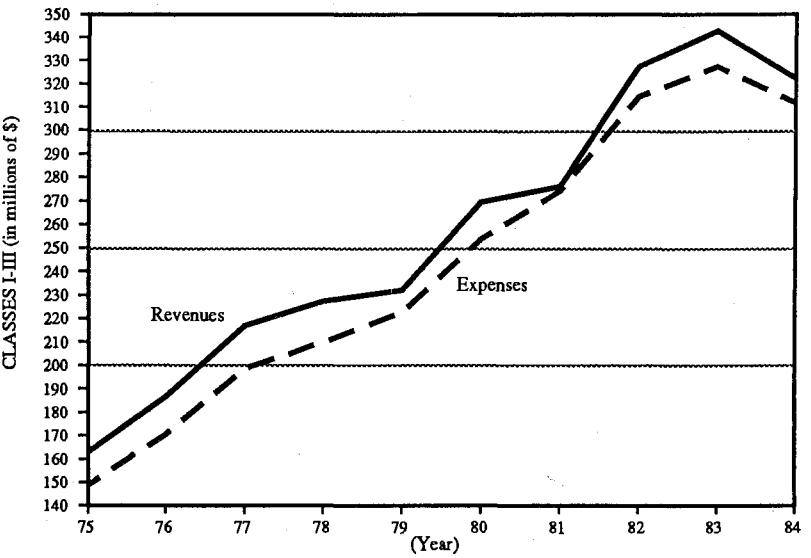


Figure 2

PASSENGER BUS REVENUES AND EXPENSES



Declining Real Output

That real output in the industry appears to have declined despite virtually no real increase in bus fares from 1975 until 1981, with only modest increases after then (recall Table 3 above and Figure 40) is consistent with several different competing hypotheses. Unfortunately, none of these hypotheses can be rejected with any confidence because of the paucity of data.

One possible explanation for the decrease in real output is that the prices of alternative types of service fell relative to bus fares, causing a decline in the demand. The evidence presented in Appendix Table A7 shows, however, that rail fares moved almost in lock step with bus fares. It does not appear that bus firms were losing customers to the railways due to changes in relative prices.

Other possible explanations for the decline in real output might include more provision of competing services by municipal and provincial governments, changes in the types of service provided by bus firms, or the likelihood that passenger bus service is an inferior good—one for which the demand actually declines as incomes rise. None of these hypotheses can be tested with any accuracy due to data limitations. However, the data seem to fall particularly in line with the hypothesis that intercity bus service is an inferior good.

First, the decline in the demand for bus service has come during a decade of generally rising incomes per capita. Second, additional evidence that passenger bus service is an inferior good comes from comparing the 1981 and 1982 data: despite a decline in aggregate real incomes per capita, and despite a comparatively large increase in bus fares, the number of passengers and the number of kilometres travelled by passenger buses actually increased in 1982 over 1981!

The implications of this finding, keeping in mind its limited statistical validity, for the industry and its prospects are twofold: (1) as real incomes per capita continue to increase, the demand for traditional intercity passenger bus service is likely to continue to decrease; and (2) to the extent that employees, managers, and owners in the industry own specialized capital (both human and physical), we should expect to see these people employ their capital in its next best alternative use. This use will frequently involve charter, tour, and specialized passenger bus services. That many firms in the industry are moving in these directions now is certainly consistent with this analysis.

Components of Bus Revenues

The components of passenger bus revenues are shown in Table 7. The last category of each section of the Table, "Other," includes such things as small parcel shipping and express package delivery. This category, along with charter services, showed the biggest increase over the decade. These increases appear most vividly in the last column of Table 7, where the data for 1984 are divided by the data for 1975.

The data from the first portion of Table 7 are presented in Figures 3 and 4, where these trends are readily apparent.

Urban, suburban, and other passenger services actually generated declining nominal revenues over time for the firms surveyed in classes I - III; and contract revenues increased only marginally in nominal terms, declining in real terms. The declines in real revenues in these two categories are quite consistent with the very large decline in the firms' use of non-highway buses over the decade (see Table 8). But the possible increases in these same categories for firms in class III suggest that smaller companies and others not covered in the survey are probably picking up increasing portions of these services. These findings are consistent with the overall notion that passenger service, regardless of the mode of transportation, is becoming increasingly specialized, with different firms able to move quickly to fill different market niches.

Bus Expenses

Functional components of passenger bus firms'expenses are shown in Table 9. They are also depicted in Figures 5, 6, and 7.

While total expenses track total revenues pretty closely (recall Figure 2), the individual components of the firms' expenses appear to be less closely related to total revenues. The most extraordinary difference is the inexplicable jump in administrative expenses for the year 1983. By 1984, however, administrative expenses appeared to be back on an approximately straight-line trend consistent with data from the earlier years.

Overall, expenses just about doubled between 1975 and 1984. Traffic, sales, and insurance expenses increased only marginally (again declining in real terms). The largest increases in expenses were terminal and administrative expenses, both of which more than doubled in nominal terms during the decade.

These data and figures suggest that even in a service industry the production of some of the support services has grown more rapidly (or declined less rapidly) than the actual output in the industry. In some ways,

TABLE 7

REVENUES BY SIZE CLASSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84/75
CLASSES I AND II:											
Revenues (000's)	160331	184224	212648	224634	229202	265607	273623	323513	340241	315378	1.967
Regular Bus Service	110049	124549	141664	147630	149974	170723	173659	214612	226690	209901	1.907
Intercity	109737	123471	140667	146443	148763	170485	173480	214497	226666	209881	1.913
Charter	15184	17304	22012	21946	23337	26721	26941	30533	32621	34513	2.273
Contract	1610	1154	1382	1245	1235	1177	1125	1021	956	1634	1.015
Urb, Suburb, & Other	1266	1719	1213	1444	1451	268	844	926	942	665	0.525
Other	32533	40575	47373	53556	54416	66955	71134	76534	79055	68685	2.111
CLASSES I - III:											
Revenues (000's)	162866	186569	217300	227678	232154	269553	276505	327342	342947	322356	1.979
Regular Bus Serv.	111636	125861	144809	149805	151862	173067	175510	216975	228697	214729	1.923
Intercity			143376	148618	150651	172718	175238	216423	228645	214658	
Charter	15775	17924	22746	22250	24015	27747	27444	30956	32938	35406	2.244
Contract	1776	1353	1736	1601	1272	1177	1125	1234	992	2293	1.291
Urb, Suburb, & Other	1266	1719	1213	1444	1451	379	937	1363	942	665	0.525
Other	32724	40789	47791	53764	54765	67531	71662	77365	79401	69284	2.117
CLASS III:											
Revenues (000's)	2535	2345	4652	3044	2952	3946	2882	3829	2706	6978	2.753
Regular Bus Service	1587	1312	3145	2175	1888	2344	1851	2363	2007	4828	3.042
Intercity			2709	2175	1888	2233	1758	1926	1979	4777	
Charter	591	620	734	304	678	1026	503	423	317	893	1.511
Contract	166	199	354	356	37		0	213	36	659	3.970
Urb, Suburb, & Other	0	111	93	437							
Other	191	214	418	208	349	576	528	831	346	599	3.136

Sources: Appendix Tables A1 - A3.

Figure 3

COMPONENTS OF PASSENGER BUS REVENUES

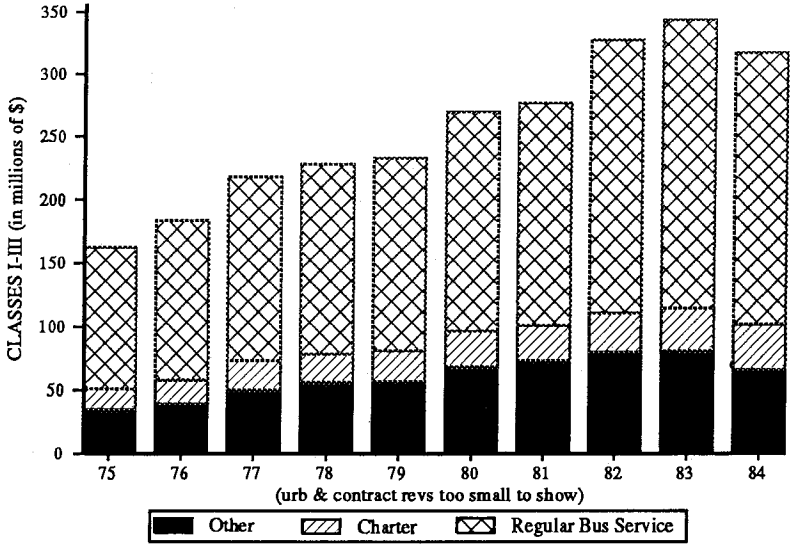


Figure 4

COMPONENTS OF PASSENGER BUS REVENUES

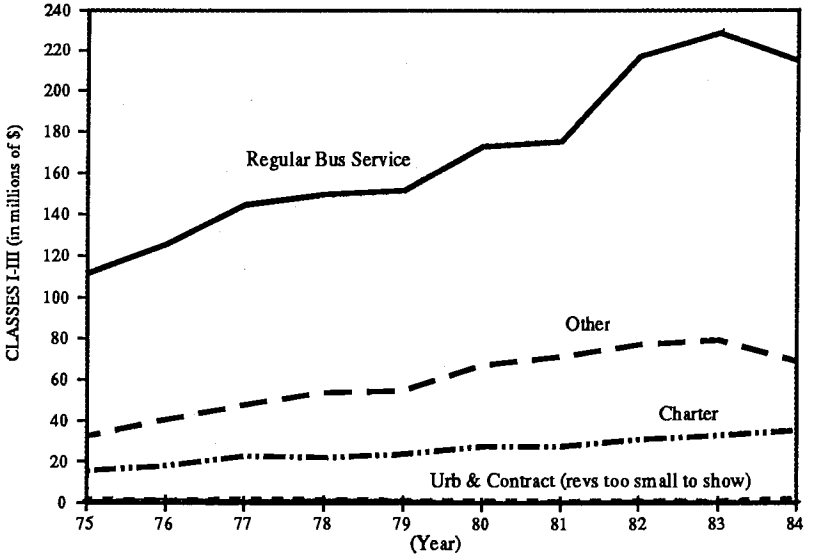


TABLE 8
THE NUMBER OF NON-HIGHWAY BUSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷85
Classes I-III	438	492	511	382	444	372	277	265	238	245	0.559

TABLE 9
COMPONENTS OF BUS EXPENSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Expenses (000's)	148972	170181	198768	210272	222973	254135	274291	314510	327290	311696	2.092
Transp.	74886	82894	98554	104125	108992	122226	131130	147584	148823	148113	1.978
Maintenance	23047	27024	30689	33169	36507	39786	43752	46454	46392	45668	1.982
Terminal	21145	24478	28370	31566	34763	41605	46131	52589	56486	54429	2.574
Traf & Sales	5802	6855	7183	7644	6737	7848	7710	8422	8264	7986	1.376
Ins & Claims	2861	2867	3454	3115	2393	2992	2907	3589	3408	3278	1.146
Admin & other	21231	26064	30519	30653	33581	39678	42660	55873	63915	52222	2.460

Source: Appendix Table A2.

Figure 5

COMPONENTS OF PASSENGER BUS EXPENSES

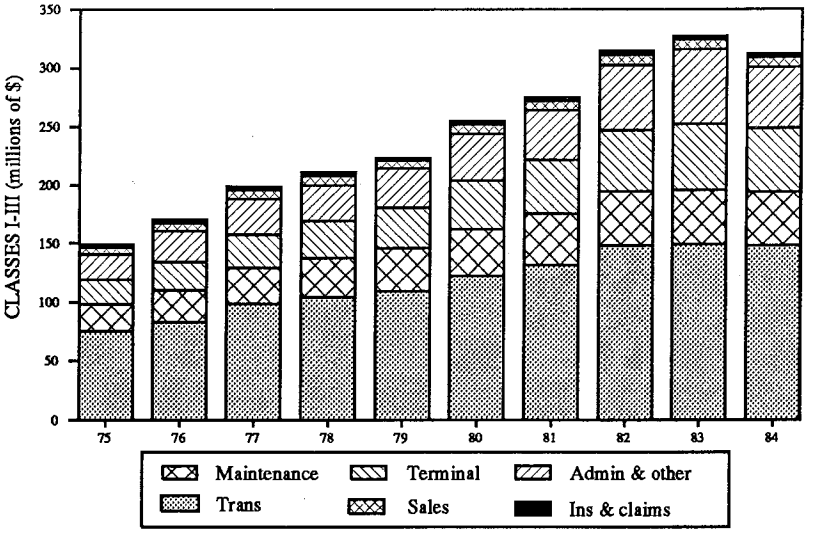


Figure 6

COMPONENTS OF PASSENGER BUS EXPENSES

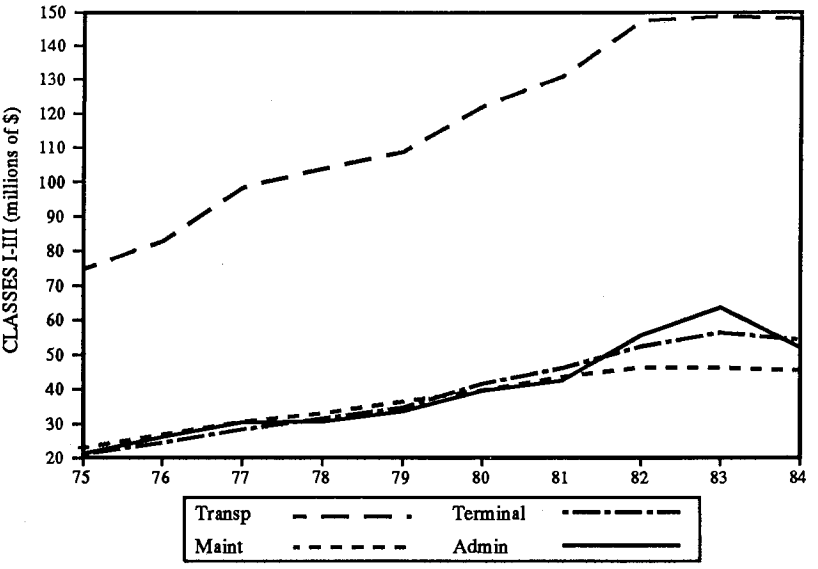


Figure 7

COMPONENTS OF PASSENGER BUS EXPENSES

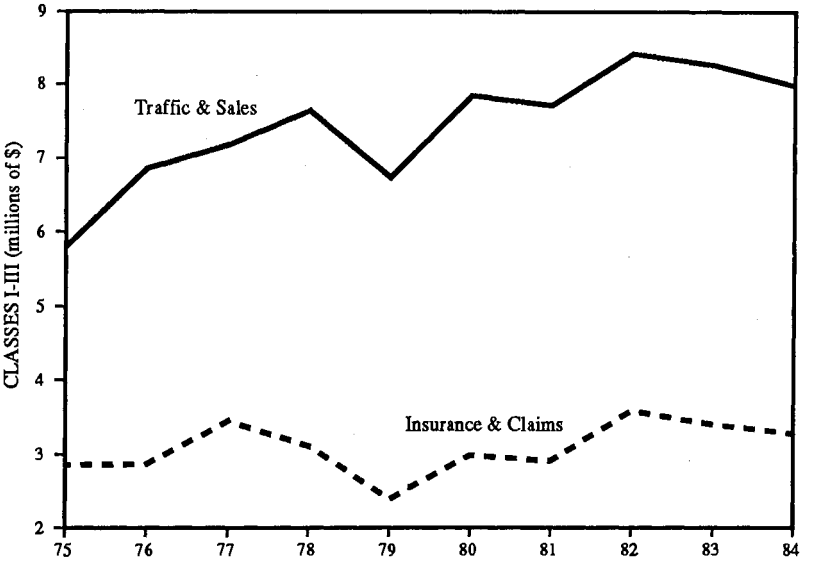
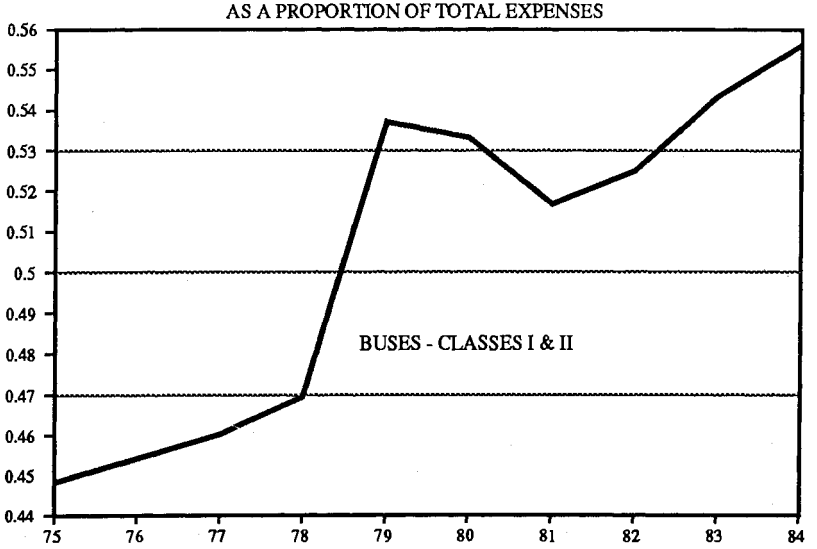


Figure 8

LABOUR COMPENSATION

AS A PROPORTION OF TOTAL EXPENSES



it makes good intuitive economic sense for this to be the case: as communication, management and planning costs decline, most firms should find it increasingly profitable to utilize more broadly defined support services. In the case of busing, these services appear to include terminal and administrative services.

Alternatively, though, it is possible that expenses in these areas rose most rapidly because of *increasing* instead of decreasing costs per unit. Data presented below show, however, that the numbers of employees in these same categories increased much more than in the other categories. These data are consistent with the hypothesis that bus firms changed their methods of production to using more support services over time, presumably in response to increased productivity in these areas.

Table 10 and Figure 8 show that, a noticeable blip notwithstanding, labour compensation as a whole has tended to increase as a portion of total expenses in this industry during the past decade.

As was indicated above, the greater increases in terminal expenses and administrative expenses were in large measure the result of increased labour expenses. Table 11 shows that labour compensation as a percentage of total expenses (for each function) increased most rapidly for the terminal and administrative functions. For the most part, these increases arose because employment in these categories increased more rapidly than for any of the other categories in this industry. This fact is demonstrated quite clearly in Table 12, which shows employment and employment growth in each of the functional categories for the firms in all three size classes.

Table 13 presents additional data consistent with the idea that increased support service expenses have arisen because of increased use of the services rather than simply increased wages for employees in these areas. While average compensation increased the most for terminal employees from 1975 to 1984, average compensation for administrative employees had notably smaller increases. Unfortunately, though, these averages are only indicative of general trends because they do not distinguish between full-time and part-time employees; the data permitting such a distinction are not available.

The increasing use of support services within the passenger bus industry also appears when one examines the number of bus drivers as a percentage of the total number of employees, shown in Table 14 and in Figure 9. This ratio has declined for firms in all size classes, but most clearly in the larger firms after 1979. Bus firms have reduced their number of drivers relative to the number of other employees. While this change is indicative of an increased use of support services within the industry, it may also be a

TABLE 10
LABOUR COMPENSATION AS A PERCENTAGE OF TOTAL EXPENSES
Size Classes I & II

1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷85
0.448	0.454	0.460	0.470	0.537	0.533	0.517	0.525	0.544	0.556	1.240

Source: Appendix Table A1.

TABLE 11
COMPENSATION AS A PERCENTAGE OF EXPENSES, BY FUNCTION

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Comp/expenses	0.448	0.454	0.460	0.470	0.537	0.533	0.517	0.525	0.544	0.556	1.240
Transportation	0.596	0.591	0.608	0.612	0.708	0.720	0.686	0.685	0.718	0.718	1.206
Maintenance	0.425	0.415	0.410	0.412	0.449	0.428	0.433	0.552	0.600	0.574	1.349
Terminal	0.273	0.369	0.339	0.345	0.411	0.402	0.395	0.393	0.423	0.426	1.560
Traffic & Sales	0.348	0.289	0.337	0.305	0.413	0.403	0.433	0.467	0.534	0.377	1.082
Admin & Other	0.194	0.212	0.207	0.243	0.253	0.249	0.249	0.233	0.220	0.263	1.357

Source: Appendix Table A1.

TABLE 12

TOTAL NUMBERS OF EMPLOYEES BY FUNCTION

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Total Employees	5097	5398	5857	5474	5768	5762	5453	5692	5472	5005	0.982
Transportation				3247	3446	3385	3105	3150		2752	
Drivers	2944	3002	3400	3125	3344	3301	3027	3075	2871	2653	0.901
Other				122	102			75		99	
Maintenance	839	879	926	831	838	807	805	942	933	849	1.012
Terminal	546	755	811	741	811	848	860	871	867	781	1.430
Sales					133			155		88	
Admin. & other	447	476	500	540	540	572	544	574	582	535	1.197

Source: Appendix Table A2.

TABLE 13
AVERAGE LABOUR COMPENSATION, BY FUNCTION

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Average Compensation	13263	14459	15954	18307	20937	23781	26121	29188	32659	34996	2.639
Transportation	14450	15669	17506	19942	22552	26313	29125	32318	36529	39159	2.710
Drivers	14527	15617	17497	19819	22836	26554	29388	32633	36932	39723	2.734
Other	13189	16716	17823	22984	13451	17119	19115	19653	19957	24626	1.867
Maintenance	11741	12831	13895	16680	19530	21141	23388	27195	29782	30693	2.614
Terminal	10570	12086	11846	14683	17638	19745	21201	23783	27615	29742	2.814
Sales	13836	14917	19540	20261	20925	21067	23993	25394	29433	34193	2.471
Admin. & other	10962	13128	14870	15642	17716	19265	21393	24605	26050	28374	2.588

Source: Appendix Table A1.

statistical artifact picking up increased use of part-time employees in the support service functions of the industry. This latter possibility has increased likelihood, especially in light of the increased total compensation paid to employees providing these functions, and the generally lower growth in average compensation paid to most of these employees.

Bus Profits

Two different measures of profits are provided in Table 15 and in Figure 10 for firms in size classes I and II. These measures are "Net Transportation Revenue," which shows the revenues minus the expenses from the transportation activities of the firms, and "Net Income," which shows the profits from all activities of the firms. Aside from the inexplicable outlier in 1979, both profit measures have remained fairly constant or have declined slightly in nominal terms, meaning they fell substantially in real terms.

Various operating ratios generally provide a clearer picture of profitability than the dollar value of firms' profits. In particular, the measure of greatest interest for most stockholders and in most financial management situations is the rate of return on owners' equity. This measure is reported on the third line of Table 16 and appears in Figure 11 as NI/OE. While the net income numbers in the numerator of this ratio may be a bit questionable because of their high variability, in general owners' equity tended to rise and fall with net income (compare Lines 17 and 18 of Appendix Table A1, especially). Nevertheless, the return on equity declined during the decade from a very healthy and attractive 20 percent to an unappealing range near 10 percent in the early 1980s.

Comparisons of the rate of return are most revealing if juxtaposed with reasonable alternatives. In Table 16, two alternatives are presented to illustrate the opportunity costs of the financial capital invested in bus firms. These two alternatives are the 90-day Treasury Bill Rate, and the yield on Canadian bonds with a maturity of ten years or longer. The data reveal that stockholders did very well throughout the 1970s, but that their returns barely exceeded the returns on these two alternatives in 1981, 1983, and 1984. The differences between the return to equity in the bus industry and the alternatives presented in Table 16 presumably reflected changing risk premia, a shift from good luck to bad luck, and/or an increase in competition in the industry. While all three of these influences were at work during the past decade, the growing competition from other transportation modes and resulting from entry deregulation along some routes was probably one of the most important causes of declining returns

TABLE 14
RATIO OF DRIVERS TO TOTAL EMPLOYEES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Size Classes I & II:	0.575	0.555	0.578	0.568	0.580	0.571	0.554	0.539	0.524	0.526	0.915
Size Classes I - III:	0.578	0.556	0.581	0.571	0.580	0.573	0.555	0.540	0.525	0.530	0.918
Size Class III:	0.653	0.619	0.641	0.675	0.575	0.633	0.642	0.620	0.576	0.643	0.985

Source: Appendix Tables A1 - A3.

TABLE 15
BUS FIRMS' PROFITS, SIZE CLASSES I & II

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Net Transp Revenue	13863	16176	18588	17713	9632	15290	2064	13094	15435	10070	0.726
Net Income	22376	19374	28813	24322	19830	23930	24806	27444	10426	14203	0.635

Source: Appendix Table A2.

Figure 9

OF DRIVERS AS A % OF TOTAL EMPLOYMENT

BUSES, Classes I-III vs. Class III

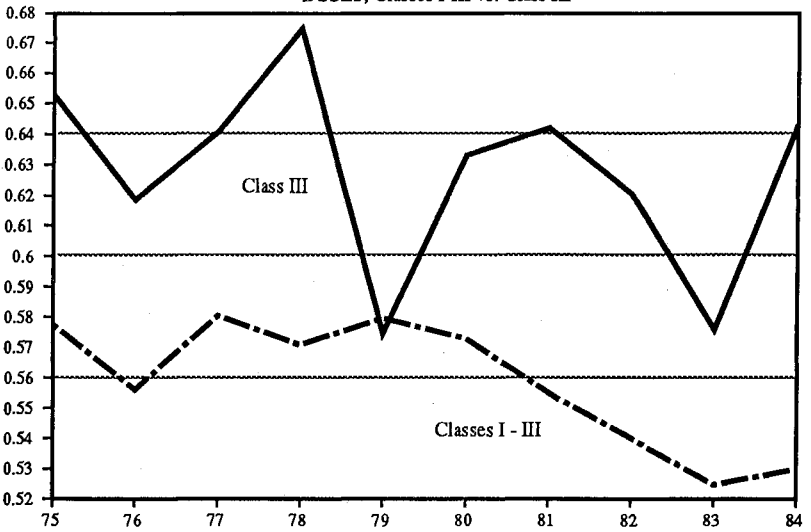


Figure 10

BUS PROFITS

Bus Classes I & II

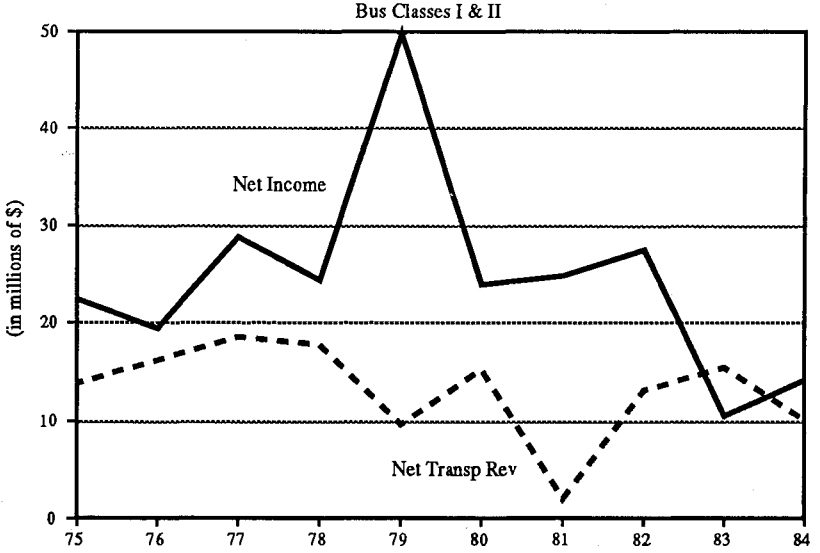


Figure 11

NET OPERATING RATIOS, BUSES

Bus Classes I & II

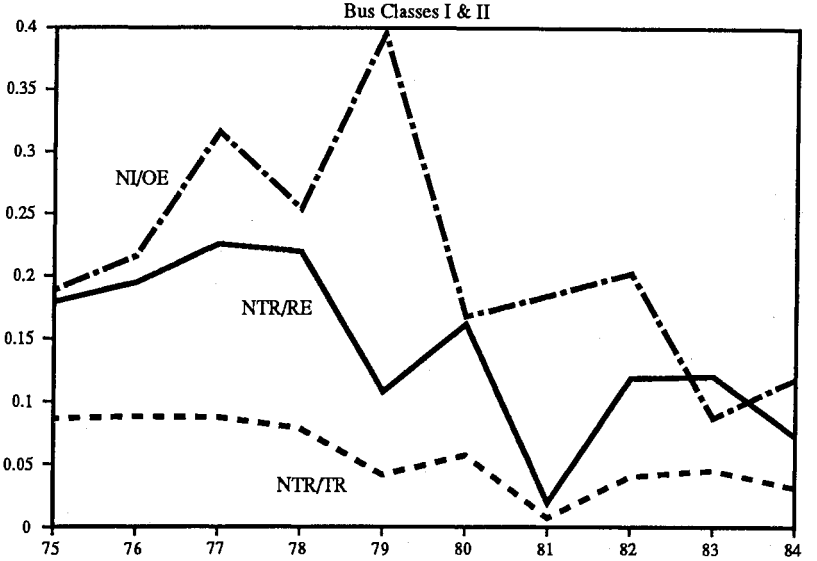


Figure 12

OWNERS EQUITY/REVENUE EQUIPMENT

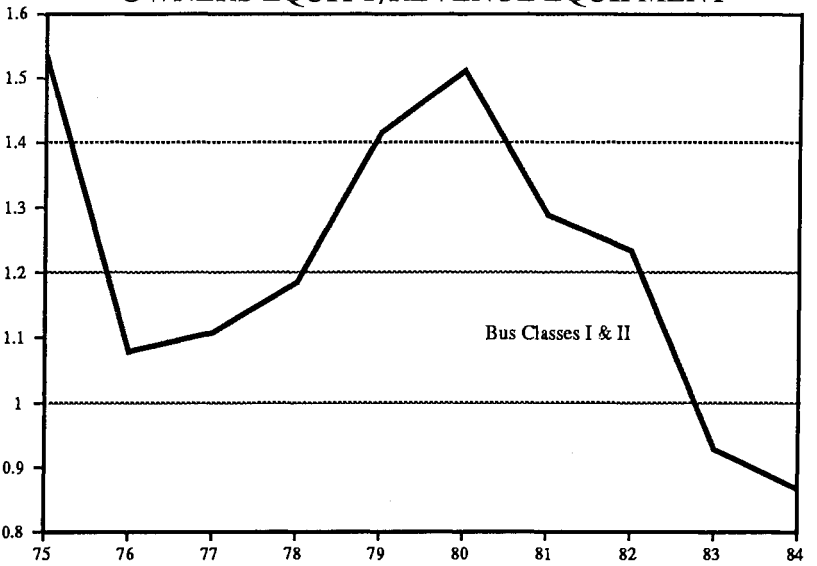


TABLE 16
BUS FIRMS' PROFIT RATES AND FINANCIAL RATIOS

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Net Trnsp Rv/Transp Rv	.0864	.0878	.0874	.0788	.0420	.0575	.0075	.0404	.0453	.0319
Net Trnsp Rv/Rv Equip	.1796	.1947	.2259	.2194	.1082	.1620	.0197	.1191	.1203	.0729
Net Income/Owners Eqty	.1886	.2159	.3158	.2542	.3955	.1678	.1845	.2023	.0875	.1186
90-Day T-Bill Rates	.0737	.0890	.0735	.0859	.1155	.1275	.1777	.1381	.0932	.1111
Long-term Bond Yield	.0900	.0922	.0869	.0924	.1017	.1233	.1503	.1436	.1177	.1274
Ownrs Eqty/Rev Equip	1.5364	1.0799	1.1087	1.1854	1.4158	1.5113	1.2890	1.2341	0.9284	0.8673

Sources: Financial Ratios from Appendix Table A1; Bond Yields, and T-Bill Rates from *Bank of Canada Review*.

to stockholders'equity in the recent past. Growing real incomes and the inferior nature of bus travel likely also contributed to declining profitability in the industry.

Other operating ratios frequently bandied about in the financial press typically convey less information about profitability of firms or industries. One of the more common of these ratios, Net Transportation Revenues divided by (Gross) Transportation Revenues (NTR/TR in Figure 11), also declined during the decade.

Finally, Net Transportation Revenues divided by the dollar value of Revenue Equipment (NTR/RE in Figure 11) are a reasonably close approximation to the return on assets in the transportation business of the firms surveyed. This measure also declined, but a decline in the rate of return on assets is not necessarily indicative of a decline in profitability if firms were able to increase their financial leverage at the same time.

The extent of leverage is often inferred from debt-equity or debt-asset ratios. In this instance, an indicator of these ratios is owners' equity divided by the dollar value of revenue equipment; the higher this ratio, the lower is the average amount of leverage in the industry (see the last line of Table 15 and Figure 12). It appears that the book value of the owners' claims on the firms' assets was greater than the book value of the firms' buses for most of the decade under study. This result is very surprising, for it indicates that there was typically very little debt in the financial structure of most passenger bus firms. The lack of debt financing in at least one such firm has already been noted with some consternation (Palmer, Quinn, and Resendes, 1983). This approximate equity-asset ratio fell below one only in 1983 and 1984.

It may be that these firms rationally attempted to increase their debt-equity ratios during more recent years, by borrowing to purchase more buses, as would be indicated by the fact that the dollar value of revenue equipment increased substantially while owners' equity actually declined. Alternatively, it is possible that the relatively poor profit performances of the past few years have necessitated more trips to the bank than were planned or expected simply for some of these firms to remain in business.

Productivity in the Passenger Bus Industry

The number of kilometres travelled by passenger buses is presented in considerable detail in the data appendix (Lines 46 - 48 of Table A1, Lines 38 - 40 of Table A2, and Lines 32 -34 of Table A3; also see Figure 24). These figures are summarized in Table 17 (which is only slightly more detailed

TABLE 17

KILOMETRES TRAVELLED BY BUSES, CLASSES I - III

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Total Kms. (000's)	177219	182182	199680	191261	189973	203119	185014	197838	194399	182773	1.031
Intercity			197945	189739	188381	201521	183421	195987	192270	180291	
Other			1735	1522	1591	1598	1593	1851	2129	2482	

Source: Appendix Table A2.

TABLE 18

TOTAL NUMBER OF BUSES, CLASSES I - III

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷74
Buses	1786	1768	1964	2183	1885	1866	1805	1704	1683	1526	1558	0.872
Highway	1344	1289	1451	1575	1348	1405	1407	1405	1371	1270	1260	0.938
Other	442	478	513	608	466	461	398	297	312	256	298	0.674

Source: Appendix Table A2.

than Table 5). While the distance travelled showed variability, between 1975 and 1984 there was overall a small increase in the kilometres travelled.

At the same time that the total number of kilometres travelled by all the buses in the industry was increasing, there was a substantial decline in the number of buses in the industry, as shown in Table 18. These two trends gave rise to a noticeable increase in the number of kilometres travelled per bus, as shown in Table 19 and in Figure 13).

It is possible that this increase in the number of kilometres travelled per bus represents a productivity increase—possibly improved terminal and administrative management makes it possible for the firms to have less idle time for their revenue equipment. Before jumping to this conclusion, though, one should also note (especially among the larger firms) that the largest percentage decline in the number of buses was in the number of non-highway buses. The increase in the number of intercity kilometres travelled per highway bus was comparatively small.

Apparently, the overall increase in kilometres per bus has been due not so much to productivity increases but more to an evolving, changing composition of the passenger bus industry. As the larger firms have dropped out of the short-haul businesses such as urban, suburban, contract, and schoolbus service, the average kilometres per bus in their remaining service has increased. But this increase is partially a measurement phenomenon which has little to do with increasing productivity.

That the survey coverage and the composition of the industry have been changing are reflected in the exactly opposite results for smaller, class III firms in the industry. Here, the number of buses has *increased* and the number of kilometres travelled has *decreased*, meaning that the average number of kilometres travelled per bus *decreased* as well, although this trend was not particularly strong (see Table 20 and Figure 13). These numbers are consistent with the hypothesis advanced above that the larger firms seem to be specializing in longer trip business while the smaller firms seem to be filling in on the shorter trips. Anecdotally, this phenomenon was observed on the Alliston to Barrie, Ontario route when Gray Coach abandoned the route in the early 1980s after it lost its attempt to keep Greyhound from being allowed to offer competing service on its longer and busier routes.

Confirmation that some of the reported changes in the industry are reflections of the survey coverage comes from an examination of the number of buses in the industry. The decline of between 25 and 30 percent during the six-year period from 1977 to 1983 seems surprising, to say the

TABLE 19
KILOMETRES TRAVELLED PER BUS

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷77
All buses (in 000's)	100.24	92.76	91.47	101.46	101.81	112.53	108.58	117.55	127.39	117.31	1.282
intercity & highway buses			125.68	140.76	134.08	143.23	130.55	142.95	151.39	143.09	1.139

Source: Appendix Table A2.

TABLE 20
KILOMETRES TRAVELLED; TOTAL AND PER BUS
Class III Only

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
# of Buses	94	76	190	146	83	104	62	72	50	104	1.106
Total Kms. (000's)	4055	4886	5623	3472	3632	3623	2171	2734	1512	3604	0.889
Kms./bus (000's)	43.14	64.29	29.59	23.78	43.76	34.84	35.02	37.97	30.24	34.65	0.803

Source: Appendix Table A3.

Figure 13

AVERAGE KILOMETRES TRAVELLED PER BUS

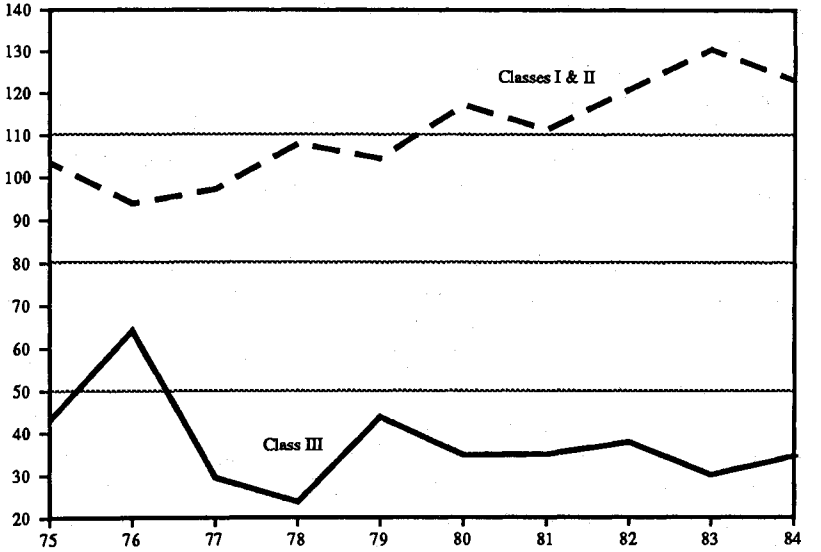
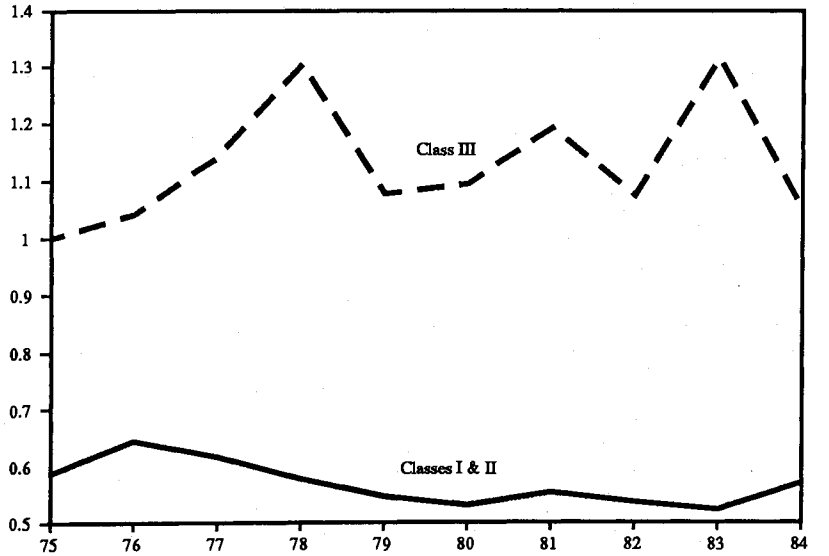


Figure 14

AVERAGE NUMBER OF BUSES PER DRIVER



least. The extremely large decline from 1977 to 1978 alone is particularly surprising (recall Table 18). Depreciation and accidents probably accounted for some of the decline, but the industry stock of buses plus the production of new buses over the period was most likely showing up elsewhere in related industries. A plausible hypothesis is that these apparently lost buses were sold to firms in the tourism and school bus industries, particularly the former which is only recently being covered in a separate survey by Statistics Canada (see Gigantes and Palmer, both in Grubel [1987]). This hypothesis has also been advanced by MacCharles in Grubel (1987, p. 194).

Additional support for the view that increasing specialization is occurring in the bus passenger industry is provided from an analysis of the changing ratio of buses per driver: this ratio was about .64 in 1977 and had fallen to about .53 by 1983, although this trend was less clear between 1975 and 1984 (see Table 21 and Figure 14):

While idle time of both buses and drivers was reduced over the six years from 1977 to 1983, it appears to have been reduced more for buses than for drivers; or perhaps there was greater utilization of part-time drivers (although no comprehensive data are available on the breakdown between part-time and full-time labour). In addition, if intercity passenger bus firms began to concentrate more on their regular bus service and less on their other passenger services, and if the other passenger services involve more idle time for the buses (e.g. between shorter runs or between morning and afternoon school service), the ratio of buses to drivers and the ratios of drivers to non-transportation employees would decrease, as in fact they did. At the very least, these data are consistent with what one would expect to observe in an industry that is becoming increasingly specialized. As an aside, the difficulty of discerning part-time vs. full-time employees probably also accounts for the dramatic decline in average compensation for "Other Transportation Employees."

The ratio of buses to drivers was never below one for class III firms, and if anything it increased slightly during the decade (Line 2, Table 21; Figure 14). That these firms would have more buses on hand than could be driven by the employed drivers is unusual, especially since this ratio did not fall in the face of dramatically high real interest rates in the early 1980s. One plausible explanation for these numbers is that many owner-entrepreneurs were also drivers but were not explicitly counted in this activity (recall, though, from Figure 9 that even without this alteration in the calculation of the number of drivers, these firms had *more* drivers as a percentage of total employment). Indeed, if one were to add all the "Administrative and Other" employees to the number of drivers, the ratio

TABLE 21
AVERAGE NUMBER OF BUSES PER DRIVER

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	83÷77	84÷75
Classes I & II	0.587	0.645	0.616	0.577	0.546	0.531	0.552	0.536	0.521	0.569	0.845	0.969
Class III	1.000	1.041	1.145	1.304	1.078	1.095	1.192	1.075	1.316	1.051	1.150	1.051

Source: Appendix Tables A1 and A3.

TABLE 22
AVERAGE KILOMETRES TRAVELLED PER DRIVER
(In Thousands)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Classes I & II	60.76	60.53	60.01	62.33	57.04	62.23	61.46	64.86	68.09	70.15	1.155
Class III	43.14	66.93	33.87	31.00	47.17	38.14	41.75	40.81	39.79	36.40	0.844

Source: Appendix Tables A1 and A3.

of buses to drivers would fall below one for each year. However, even with this clear *over*estimate of the number of drivers for this size class of firms, the ratio of buses to drivers would still be higher than for the larger firms. This result provides additional evidence in support of the hypothesis that the smaller firms have specialized in the short-haul niches of the market, with more idle time for their buses and fewer drivers per bus than in the larger firms.

A similar and related relationship emerges from the calculation of the average number of kilometres travelled per driver. Among the larger firms, the drivers began to drive more kilometres per year, while the opposite trend evinced itself among the smaller firms. Once again, these data are consistent with the hypothesis being advanced here, that the larger firms are tending to specialize in longer intercity passenger service, while the smaller firms are specializing in other types of service (See Table 22 and Figure 15).

A major difficulty with assessing the productivity changes in this industry arises because there are no data reported for passenger-kilometres or any other commonly used measure of output. Hence, although we see from the data that the number of passengers has decreased at about the same rate as the decrease in the number of buses, this constant number of passengers carried per bus tells us very little about productivity or capacity utilization in the industry (see Table 23 and Figure 16). There is no way of knowing how far each passenger travelled, even on average, nor is there any way to determine the average number of people on a bus per trip without micro data such as those used by Palmer, Quinn, and Resendes (1983). The calculation of the total number of kilometres travelled by all the buses in the industry divided by the total number of passengers carried by all the buses in the industry, while it has increased dramatically over the decade (see Figure 17), is not particularly informative. Possibly the buses were more crowded as each passenger travelled farther per trip; but it is just as possible that the buses had fewer passengers on them on average if the passengers began taking shorter trips. Unfortunately, calculations of revenues per kilometre shed no light on this question because of the presumed change in the types of business covered by the survey.

Conclusion

Although it appears that there has been some substitution of buses and of other labour for bus drivers over the past decade, the conclusion is clouded by the possibility that the types of firms represented by the data have changed during the decade. Even the apparent decline in employment and

Figure 15

AVERAGE NUMBER OF KILOMETRES PER DRIVER

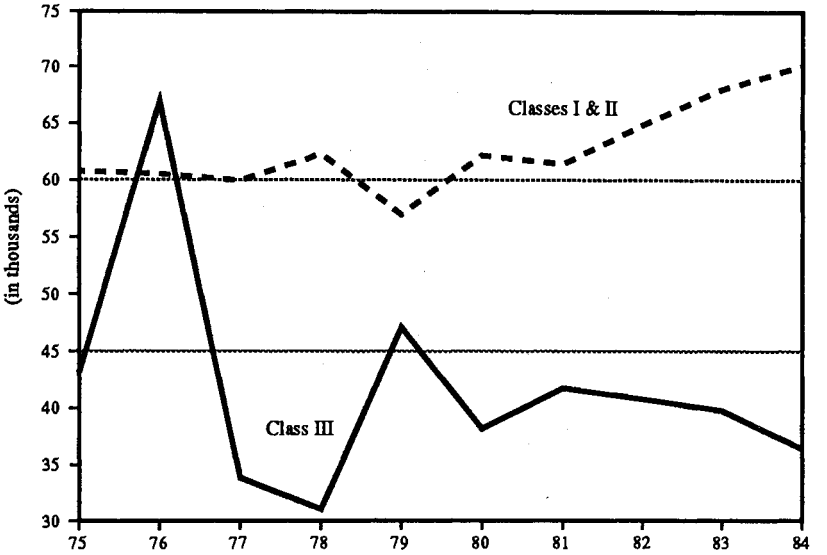


Figure 16

AVERAGE NUMBER OF PASSENGERS PER BUS

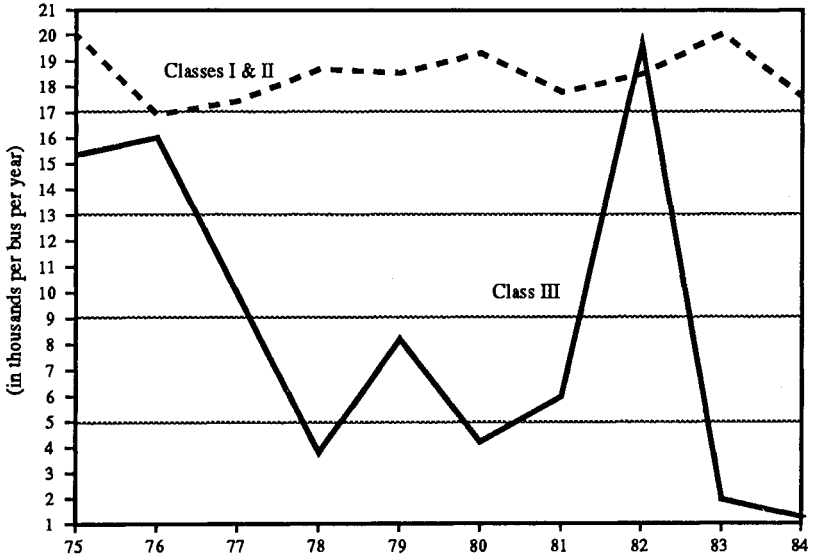


TABLE 23

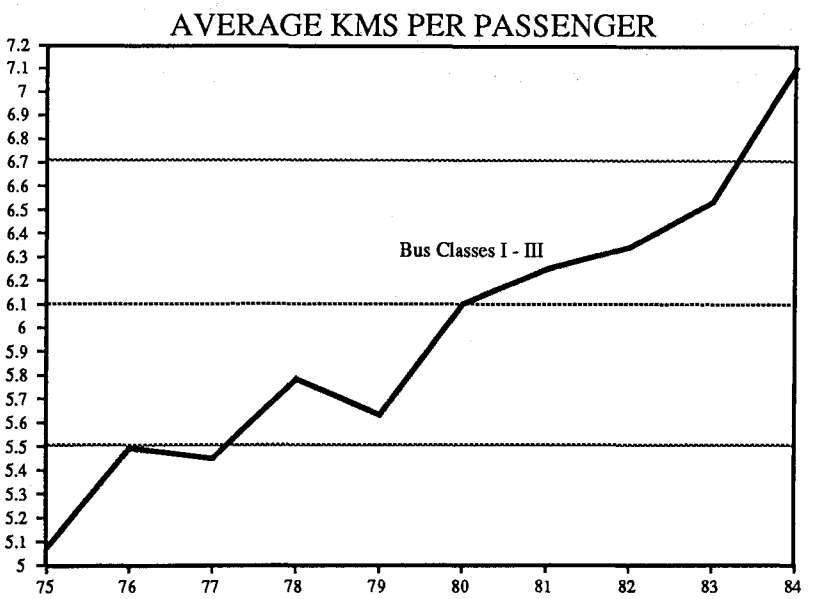
NUMBER OF PASSENGERS ÷ NUMBER OF BUSES

(In Thousands)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	84÷75
Classes I & II	20.01	16.92	17.43	18.69	18.53	19.31	17.79	18.48	20.09	17.59	0.88
Class III	15.35	16.01	9.93	3.79	8.20	4.20	5.97	19.65	1.94	1.23	0.08

Source: Appendix Tables A1 and A3.

Figure 17



output in the industry may be a statistical figment resulting from the changes in the firms covered by the survey.

The data all point to some serious strategic realignments of the firms in the industry. Larger firms are specializing in longer trips while smaller firms are specializing in shorter trips and related business. This change is consistent with the gradual *de facto* entry deregulation which has taken place over the past decade, in Ontario at least. In 1977, the Ontario Highway Transport Board with the support of the provincial Cabinet approved the entry of Greyhound on certain long routes previously served exclusively by Gray Coach. In response, Gray Coach, which had previously been serving many smaller communities with highway coaches, and at a loss, discontinued this practice of cross-subsidizing some of its less lucrative routes. In most instances, active competition emerged among smaller firms using vans or other non-highway buses to provide service to these same communities. As a result of this evolution in the industry, more residents are being served by more competitive services, but these social benefits do not readily leap off the pages at the reader studying the tables in this chapter and Figures 1 - 17. In large part the increased service provided to rural areas and to users of specialized services has escaped

coverage by the Statistics Canada surveys. Some of the service is provided by very small firms and shows up to some extent in the data for class III firms. But much of the service is provided by even smaller firms or by firms which have only recently been included in different data surveys.

CHAPTER 3

RAILWAY FREIGHT AND PASSENGER SERVICE

Until the mid-nineteenth century, Canada's abundant and well-connected waterways had provided the bulk of our transportation services. With the advent of the railroads, however, it became increasingly cost effective for shippers and passengers to turn to the rails. By the end of the nineteenth century, railroad service had been extended to most parts of Canada: Sir John A. MacDonald's dream of a transcontinental rail system, the Canadian Pacific, had been realized, and a multitude of smaller lines had been constructed, as well.

Almost without exception, however, the railways began to face growing competition (and the concomitant shrinking revenues) along with escalating costs. These conditions seriously jeopardized their economic viability over the long run. Nearly all of the smaller operations, especially, faced substantial losses by the early twentieth century; in addition, there was considerable political pressure for the construction and integration of a second transcontinental rail line farther north of the Canada - U.S. border. The confluence of these two events gave rise to the Canadian National Railroad, a Crown corporation saddled with many of the routes which had proven unsuccessful in the private sector.

By the mid-twentieth century, it had become clear that the railways were losing their dominance in the transportation industries of North America (see Purdy [1972] and Heaver and Nelsen [1977] for more complete information). Many branch lines, especially in the Prairies, were being abandoned; passenger service was decreased or discontinued to many smaller towns and villages.

Two reasons are consistently put forth explaining the declining importance of railways. By far the most important factor has been the development of low-cost, comparatively speedy, alternatives for many of

the services provided by the railways. Trucking has grown phenomenally during this century to the point where as an industry its revenues are about the same as rail revenues (recall the data in Table 1 of the Introduction). Passenger buses have profitably taken over much of the business formerly provided by rail passenger service and airline competition has made great inroads into traditional rail service, both freight and passenger.

All of these competing industries have put the squeeze on railway revenues and profits, particularly for those services for which speedy service is valuable for the customers. At the same time the rails remain squeezed from the other side by water transportation, which still offers very low cost shipping of low-valued bulky goods for which speedy delivery is not particularly important. In addition, pipelines are being counted on increasingly to move fluids great distances at low cost.

The second oft-cited cause of the financial problems experienced by the railways is the statutory rates imposed on the firms for carrying grain and flour for export (see, for example, Caves and Christiansen [1980]). These "Crow's Nest Pass" rates were pegged at late-nineteenth century rates, and by the mid-twentieth century were well below even the variable costs of many of the railway lines.

Parliament's response to this loss-imposing legislation and to the report of the MacPherson Commission of the early 1960s came as a part of the 1967 National Transportation Act. The provisions of this Act, however, did not raise the statutory grain rates; somewhat bizarrely they instead prohibited the abandonment of more than 30,000 kilometres of railway lines in the Prairies. As an attempt to compensate the railway firms for these loss-imposing provisions, the Act also permitted them to freely adjust their other rates within very broadly defined limits. The continuing growth of competition from other modes of transportation, however, meant that the railways were simply unable to generate sufficient net revenues in some markets to enable them to continue this cross-subsidization of grain shipping. Within a decade this reality had become painfully clear to nearly all analysts and policy makers, but it was not until the 1980s that the Crow's Nest Pass provisions were replaced with a system of direct subsidies.

On the passenger service side of the industry, CN and CP operations were combined into VIA Rail. In this arena, as well, route abandonment has been an important political issue, most recently involving passenger service to parts of the Maritime provinces.

While many people think first of passenger service when they think of railroads, this sector has consistently generated less than 10 percent of the revenues in the industry as a whole during the past decade (see Table 24).

This chapter of the study is organized as follows: first the data are described and some aggregate trends in the industry are identified. Then some comparative results between railway and bus passenger service are noted. Rail freight and trucking freight are discussed in greater detail in Chapter 4 of the study.

Rail Data

Volumes of data have been collected on the Canadian railroad industry by Statistics Canada, and before them by the Dominion Bureau of Statistics. Despite the availability of this large body of data, there are some anomalies in the data summarized in Appendix Tables A4 and A5. In particular, there was a change in the reporting process in 1982 which left some data series incomplete. More importantly, however, the substantive policy changes outlined above affected the nature of the data reported. For example, when Via Rail took over the passenger services of CN Rail and CP Rail, the data reported for passenger service were no longer consistent with the data collected for previous years. Also, when the Crow's Nest Pass Agreement was replaced by a system of subsidies, both reported revenues and expenses were affected. In both of these instances, the revenues and expenses reported by the firms in the railroad industry were altered, and comparability from year-to-year jeopardized. Furthermore, in each year the inclusion of data for several smaller firms was irregular. Keeping these caveats in mind, though, it is still possible to glean some information from the data reported.

Rail Revenues

Revenues of the railroad industry shown in Table 24 are displayed along with expenses in Figure 18. While revenues for passenger rail service nearly tripled during the decade, the irregularity of this series, especially during 1979 - 1981, enforces caution on any conclusions about the industry (Line 3, Table 24), and so the different components of revenue have not been plotted separately. Much of the growth in revenues in the railroad industry has occurred as a result of inflation. However, contrary to the passenger bus industry, it appears that real output has increased in both the passenger and freight sectors of the rail industry.

TABLE 24
RAILWAY REVENUES
(In $Millions)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85÷75
Freight	2263.2	2630.0	2935.3	3208.1	3721.5	4134.1	4635.2	4514.6	5286.7	6225.7	6137.5	2.712
Passenger	83.8	89.8	99.0	128.6	369.1	478.3	569.6	195.8	210.4	218.5	244.7	2.920
Other	386.8	472.6	503.8	545.6	661.8	721.5	939.8	1591.0	1530.3	1195.5	1286.7	3.323
Total Revenues	2733.8	3192.4	3538.1	3882.3	4752.4	5333.9	6144.6	6301.4	7027.4	7639.7	7668.9	2.805

Source: Appendix Table A4

TABLE 25
PASSENGERS CARRIED & PASSENGER-KILOMETRES
(In Millions)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85÷75
Pass carried	23.6	23.6	23.9	23.9	23.7	23.0	24.3	21.3	21.2	21.9	22.9	0.972
Pass-km	2930.4	2942.2	2966.5	3200.1	3174.9	3280.0	3275.9	2639.9	2932.3	2914.7	3040.5	1.038

Source: Appendix Table A4.

Figure 18

RAILWAY EXPENSES AND REVENUES

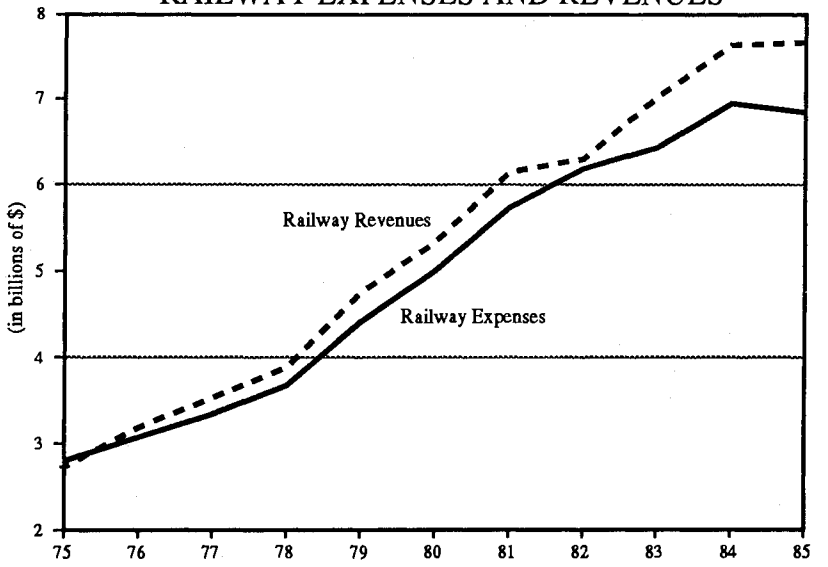
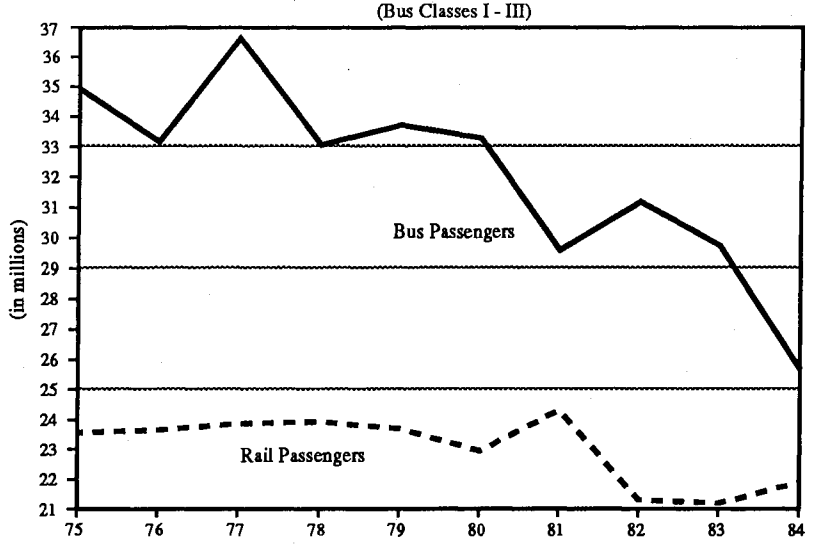


Figure 19

MILLIONS OF PASSENGERS, RAIL & BUS

(Bus Classes I - III)



In the passenger sector, the total number of passengers carried declined, but primarily in 1982, when the decline may have been more a reporting phenomenon than an economic phenomenon (see the first line of Table 25, these data are displayed along with related data for the bus passenger industry in Figures 19 and 20). Passenger-kilometres increased during the same time period despite a similar, unexplained decline in 1982 (see the second line of Table 25).

Regardless of some qualms about these data, it appears that passenger rail service may be a normal good, whereas passenger bus service is more than likely an inferior good. Real rail passenger service quite possibly increased over the period, declining the most in 1982, the trough of the recession. Real bus passenger service appears to have moved in exactly the opposite direction in most years (Figure 19). These movements occurred while bus and rail fares were moving almost exactly together (see Table 26 and Figure 40, infra.)

In the freight sector of the railroad industry, real output has grown as well. The total number of tonnes carried, tonne-kilometres, and the average number of kilometres travelled by freight cars all increased and all moved together, showing a noticeable reduction during the recession year of 1982 (see Table 27 and Figure 21).

From 1975 to 1985, rail freight revenues increased faster than the rate of inflation, while revenues per tonne-kilometre almost exactly matched the rate of inflation. Taken together, these data series (shown in Table 28) indicate that not all of the growth in revenue for the firms has been due to inflation; an additional and important source of the revenue growth has been increased real output, measured in tonne-kilometres, over the decade.

Rail Expenses

Railway expenses appear in Table 29 and in Figures 18 and 22. Unfortunately, the expenses cannot be broken down according to passenger service and freight service. With both sectors of the industry sharing much of the overhead and administration, any breakdown according to sectors could only generously be called arbitrary. The reported functional breakdowns show that while total expenses moved rather smoothly from one year to the next, the individual components of expenses moved more erratically. In particular, transportation expenses fell markedly in 1982, likely as a result of reduced real output during that recession year, only to be more than offset by an increase in equipment maintenance expenses in the same year. One possible explanation for these opposite movements is that while the equipment was idle more often in 1982, the opportunity was seized to per-

TABLE 26
PRICE AND REVENUE INDICES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Rail Fares, 1981=100	59.2	65.0	67.1	70.6	76.4	85.1	100.0	119.7	132.1	136.6	144.0
Bus Fares, 1981=100	57.7	63.0	68.6	74.5	79.6	89.2	100.0	120.8	130.5	137.6	143.3

Source: Appendix Table A7.

TABLE 27
RAILWAY FREIGHT WEIGHT AND DISTANCE DATA

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85÷75
Tonnes, millions	225.9	238.8	247.2	238.8	257.9	254.5	246.9	239.7	249.8	288.2	278.9	1.235
Tonne-kms, billions	197.2	202.2	212.4	215.4	233.8	235.0	234.4	219.4	225.4	254.0	242.1	1.228
Frt. trn-kms, bill.	102.7	110.5	110.3	111.2	114.0	111.4	106.9	92.1	95.7	103.5	99.7	0.971

Source: Appendix Table A4.

Figure 20

MILLIONS OF PASSENGERS, RAIL & BUS

(Bus Classes I - III)

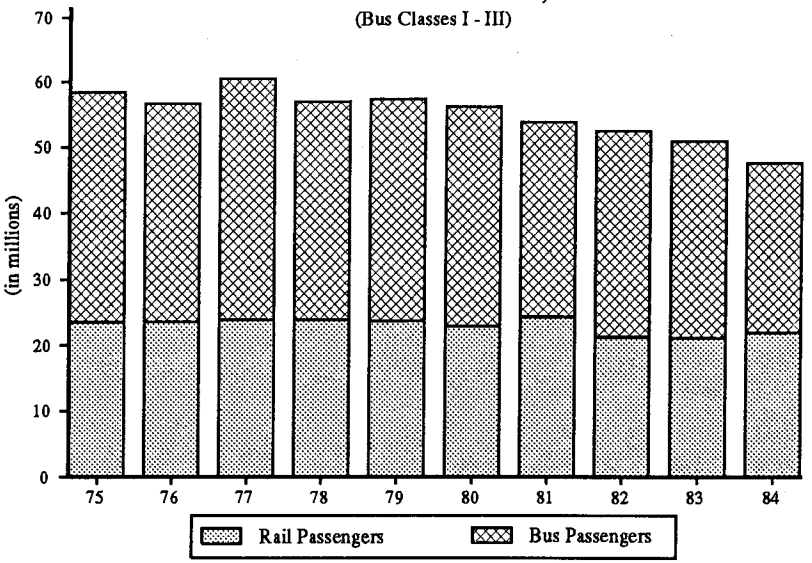


Figure 21

RAIL FREIGHT WEIGHT & DISTANCE DATA

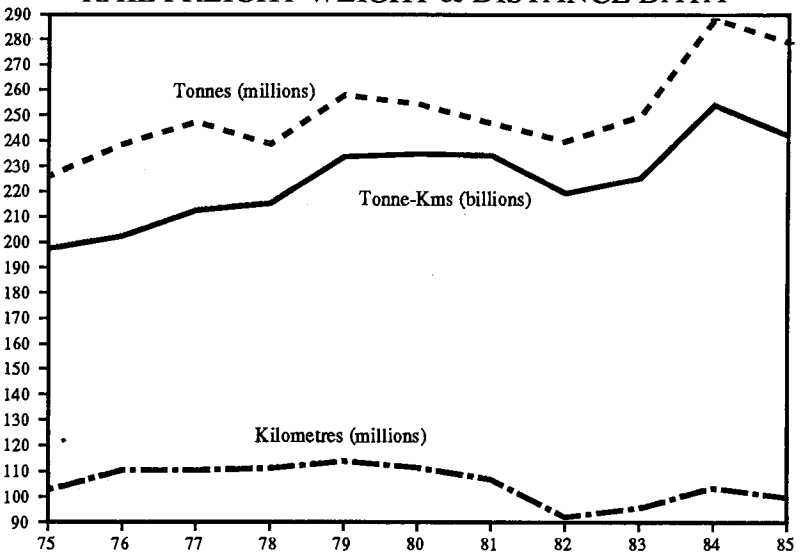


TABLE 28
RAIL FREIGHT REVENUE INDICES
(1981 = 100)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
CPI	58.5	62.9	67.9	73.9	80.7	88.9	100.0	110.8	117.2	122.3	127.2
Revenues per Tonne	53.4	58.7	63.2	71.6	76.9	86.5	100.0	100.3	112.7	115.1	117.2
Rev per Tonne-Km.	58.0	65.8	69.9	75.3	80.5	88.9	100.0	104.0	118.6	123.9	128.2
Total Frt. Rev.	48.8	56.7	63.3	69.1	80.2	89.1	100.0	97.3	113.9	134.2	132.3

Source: Lines 1 - 3 from Appendix Table A7; Line 4 calculated fromAppendix Table A4.

TABLE 29
RAILWAY EXPENSES BY FUNCTION

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85÷75
Total Railway Exp.	2802.0	3075.9	3349.0	3675.4	4412.0	5003.0	5742.2	6185.1	6437.6	6951.4	6845.1	2.443
Road & Struct. Maint.	501.9	569.5	626.3	668.0	744.3	798.7	936.4	946.9	1037.1	1138.4	1143.0	2.277
Equipment Maintenance	544.9	574.1	665.4	747.3	837.3	949.6	1082.7	1509.9	1609.8	1796.5	1807.9	3.318
Rail Transportation	1119.3	1196.7	1299.2	1411.0	1804.2	2081.5	2420.7	2156.9	2201.2	2426.7	2440.6	2.180
Miscellaneous & Gen.	346.4	400.1	409.0	473.7	572.2	628.7	690.0	1571.4	1589.5	1589.8	1453.6	4.196
Traffic+Misc+Taxes	635.9	735.6	758.1	849.1	1026.2	1173.3	1302.4	1571.4	1589.5	1589.8	1453.6	2.286

Source:1 Appendix Table A4.

form more maintenance on it. If this explanation were completely correct, however, one must be puzzled by the fact that equipment maintenance expenses did not decline somewhat in later years.

Unlike the passenger bus industry, employee remuneration as a percentage of total expenses declined steadily and substantially in the railroad industry from about 55 percent in the mid-1970s to approximately 42 percent in the 1980s. Average compensation increased at just about the same rate as the rate of inflation or slightly above it; but the number of employees and their hours worked both declined over the decade (all of these items are categorized in great detail in lines 59 - 79 of Appendix Table A4). These relationships were evident in all but one of the functional breakdowns of expenses as well (see Table 30 which shows labour compensation as a percentage of each function's expenses). The decrease was substantial for every function except road and structure maintenance, where the increase was negligible. Quite clearly, other expenses were taking on an increasingly important portion of the overall expenses of the railroad industry during the late 1970s and early 1980s. At the same time, labour was accounting for a smaller portion of total expenses. One component of total expenses that loomed larger over the decade was fuel expenses (see Table 31 and Figure 23). Real fuel consumption in the industry did not change much between 1975 and 1985 despite the aforementioned increase in real output. Nevertheless, total fuel costs more than quadrupled in nominal terms and nearly doubled as a proportion of total expenses. In fact, the decline in the share of expenses attributable to labour was to a large extent offset by the increase in the share of expenses attributable to fuel costs, suggesting that there was some substitution between the two inputs. Additional evidence of the substitutability between labour and fuel comes from recognizing that the number of employees declined while real fuel consumption remained approximately constant, all while real output was increasing.

Railroad Profits

Net Railway Revenues and Net Income for the firms in the railroad industry are presented in Lines 13 and 17 of Appendix Table A4. These numbers are of little use for most analytical purposes, however, and hence are not reproduced here. Several of the major firms in the industry are Crown corporations with goals other than wealth maximization. In addition, the structure of regulations and subsidies changed considerably during the past decade, causing questionable swings in reported profits.

TABLE 30
REMUNERATION AS A PERCENTAGE OF TOTAL EXPENSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85/75
Remun/Expenses:	0.555	0.542	0.542	0.525	0.498	0.476	0.456	0.427	0.426	0.424	0.430	0.775
General	0.146	0.139	0.139	0.134	0.117	0.116	0.116	0.108	0.106	0.100	0.112	0.767
Road Maintenance	0.568	0.564	0.582	0.580	0.594	0.595	0.573	0.589	0.595	0.587	0.571	1.005
Equip Maintenance	0.691	0.699	0.668	0.650	0.675	0.649	0.636	0.468	0.450	0.440	0.421	0.610
Transportation	0.607	0.605	0.591	0.569	0.504	0.468	0.427	0.452	0.452	0.447	0.448	0.738

Source: Appendix Table A5.

TABLE 31
RAILWAY FUEL CONSUMPTION AND EXPENSES

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85÷75
Diesel oil, litres	2199.1	2126.7	2202.2	2293.7	2425.4	2337.1	2282.6	2027.0	2023.0	2141.6	2231.0	1.015
Crude oil, litres	135.1	208.9	214.0	139.1	92.0	147.2	115.0	43.0	95.7	92.6	105.0	0.777
Electricity, kwh	11.6	10.3	10.5	10.0	8.9	7.8	7.0	8.5	9.1	15.2	21.4	1.838
Total Fuel costs ($M)	171.8	191.9	227.0	264.6	311.7	402.6	559.8	596.6	642.5	706.5	771.0	4.488
Fuel Exp/Expenses	0.061	0.062	0.068	0.072	0.071	0.080	0.097	0.096	0.100	0.102	0.113	1.837

Source: Appendix Tables A4 and A5

Figure 22

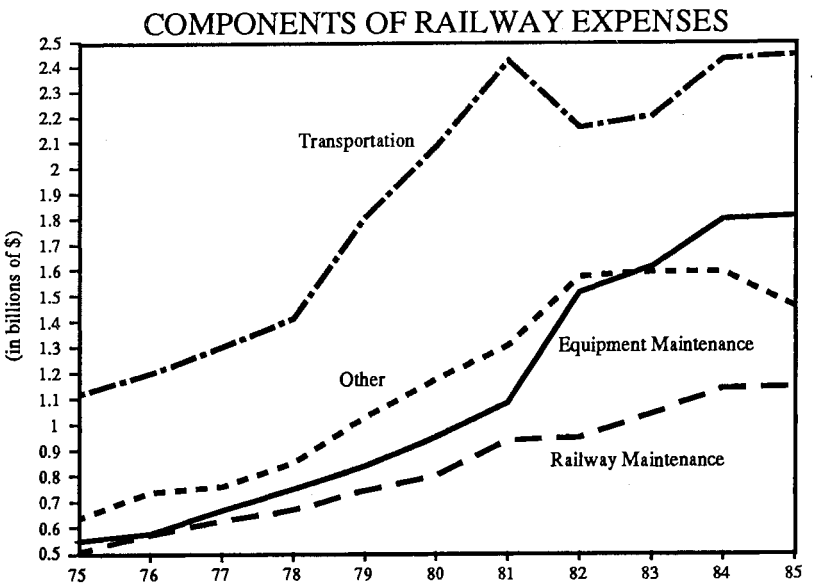
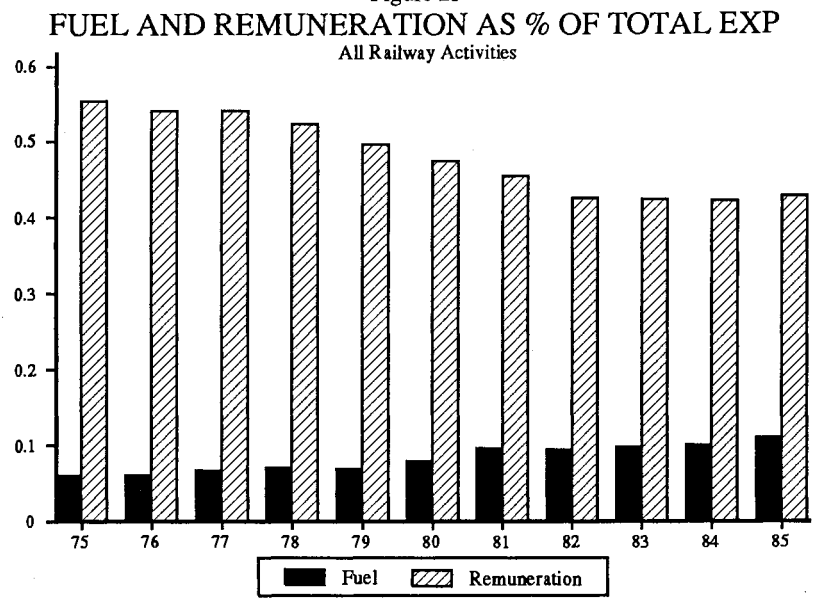


Figure 23



Railroad Productivity

Productivity changes in the freight sector of the railroad industry will be discussed in Chapter 4 of this study, along with productivity in the trucking industry. In the passenger service sector of the industry, major changes in 1982 make analysis of the data risky at best. The reported number of passenger train kilometres declined in most years up until 1982, when they skyrocketed and remained at high, 1975 levels (see Table 32). Passenger car kilometres followed a very similar pattern. Thus, although both of these data series show inexplicable jumps in 1982, the number of passenger cars per train shows a comparatively smooth and steady decline between 1976 and 1985. However, attempts to make comparisons between the rail and bus industries are futile (see, for example, Figures 24 and 25).

Some caution must be used in comparing the data presented in Figure 25. For Rail Passenger Service, the numbers are Rail Passengers per rail car per passenger train trip; in other words, on average, how many passengers were there in each rail car. The bus passenger data, can only show how many passengers there were (in thousands) per bus per year. And unfortunately, the available data simply do not permit calculation of the average length of trip for each passenger travelling on either mode of transportation.

In the railroad industry as a whole, it appears that there has been a notable increase in real output per worker. As was discussed earlier, the real revenues of the industry increased while the number of employees in the industry decreased. Hence, nominal revenues per employee more than tripled and real revenues per employee increased:

That railway revenues have grown faster than labour remuneration in the industry (see the second line in Table 33) also provides some additional evidence that labour productivity has been increasing among railroad firms. While the data in Table 33 are only indicative at best of productivity trends, it turns out that the more complete discussion at the conclusion of the next chapter confirms the impressions created by these data.

Changing Geographic Patterns in Rail Shipping

Tables 34 and 35 show the total number of metric tonnes shipped by rail from one province to another in 1977 and in 1984. Also shown are the shipments between each province and the United States and between each province and international water shipping ports.

Although the total number of tonnes shipped by rail grew from 175 million to 195 million during those seven years, all of this growth came

TABLE 32

PASSENGER TRAIN KMS, PASSENGER CAR KMS, PASSENGER CARS PER TRAIN, and PASSENGERS PER RAIL CAR

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85÷75
Pass Trn km (000s)	40.0	30.0	29.5	29.1	28.9	28.1	27.4	40.3	37.8	38.0	40.0	1.000
Pass Car Km (mill)	225.4	215.6	209.6	209.6	195.1	188.3	186.1	250.0	233.1	233.8	247.9	1.100
Pass Cars/Pass Train	5.64	7.19	7.11	7.20	6.75	6.70	6.81	6.20	6.17	6.15	6.20	1.100
Passengers/Rail Car	14.8	15.6	16.0	17.1	18.0	19.0	19.0	10.6	12.6	12.5	12.3	0.826

Source: Appendix Table A4.

TABLE 33

RAILWAY REVENUES: PER EMPLOYEE, AND DIVIDED BY EMPLOYEE REMUNERATION

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85/75
Revenue/Employee	23.9	29.0	32.0	35.2	42.3	48.1	56.9	65.9	75.7	81.6	84.0	3.518
Rev/Remuneration	1.8	1.9	1.9	2.0	2.2	2.2	2.3	2.4	2.6	2.6	2.6	1.482

Source: Appendix Table 5A.

Figure 24

RAIL PASSENGER CAR KMS VS. BUS KMS

(Bus Classes I - III)

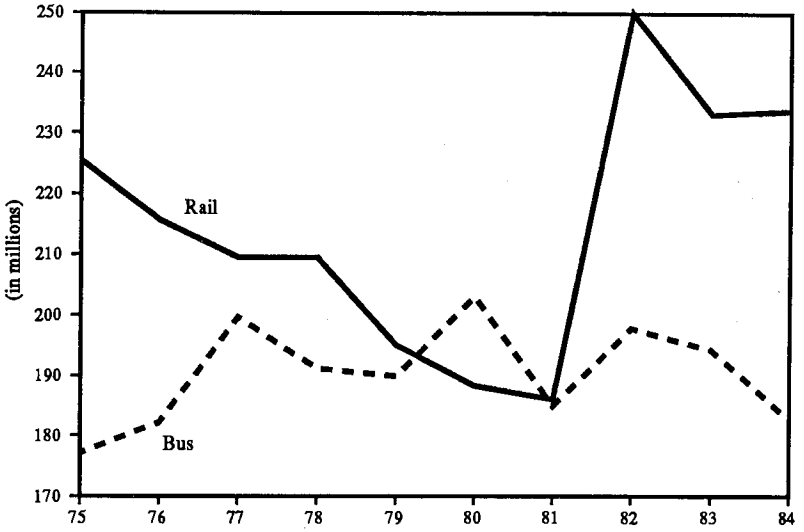


Figure 25

PASSENGERS PER RAIL CAR AND PER BUS

(Bus Classes I - III)

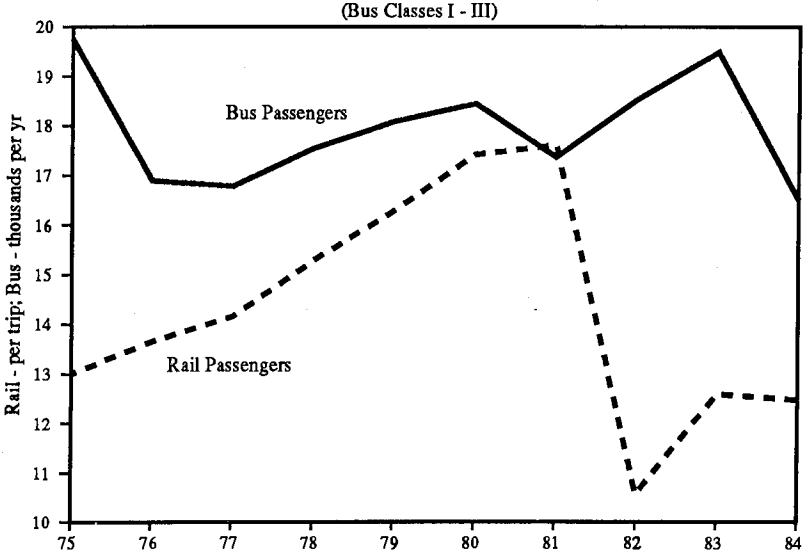


TABLE 34

METRIC TONNES SHIPPED BY ORIGIN AND DESTINATION, 1984

(In Thousands)

DESTINATION:	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	NWT	US	MARINE (Exports)	TOTAL
Origin:														
NFLD	56.5	0.1	5.2	0.7	27.4	36.2	0.0	0.0	0.0	0.0	0.0	22.4	16.1	164.6
PEI	1.5	0.1	0.0	0.1	22.9	87.0	2.7	0.1	0.2	0.0	0.0	0.3	0.1	115.0
NS	42.8	1.6	4086.1	138.4	256.8	96.6	5.6	4.7	14.4	13.1	0.0	325.7	1531.5	6517.3
NB	51.0	74.7	115.4	1389.5	567.5	246.4	26.2	0.3	3.4	4.7	0.0	314.1	543.1	3336.3
QUE	137.0	12.1	264.6	466.7	4872.8	2954.5	239.5	101.5	372.5	301.2	0.2	5888.0	1068.5	16679.1
ONT	136.6	42.3	659.6	613.6	4451.3	19256.7	1035.7	445.8	1751.1	1068.8	3.0	5991.7	2874.4	38330.6
MAN	4.0	17.2	91.7	50.2	424.7	934.7	865.6	426.9	286.9	215.5	0.0	559.7	5121.4	8998.5
SASK	5.7	8.1	68.6	28.2	374.5	3581.6	651.2	506.2	311.0	852.4	0.0	4797.7	21098.6	32283.8
ALTA	9.5	11.1	92.7	76.8	651.6	3122.7	888.7	606.7	1446.7	2977.7	209.3	5911.6	21308.8	37313.9
BC	16.5	3.6	50.3	56.8	887.5	2205.6	307.6	113.7	1620.2	7019.3	9.2	4324.7	19342.1	35957.1
NWT	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	3.9	278.6	0.1	0.0	60.2	342.9
US	0.4	1.3	44.6	120.4	1332.1	3003.4	221.0	363.6	874.7	875.1	0.7	3340.6	590.5	10768.4
MARINE	3.5	0.1	36.5	10.0	1005.9	2031.4	74.3	41.0	246.1	116.	0.9	649.0	0.0	4215.3
(Import)														
TOTAL	465.0	172.3	5515.3	2951.4	14875.0	37556.9	4318.1	2610.5	6931.1	13723.0	223.4	32125.5	73555.3	195022.8

TABLE 35

METRIC TONNES SHIPPED BY ORIGIN AND DESTINATION, 1977

(In Thousands)

DESTINATION:	NFLD	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	BC	NWT	US	MARINE (Exports)	TOTAL
Origin:														
NFLD	223.7	0.1	5.4	1.3	10.9	6.3	0.1	0.1	0.1	0.2	0.0	57.5	0.5	306.2
PEI	8.8	1.1	2.2	2.8	44.5	71.6	0.3	0.0	0.0	0.1	0.0	1.9	35.9	169.2
NS	38.2	52.0	4795.1	271.9	201.0	111.8	27.8	3.5	9.2	7.6	0.0	437.3	29.7	5985.1
NB	59.6	64.9	85.2	1531.5	419.5	315.8	5.9	0.6	8.6	10.9	0.1	459.8	913.6	3876.0
QUE	62.0	23.0	262.7	536.4	6584.9	4361.7	278.1	80.0	403.2	290.6	0.2	4336.2	1382.3	18601.3
ONT	100.5	47.3	615.5	636.7	5086.5	26502.0	1023.9	390.8	1503.9	1066.0	2.8	5738.7	2628.4	45343.0
MAN	15.3	1.3	35.9	29.7	376.6	1635.1	2692.7	521.0	298.9	115.2	0.1	520.0	2534.5	8776.3
SASK	7.5	17.2	30.1	47.3	260.0	3091.9	2050.6	791.6	219.5	1365.3	0.0	7170.0	11944.9	26995.9
ALTA	4.4	1.2	42.2	58.0	585.8	1082.4	491.1	892.1	3028.2	2894.4	37.3	4267.2	12487.1	25871.4
BC	20.4	6.5	35.6	68.0	456.5	901.4	353.4	316.3	1904.1	5616.8	2.2	5275.4	8976.6	23933.2
NWT	0.0	0.0	0.0	0.0	0.0	0.6	9.3	0.0	3.9	237.7	0.0	2.7	112.0	366.2
US	8.1	6.4	106.2	125.5	2221.9	4083.3	254.2	204.7	986.9	857.0	25.2	4182.0	0.1	13061.5
MARINE (Import)	1.0	2.0	44.3	18.0	380.3	1195.1	34.3	21.4	269.2	19.	0.1	0.0	0.0	1985.6
TOTAL	549.5	223.0	6060.4	3327.1	16628.4	43359.0	7221.7	3222.1	8635.7	12481.7	68.0	32448.7	41045.6	175270.9

Sources: Statistics Canada, *Railway Transport* (cat. 52-214) April 1982 and March 1986.

Note: The differences between the totals reported above and those in Appendix Table A4 are the result of different data collection processes implemented in the two different surveys.

about through longer distance railway shipping. Every one of the provinces shipped less intraprovincially and more interprovincially in 1984 than in 1977. In addition, while the amount shipped by rail to the United States declined slightly, the amount shipped to marine ports for export nearly doubled. Each of the western provinces experienced an amount of rail shipping destined for foreign ports that was about double the amount of just seven years earlier.

In 1977, the largest category of railway shipping was that done intraprovincially in Ontario. By 1984, though, this category had declined in absolute terms and was ranked only fourth overall. The three categories that had passed it were shipments from Saskatchewan, Alberta, and British Columbia to marine ports for export. While some of these changes may have reflected overall changes in production and marketing in Canada, some of them were also due to changes in the relative prices of transporting goods. In particular, the increase in fuel costs experienced in the late 1970s had the effect of increasing trucking costs relative to railway costs for longer shipments; but it had just the opposite effect for shorter hauls, due in large part to the high costs of stopping and starting long trains with heavy loads. This phenomenon by itself probably had much to do with the changing geographic pattern of railway shipping.

The degree of intermodal competition between the railways and trucking firms should not be underestimated. As was indicated in the introduction to this chapter, rail rates were *de facto* deregulated in Canada in 1967 (with the major exclusion of grain rates, of course). The railroads found very quickly that the rates which evolved from their ensuing negotiations with shippers were very closely related to the time costs of alternative transportation modes and to the rates charged by their rivals in all transportation industries. It is for this reason that the recent transportation deregulation in the United States had a much larger impact on shipping there than the proposed deregulation of trucking will have in Canada. Rail rates were closely regulated by the Interstate Commerce Commission in the United States, but in Canada railway firms have long had broad ranges within which they have been able to negotiate rates. The result has been that despite highly visible political goals, the railroads have also been constrained by the competitive forces of the marketplace.

CHAPTER 4

THE CANADIAN TRUCKING INDUSTRY

The Canadian trucking industry has experienced considerable growth along with the rest of the economy over the past ten years. This growth has occurred despite rapid changes in the costs of fuel in some years, the recession of the early 1980s, regulated prices which did not keep pace with costs in some provinces, and the constant awareness that regulations may soon be changing in the industry. Because regulations have restricted the entry into the for-hire trucking industry in most provinces, this portion of the industry has probably not grown as fast as it would have under less restrictive regulatory regimes. At the same time, however, freight forwarding, leasing, and private trucking have all grown more rapidly than they would have otherwise. The outlook for each of these different portions of the industry will be assessed in the concluding part of this chapter.

Trucking Data

For many people, their initial impression of the trucking industry is of the household moving sector of the industry. This sector is very small, however, compared with the freight sector of the industry. Data are readily available for both sectors of the industry, but the freight sector is by far the most dominant one and is the only one discussed here.

The most complete data concerning trucking in Canada are provided in two different surveys by Statistics Canada. The first, and the one relied upon most heavily for this study is the Motor Vehicle Survey, which surveys individual firms about firm-specific data. The second is the For-Hire Trucking Survey, which is based on samples from shipping waybills. The latter provides micro-data which are extremely useful for certain types of studies (see, e.g. McRae and Prescott, 1982), but provides less of the data which are directly useful for projecting the economic health and productivity changes in the industry. As was the case in the previous

chapter, because the two surveys are based on different sampling bases, the data collected do not always agree precisely. For example, compare the freight revenue figures reported by the two surveys in Table 36. While the numbers are both from samples of firms in the largest three size classes, those from the For-Hire Trucking Survey are consistently lower than those from the Motor Vehicle Survey, although their year-to-year movements and overall growth are quite similar.

Only recently have separate data been collected for the private trucking portion of the trucking industry. This portion is represented by firms which are predominantly *not* trucking firms but which provide their own trucking services in-house. Because these firms are widely disparate in character and type of trucking services provided, the surveys are necessarily incomplete, providing less useful data for analysis. The data from these surveys are referred to in this study only for general illustrative purposes.

Market Power in the Trucking Industry

The major cause of market power in the trucking industry has been government entry and rate regulations. Under federal legislation, the provinces were given the right to regulate both of these dimensions of the industry. As a result, a panoply of administrative law has been set before Canadians, ranging from minimal or no regulations in Alberta to very controlling regulations in Saskatchewan and Quebec. Early evidence of the effects of regulations in the trucking industry appears in Sloss (1970) Palmer (1973, 1974), and Bonsor (1977).

The clearest indication of the prevalence of market power in some jurisdictions comes from evidence about the prices people are willing to pay for licences (or operating authorities) in some provinces. Private interviews have revealed that the right to operate a for-hire trucking service along some routes has at times fetched a market price in excess of one million dollars. These data are very unclear, however, since the licences are typically not resaleable by themselves but are listed as part of the good will of an acquired firm.

Two conditions are necessary for operating authorities to command positive prices in the marketplace: first there must exist a potential to generate revenues which more than cover all costs other than the implicit cost of owning the licence. Second, there must be sufficiently high barriers to entry, preventing competitors from driving rates down to a competitive level.

The importance of the first condition has shown up in Canada in several ways. Along some routes for which entry is limited, firms are unable to

TABLE 36

TRUCKING REVENUES, AS MEASURED BY TWO DIFFERENT SURVEYS

(In Millions of $)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83/75
Motor Vehicle Survey	2035.0	2678.7	3084.1	3803.3	4427.3	4931.9	5424.9	5345.2	5544.4	2.725
For-Hire Survey	1787.6	2041.5	2207.5	2524.0	3076.8	3328.0	3853.8	3848.0	4066.4	2.275

Source: Appendix Table A6.

negotiate rates which are much in excess of what competitive rates would be. Typically these conditions emerge when the shipper is competing with many other firms which have low-cost transportation alternatives, and if a trucking firm charged it high rates, the shipper would eventually cease operations. In a similar vein, McRae and Prescott found that when provincially regulated rates did not allow trucking firms to cover their unexpectedly increasing fuel expenses in some provinces, the value of good will of these firms plummeted to or near zero. Finally, entry regulation by itself, while it may cause distortions and inefficiencies in the industry, will not guarantee supranormal returns for the firms if they are unable to co-ordinate their pricing and other behaviour. This co-ordination, via tariff bureaux and otherwise, has been the subject of intense investigation over the past decade (see, e.g., the Consumer and Corporate Affairs monograph on the trucking industry, 1982).

Both intermodal and intramodal competition are intense for firms in the for-hire trucking industry. In addition to facing competition from the railways and from the burgeoning air freight industry, truckers face heavy competition from frequently unlicensed independent truckers (Wyckoff and Maister, 1975) and from private truckers, mentioned above (see also Klymchuk, 1982). Also freight-forwarding, leasing and pseudo-leasing operations provide viable alternatives to the services offered by for-hire trucking firms. Inasmuch as these competing forms of trucking services have tended to emerge most frequently along the more lucrative and highly regulated routes, it is conceivable that at least some of their entry has been regulation-induced.

Deregulation

While these competing firms may appear at first blush to be the likely beneficiaries of the proposed government deregulations set out in bills C-18 and C-19, such is probably not the case. The opening up of more direct competition between them, the currently licensed firms, and other potential competitors is more likely in the long run to force amalgamations among them or with existing licensees. Deregulation in Australia led to consolidation of much of the administration and overhead activities into comparatively few trucking firms who then subcontracted with individuals to carry the shipments (Wyckoff and Maister, 1975). Similarly, the deregulation in the United States is expected to lead to a growth of larger co-ordinating units and more use of individual, independent truckers and smaller private fleets via the scheduling and planning which is carried out in larger firms.

One of the major benefits of deregulation in the United States has been that where these scheduling and administrative efficiencies can be exploited, they are, and larger efficient firms evolve in the industry. At the same time, there are many smaller market niches which are now open to competition from smaller firms and independent truckers. Shippers find themselves no worse off than they were under regulation, and many find that their shipping rates are considerably lower than they would have been had the old regulatory regime continued.

One of the transition costs from the regulated to deregulated environment is that accident rates have increased in the United States, reportedly as firms attempt to cut costs by increasing drivers' hours or by undermaintaining their equipment. This increase in accidents involves costs which must be borne somewhere in society. Should the trucking firms become more likely under deregulation both to have accidents and to declare bankruptcy in the face of large court judgments against them, these costs will increasingly be faced by parties which have little or no ability to affect them directly. While these third-party costs may become an issue in both Canada and the United States, in some respects, they will pose more of a policy problem in Canada than they have in the U.S. because Canada tends to have more government involvement in the insurance industries. This point deserves amplification.

If trucking firms must bear the full costs of increased accidents, then an efficient amount of accidents will occur each year on average. Competition among trucking firms, among lawyers, among insurers, and among those providing medical services will guarantee that each economic actor takes into account the full costs of his or her behaviour in making decisions about care and safety. To the extent, however, that economic actors are not required to bear the full costs of their actions, either through tort liability or through increased insurance premiums, they will have an incentive to take less care than they otherwise would.

In Canada, some of these costs which are borne by third parties include taxpayer-supported health insurance and/or auto insurance in most provinces. To the extent that taxpayers bear much of these insurance costs, individuals have reduced incentives to take care (see, for example, the work by Landes [1982] on the incentive effects of no-fault insurance). Consequently, if policy makers wish to maintain taxpayer-subsidized insurance schemes, they must either offset the incentive effects of these schemes or accept inefficiently high accident rates.

Of course, this policy choice has existed in the absence of the deregulation discussion. The only reason it has taken on greater importance

with deregulation is that the firms in the trucking industry will no longer have the wealth inherent in their operating authorities to draw on to meet tort liability claims. Instead, more firms will be more likely to rely on provincial insurance schemes to cover the victims of accidents in which the trucking firms are underinsured. And even those accidents for which all parties are "fully" and privately insured will generate smaller judgments in Canada to the extent that medical services are funded from provincial health insurance schemes.

Trucking Revenues

Operating revenues for the trucking industry, presented earlier in Table 36, appear in Figure 26. These grew consistently from 1974 through 1981 in nominal terms. However, the 1982 recession brought about a sharply reduced demand for trucking services and the nominal revenues actually declined. Revenues increased again in 1983, but not as rapidly as they had earlier in the decade. From 1974 through 1981, and even from 1976 through 1983, revenues increased at a slightly faster rate than the Consumer Price Index, indicating that there had been real economic growth in the trucking industry.

Trucking Expenses

Operating expenses for the trucking industry are presented in Table 37 and in Figure 26. The expenses move almost in parallel fashion with revenues, indicating that firms in the industry typically have high variable costs and low fixed costs. As demand and revenues declined in the early 1980s, the firms were able to reduce their expenses commensurately. This cost structure is extremely different from that in the railroad industry, which faces very high fixed costs (including much labour, which is by union contract a quasi-fixed cost) and comparatively low variable costs. Hence, net operating ratios were less variable in the trucking industry than in the railroad industry.

The components of trucking expenses, in addition to being broken out in Table 37 are shown as a percentage of total expenses in Table 38 and Figure 27. By far the largest component of trucking expenses was transportation expenses. Only once did these ever account for less than 60 percent of total operating expenses. The second largest component of operating expenses was "Administration, General, and Other" expenses. The expenses in this category usually accounted for about 20 percent of the total operating expenses. In addition, the expenses in these two largest

Figure 26

OPERATING REVENUES AND EXPENSES

For-Hire Trucking, Classes I - III

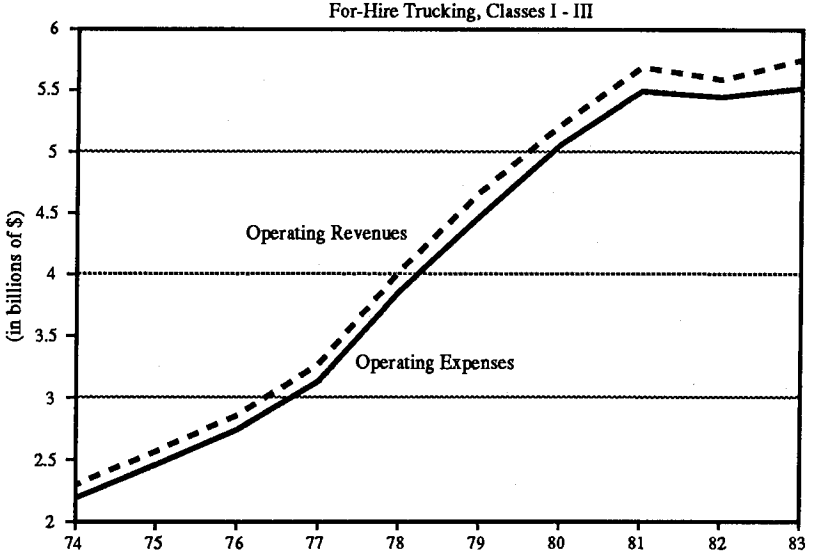


Figure 27

COMPONENTS OF TRUCKING EXPENSES

For-Hire Trucking, Classes I - III

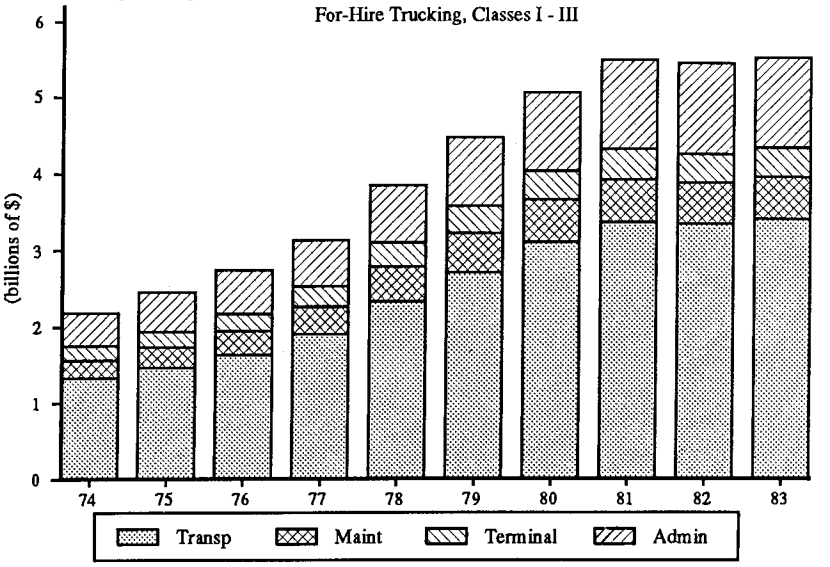


TABLE 37
TRUCKING EXPENSES
(In Millions of $)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷74
Transportation	1337.2	1476.1	1645.6	1910.4	2340.4	2708.9	3110.3	3364.6	3345.7	3415.3	2.554
Maint of Rev Equip	231.1	266.1	306.3	357.7	449.2	519.9	553.3	561.7	536.4	549.1	2.376
Terminal Expenses	193.7	205.8	225.6	264.9	318.1	352.5	373.3	398.0	367.6	380.0	1.962
Admin, Gen & Other	431.5	511.1	569.3	600.5	747.3	888.7	1023.3	1173.7	1199.1	1182.2	2.740
TOTAL OPER. EXP.	2193.5	2459.1	2746.8	3133.5	3855.0	4470.0	5060.2	5498.0	5448.8	5526.6	2.520

Source: Appendix Table A6.

TABLE 38
THE COMPONENTS OF TRUCKING EXPENSES AS A PERCENTAGE OF TOTAL EXPENSES

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷74
Transp/Total Exp	0.610	0.600	0.599	0.610	0.607	0.606	0.615	0.612	0.614	0.618	1.013
Maint/Total Exp	0.105	0.108	0.112	0.114	0.117	0.116	0.109	0.102	0.098	0.099	0.942
Terminal/Total Exp	0.088	0.084	0.082	0.085	0.083	0.079	0.074	0.072	0.067	0.069	0.784
Admin/Total Exp	0.197	0.208	0.207	0.192	0.194	0.199	0.202	0.213	0.220	0.214	1.086

Source: Appendix Table A6.

components grew more rapidly, both in dollar terms and percentage-wise than did the expenses in the other categories.

These observed trends in the components of expenses for the trucking industry are roughly in line with those found in both the bus and the railroad industries: in all three industries, one of the faster growing functions (in terms of expenses and numbers of employees) was administrative and general services. This general result across three quite different types of industries suggests that the efficiencies of improved specialization and division of labour are being increasingly realized through a growth of support services, even in industries which themselves provide services for other industries.

As with the other modes of transportation experiencing an increase in administrative expenses as a share of total expenses, it may simply be that prices per unit of these services increased, and the demand for them is price inelastic. That explanation almost certainly holds in the case of fuel expenses. However, for administrative expenses it is more likely that, in fact, the prices per unit of service (however vaguely that concept is interpreted) declined and that the demand is price elastic. Certainly among all labour categories, total employment grew most rapidly and average compensation grew least rapidly among administrative employees (see Tables 39 and 40 and Figure 30, infra.).

Like the railroad industry (and unlike the bus industry), total labour remuneration in the trucking industry declined over the time period as a proportion of total expenses (Figure 28). At the same time, as with the rail industry, fuel expenses moved in exactly the opposite direction as a proportion of total expenses. And again, labour compensation and fuel expenses together accounted for a nearly steady proportion of total expenses throughout the decade. These data suggest that, contrary to initial impressions, fuel and labour can and do substitute for each other to some extent. Most likely this substitution is indirect, however, with administrative and general labour facilitating better planning and scheduling so that less fuel is consumed than had been before fuel prices increased so dramatically.

Trucking Profits

Net operating revenues are presented in Table 41. Although they increased at about the same rate as the rate of inflation over the decade, they experienced two large declines, in 1980 and especially in 1982. Net operating ratios are also presented in Table 41 and net operating revenues appear in Figure 29 as a percentage of total revenues, expenses, the dollar value of

TABLE 39

NUMBER OF EMPLOYEES, BY FUNCTION

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷75
Average # Employees:	81296	80872	82526	94398	96584	96609	90782	83989	80546	0.991
Drivers & Supervisors	41507	42340	43169	48471	49928	49460	46108	43713	42630	1.027
Helpers	6497	6078	6295	6921	6980	6828	5770	5011	4557	0.701
Other Transp Empl	790	543	528	634	728	688	958	586	552	0.699
Maintenance	7579	7442	7656	8370	8672	8344	7698	7008	6700	0.884
Terminal & Platform	13324	12917	12972	15284	14901	15187	14295	12402	12100	0.908
Admin Gen & Other	11599	11552	11906	14718	15375	16102	15953	15269	14007	1.208

Source: Appendix Table A6.

TABLE 40

AVERAGE COMPENSATION PER EMPLOYEE

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷75
Average Compensation:	11790	13307	14452	15553	18006	20073	22715	23490	24752	2.099
Drivers & Helpers	11851	13437	14617	15807	18252	20727	23407	23853	25079	2.116
Other Transp Empl	9873	11234	15720	13612	15659	15988	16597	20307	20652	2.092
Maintenance	12086	13330	14668	15795	18081	20218	22668	23987	25104	2.077
Terminal & Platform	11280	12673	13645	14682	17495	18358	21910	23045	23942	2.122
Admin Gen & Other	12061	13556	14455	15444	17659	19501	21576	22588	24345	2.018

Source: Appendix Table A6.

Figure 28

FUEL AND REMUNERATION AS % OF EXPENSES

For-Hire Trucking, Classes I - III

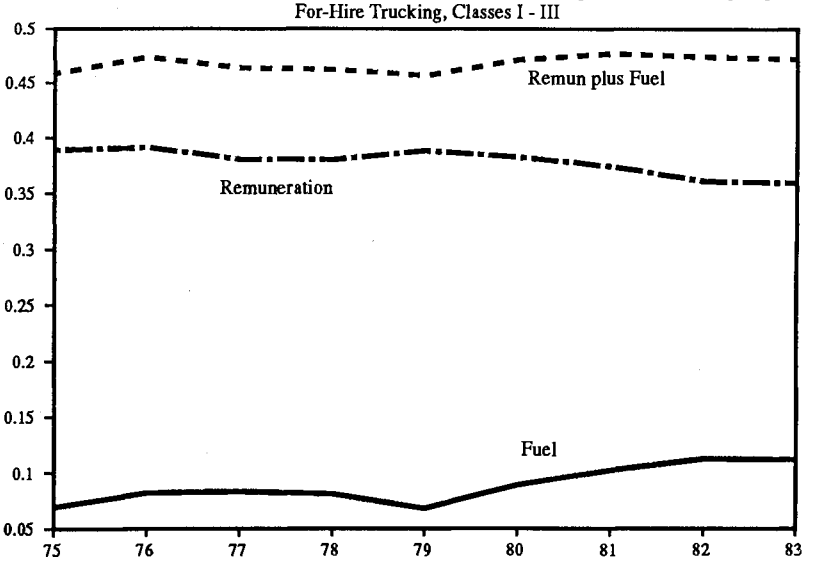


Figure 29

TRUCKING OPERATING RATIOS

Net Operating Revenues as a % of:

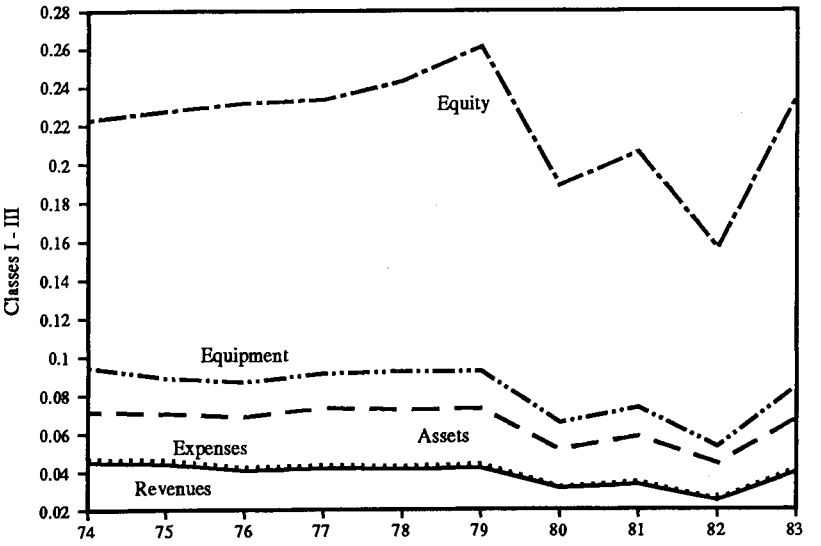


TABLE 41
OPERATING REVENUES AND RATIOS

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Net Oper. Rev. (NOR)	103.5	113.7	117.0	136.6	166.0	195.7	163.0	189.1	139.7	226.4
NOR/Total revenues	0.045	0.044	0.041	0.042	0.041	0.042	0.031	0.033	0.025	0.039
NOR/Total Expenses	0.047	0.046	0.043	0.044	0.043	0.044	0.032	0.034	0.026	0.041
NOR/Revenue Equip	0.095	0.089	0.087	0.091	0.093	0.092	0.065	0.073	0.053	0.084
NOR/Total Assets	0.071	0.070	0.069	0.073	0.072	0.073	0.051	0.058	0.044	0.067
NOR/Owners' Equity	0.223	0.227	0.232	0.233	0.243	0.261	0.189	0.206	0.156	0.235
90-Day T-Bill Rate	0.078	0.074	0.089	0.074	0.086	0.116	0.128	0.178	0.138	0.093

Sources: Appendix Table A6; *Bank of Canada Review,* various issues.

TABLE 42
ASSETS & EQUITY: LEVERAGE
(In Millions of Dollars)

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷74
Revenue Equipment	1094.4	1276.1	1346.9	1494.8	1793.9	2117.3	2489.0	2588.5	2647.2	2696.6	2.464
Total Assets	1450.9	1615.3	1699.5	1869.3	2298.3	2692.5	3166.0	3254.7	3164.6	3360.8	2.316
Owners' Equity	465.0	500.1	504.6	585.1	682.6	749.7	863.2	918.7	896.4	964.5	2.074

Source: Appendix Table A6.

revenue equipment, assets, and owners' equity. All of the displayed ratios illustrate the dramatic drops in profitability in 1980 and in 1982.

Members of the trucking industry have often complained about the low operating ratios in the industry, emphasizing the low ratio of net operating revenues to total revenues. As Figure 29 highlights, however, the rate of return on owners' equity in the industry has averaged a robust 20% over the past decade. This comparatively high average rate of return for these firms reflects the fact that many of them operate in regulatory environments which have generated substantial returns to their trucking licences, but many of these licences are carried on the firms' books at little or no value. The last line of Table 41 shows the 90-day Treasury Bill rate for each year end. Comparing these rates with the rates of return in the trucking industry, one gets the impression that either substantial risk premia were required for financial investments in trucking, or the industry generated high economic profits on average.

Unlike the passenger bus service industry, firms in the trucking industry make greater use of outside debt in their financial structure. Comparing the lines of Table 42, one can see that owners' equity has always accounted for less than half the dollar value of the firms' trucks, meaning that much of this revenue equipment must have been either purchased with borrowed money or acquired on long-term lease (which economically amounts to the same thing). Furthermore, since the dollar value of revenue equipment increased more rapidly than owners' equity, outside financing of trucks must have grown over the decade, despite the increase in real interest rates which occurred.

In the view of most financial economists, having some debt in a firm's financial structure is usually desirable; whether the amount existing in the trucking industry is the optimal amount is impossible to say (except in the Panglossian sense that if it were not optimal, it would be at a different level). The debt/equity ratios implied by the data of Table 42 ([Assets - Equity]/Equity) tend to have averaged about two. Some other industry-wide averages are: Construction (3.37), Dairy Products (1.66), All Transportation (1.97), Chemicals (1.05), Paper (1.15), Mining (0.94), Real Estate (5.13), and Publishing (1.93) (see Van Horne, et al., 1981, p. 457). From these data, it appears that the amount of leverage in the trucking industry is about the same as it is overall in transportation, and it does not deviate substantially from that observed in other service (as opposed to manufacturing) industries.

Trucking Productivity

It is difficult in most ground transportation industries to think there would be much room for productivity change or substitution among the inputs. After all, to move goods or people, you need a vehicle and a driver. Nevertheless, as the data for buses and trains have already demonstrated, and as will also emerge for trucks, there are many substitution margins in the industry, allowing productivity growth over the decade by most productivity measures.

The number of trucks in the industry appears in Table 43. While this number varied considerably over the time period under study, overall the number of trucks declined slightly. This decline was primarily in straight trucks, however, for the number of truck tractors in the industry actually increased. This shift suggests that possibly several different changes have been occurring in the industry:

First, because many of the straight trucks operate on gasoline, while few tractors do, the shift to tractors from trucks may have represented a response to changing relative prices of gasoline and diesel fuel. Second, other expenses related to the switch from gasoline to diesel fuel may have influenced the change. These expenses include different maintenance expenses and the increased availability of diesel fuel at more locations, reducing the labour and planning costs of acquiring fuel. Third, some apparent organizational changes occurred in the industry, with drivers increasingly hauling trailers from one point to another, but leaving the loading, unloading and shuttling of trailers to other employees (usually employed by the shipping and receiving firms rather than by the trucking firms). These changes undoubtedly made it more profitable for trucking firms to replace depreciated straight trucks with tractors and trailers.

The hypotheses suggested above are also supported by the data on the number of employees in different categories in the industry, as discussed earlier (Tables 39 and 40; also see Figure 30). Over the decade, the total number of employees increased and then decreased, showing a very slight net decrease overall. However, the only groups of employees for which employment increased were "Drivers and Supervisors" and "Administrative, General, and Other (non-transportation)." These figures indicate that emphasis in the for-hire trucking industry has shifted slightly toward planning, organizing, and shipping the goods, and providing fewer customer services at each end of the shipment. Given that the largest increase in average compensation for employees in the industry was for terminal and platform employees (again, see Tables 39 and 40), it appears that the opportunity costs of providing platform and terminal services increased more rapidly than the other costs in the industry, and that the

TABLE 43
THE NUMBER OF TRUCKS, BY TYPE

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷75
Total Number of Trucks	51851	49629	50071	55069	56332	57413	53980	50562	48777	0.941
Straight Trucks	22550	19985	19644	21717	21987	21831	20184	18874	17650	0.783
Tractors	29301	29644	30427	33352	34345	35582	33796	31688	31127	1.062

Source: Appendix Table A6.

TABLE 44
TRUCKS PER DRIVER

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷75
Trucks	51851	49629	50071	55069	56332	57413	53980	50562	48777	0.941
Drivers & Supervisors	41507	42340	43169	48471	49928	49460	46108	43713	42630	1.027
Avg # of Trucks/Driver	1.249	1.172	1.160	1.136	1.128	1.161	1.171	1.157	1.144	0.916

Source: Appendix Table A6.

Figure 30

TRUCKING EMPLOYEES, BY OCCUPATION

For-Hire Trucking, Classes I - III

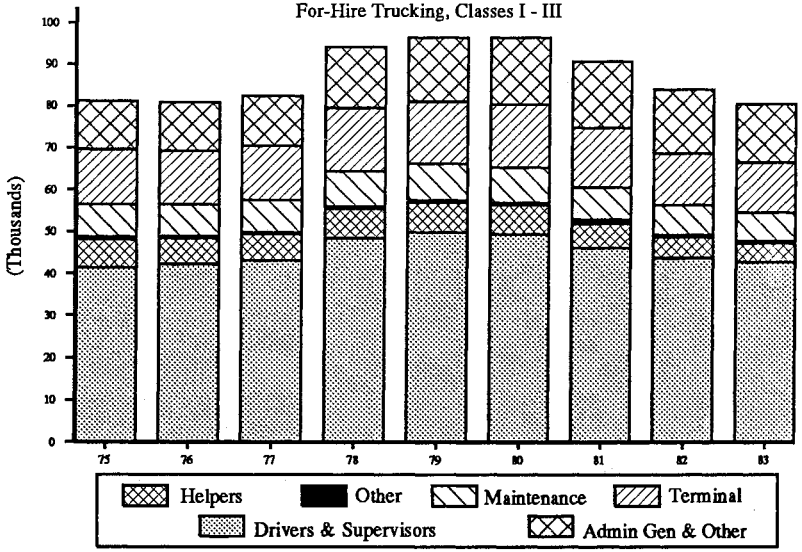


Figure 31

NUMBERS OF DRIVERS AND TRUCKS

For-Hire Trucking, Classes I - III

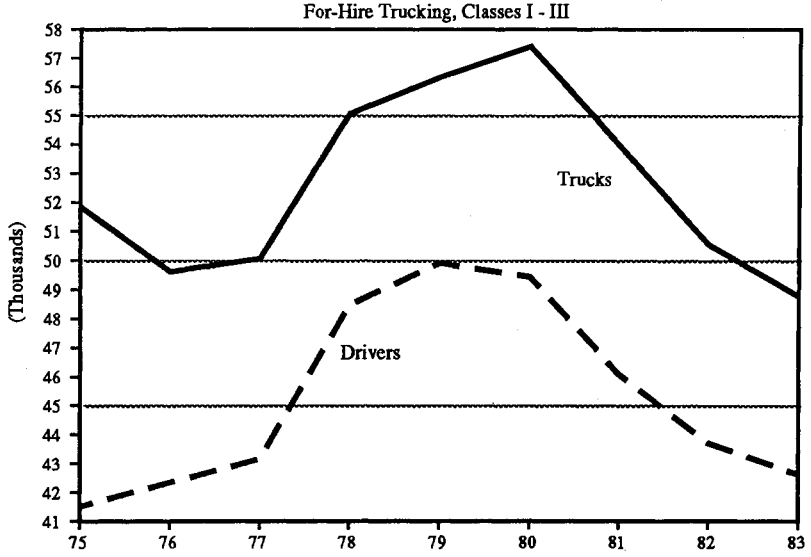


TABLE 45

KILOMETRES TRAVELLED PER TRUCK

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷75
Kilometres Traveled:	3280.2	3005.0	3063.3	3242.0	3329.2	3388.0	3308.9	2963.7	2931.2	0.894
Straight Trucks (mill)	641.6	724.2	660.8	747.3	743.3	776.4	722.8	643.7	623.0	0.971
Truck Tractors (mill)	2622.8	2265.9	2393.4	2487.1	2585.9	2611.6	2586.1	2320.0	2308.2	0.880
# of Trucks	51851	49629	50071	55069	56332	57413	53980	50562	48777	0.941
Straight Trucks	22550	19985	19644	21717	21987	21831	20184	18874	17650	0.783
Tractors	29301	29644	30427	33352	34345	35582	33796	31688	31127	1.062
Kms.Traveled/Truck (000's)	63.26	60.55	61.18	58.87	59.10	59.01	61.30	58.62	60.09	0.950
Straight Trucks	28.45	36.24	33.64	34.41	33.81	35.56	35.81	34.11	35.30	1.241
Truck Tractors	89.51	76.44	78.66	74.57	75.29	73.40	76.52	73.21	74.15	0.828

Source: Appendix Table A6.

TABLE 46

KILOMETRES PER DRIVER

	1975	1976	1977	1978	1979	1980	1981	1982	1983	83÷75
Kms. Traveled (millions)	3280.2	3005.0	3063.3	3242.0	3329.2	3388.0	3308.9	2963.7	2931.2	0.894
Drivers & Supervisors	41507	42340	43169	48471	49928	49460	46108	43713	42630	1.027
Avg Kms/Driver (000's)	79.03	70.97	70.96	66.89	66.68	68.50	71.76	67.80	68.76	0.870

Source: Appendix Table A6.

Figure 32

AVG KMS TRAVELLED PER TRUCK

For-Hire Trucking, Classes I - III

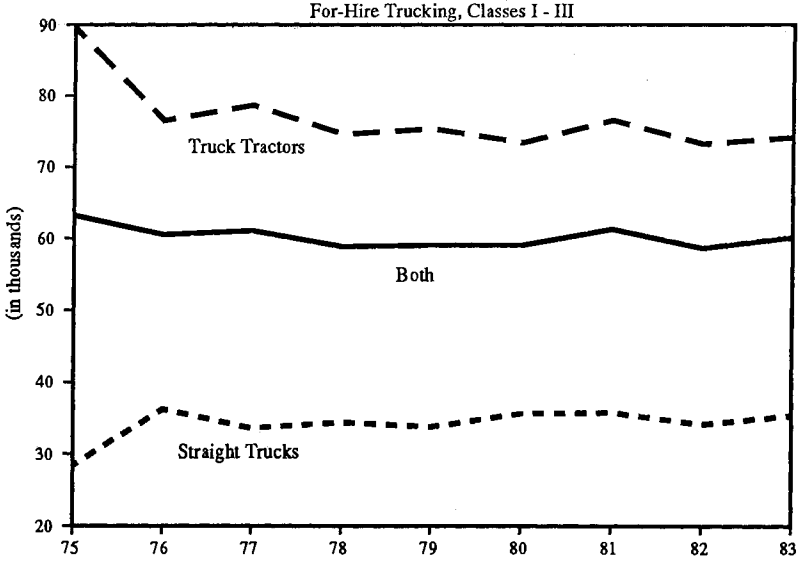


Figure 33

NUMBER OF DRIVERS AND KMS TRAVELLED

For-Hire Trucking, Classes I - III

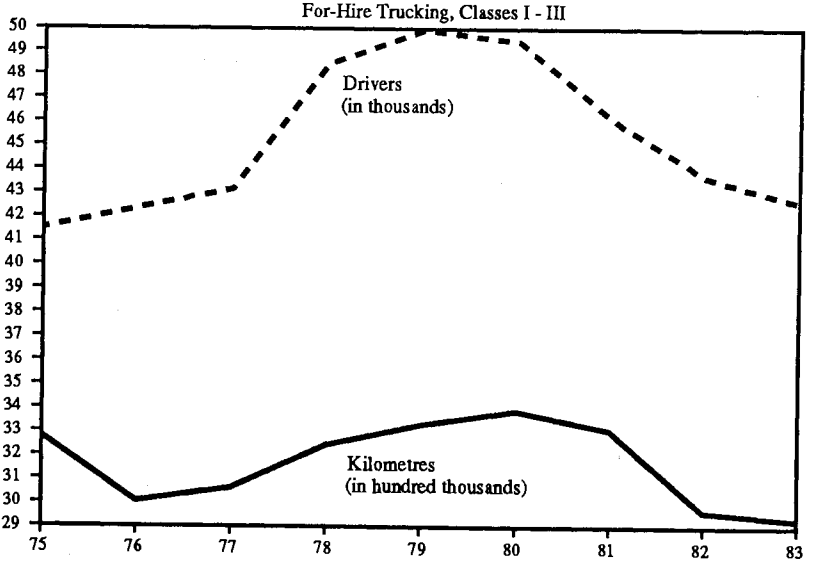


TABLE 47

1973 ORIGIN & DESTINATION DATA

Estimated Tonnage Carried from Prov. or Terr. of Origin to Prov. or Terr. of Destination, in thousands

DESTINATION:													
	NFLD	PEI	NS	NB	Que	Ont	Man	Sask	Alta	BC	Yukon	NWT	Total
ORIGIN:													
NFLD	153	0	24	6	1	7	0	0	0	0	0	0	192
PEI	4	47	24	10	4	23	0	0	0	0	0	0	112
NS	30	42	2330	360	86	33	1	0	2	7	0	0	2891
NB	27	64	411	1971	216	83	5	1	1	0	0	0	2778
Que	9	19	134	513	19502	3236	126	12	62	62	0	0	23675
Ont	5	11	139	145	2853	36385	480	71	238	317	0	1	40644
Man	0	0	1	7	85	540	1333	320	185	60	0	1	2532
Sask	0	0	1	0	14	59	514	2584	412	51	1	0	3634
Alta	1	0	3	1	91	187	185	649	7051	1175	85	267	9694
BC	0	0	1	0	24	82	64	90	989	13089	107	11	14457
Yukon	0	0	0	0	0	0	0	0	5	11	653	0	668
NWT	0	0	0	0	1	0	1	0	22	2	0	3	29
Total	229	183	3067	3013	22877	40635	2708	3726	8967	14774	845	284	101307

TABLE 48

ORIGIN AND DESTINATION DATA FOR 1985

DESTINATION: / ORIGIN:	NFLD	PEI	NS	NB	Que	Ont	Man	Sask	Alta	BC	Yukon	NWT	Total
NFLD	652	2	34	15	3	9	0	0	2	0	0	0	717
PEI	5	285	37	50	38	67	0	0	2	0	0	0	484
NS	76	92	3845	509	95	100	1	0	6	2	0	0	4726
NB	57	129	591	4297	290	292	0	0	2	1	0	0	5659
Que	57	17	198	489	28513	3775	115	14	99	109	0	1	33387
Ont	85	20	259	274	3658	54237	427	113	396	253	1	7	59730
Man	1	0	4	5	91	565	5920	440	328	123	2	0	7479
Sask	0	0	1	4	23	81	605	5881	1343	135	0	0	8073
Alta	2	18	4	1	86	222	437	1671	17515	1721	67	130	21874
BC	1	0	9	2	61	154	162	229	1925	15902	41	22	18508
Yukon	0	0	0	0	0	0	1	0	5	25	50	28	109
NWT	0	0	0	0	0	0	0	1	29	8	6	68	112
Total	936	563	4982	5646	32858	59502	7668	8349	21652	18279	167	256	160858

Source: Statistics Canada Cat. 53-224 (1973); Statistics Canada Cat. 53-222 (1985).

trucking firms and shippers were able to find a lower-cost alternative to providing these services. The decline in the number of helpers, terminal and platform, and other transportation employees is certainly consistent with this hypothesis.

The decline in the number of maintenance employees is more likely related to the shift from gasoline to diesel-powered revenue equipment. Because diesel engines require less maintenance time per truck-kilometre, the number of maintenance employees declined even though there was a much smaller change in the number of trucks or in the number of kilometres travelled. Technical changes in gasoline engines undoubtedly also contributed to these changes in the mix of employees.

The average number of trucks per driver is calculated in Table 44; the numbers of each are shown in Figure 31. From the figure, it certainly appears that there is a one-to-one relationship between the number of trucks and the number of drivers. Nevertheless, the ratio of trucks to drivers has fallen slightly but fairly persistently over the decade. Once again, this result is consistent with the hypothesis set out above, that through improved planning, trailers are increasingly being dropped off with shippers and receivers, so that fewer trucks are utilized per driver.

The total number of kilometres travelled and the average per truck are shown in Table 45, and the average kilometres travelled per truck are shown in Figure 32. As is clear in the figure, the average distance each truck travelled did not change by much from 1976 through 1983; for both types of trucks, there was an overall slight decline during the period. Given this result, it is not surprising that the average number of kilometres travelled per driver was fairly constant over the same years (Table 46 and Figure 33). From Figure 33 it appears, however, that the two variables have not always been in an extremely close, direct relationship, with the number of drivers beginning their decline one year before the reduction in the total distance travelled throughout the industry.

Geographic Patterns in Truck Freight Movements

Tables 47 and 48 show freight movements by truck to and from each province. Unfortunately, the Statistics Canada series from which these data are taken do not report U.S. or other international origins or destinations.

Two facts become readily apparent from an examination of Tables 47 and 48 and from a comparison of them with Tables 34 and 35, which showed similar data for rail shipments. First, there are many more relatively big numbers on the diagonals of Tables 47 and 48 than there are in Tables 34 and 35. These numbers mean simply that a large proportion of

Figure 34

TRUCK & RAIL FREIGHT REVENUES COMPARED

Trucking, Classes I-III; Rail, All

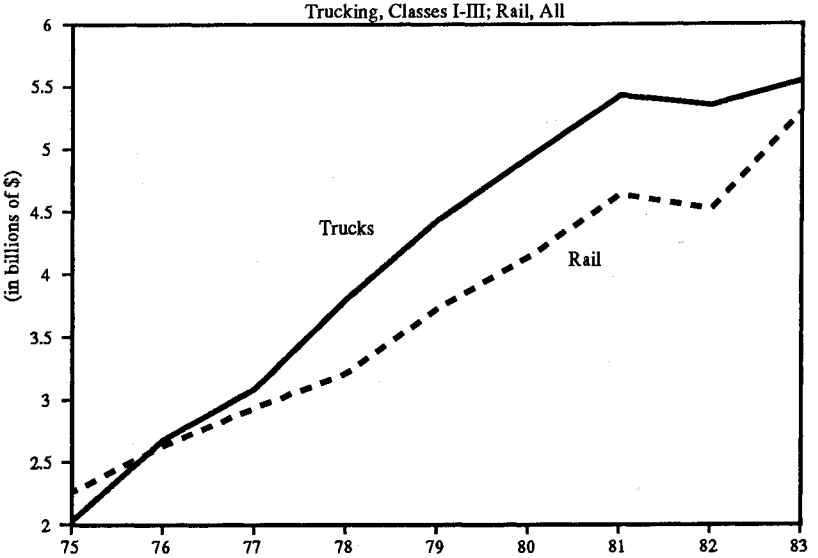
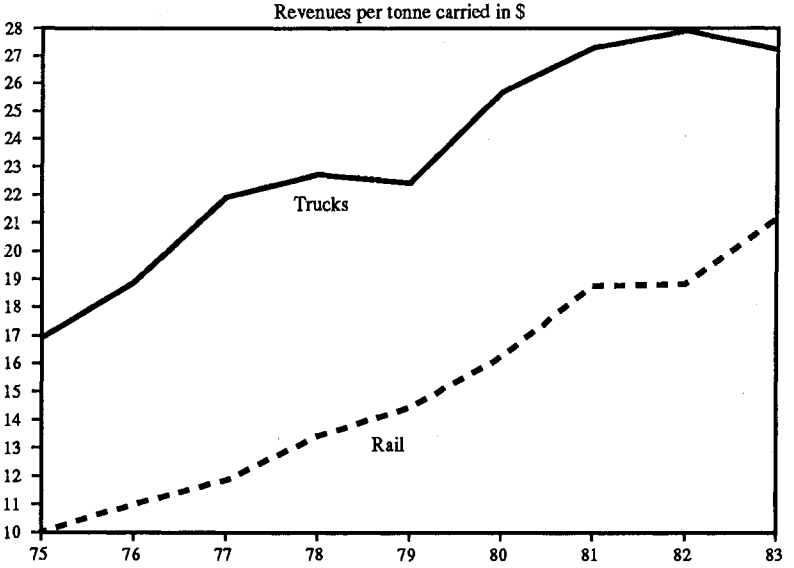


Figure 35

TRUCK & RAIL FREIGHT REVENUES COMPARED

Revenues per tonne carried in $



the trucking business was intraprovincial rather than interprovincial. In fact, in 1973, 83.5 percent of all the tonnage carried was within provinces or territories; and by 1985 this percentage had increased to 85.3 percent. In every jurisdiction except the Yukon, the amount of intraprovincial trucking increased. And in most cases, the declines in the numbers over the 12-year period involved comparatively longer distance interprovincial trucking.

Second, because most trucking has been intraprovincial, the large amounts of shipping from the Prairies and western provinces to marine ports which occurs by rail does not show up in the trucking industry. Only about 20 percent of all trucking originates in Manitoba, Saskatchewan, and Alberta, and of that, only about 5 percent is shipped interprovincially; and only about 1 percent of all trucking shipments is shipped to B.C. from the prairie provinces. These two facts confirm the point made earlier, that trucking tends to dominate rail shipping for shorter distances and that rail shipping is more likely to be attractive for shippers sending lower-valued goods over greater distances. In addition, the slight trend in trucking toward greater dominance of *intra*provincial shipping, coupled with the trend in rail shipping toward *inter*provincial shipping, is consistent with the hypothesis presented earlier that as variable costs increased in both trucking and rail, these observed shifts would become more apparent.

Rail and Truck Comparisons

Revenues

Trucking and rail freight revenues are shown in Figure 34. Two patterns leap off the page in this figure. First, measured in terms of total revenue growth, the trucking industry is surpassing the rail freight industry in Canada. With increasingly specialized demands and with the higher nominal and real interest rates faced during the decade, it should not be surprising that shippers have turned more and more to trucking which tends to offer both more specialized and speedier service (albeit at higher rates).

The second pattern which is readily apparent is that the recession of 1982 had a serious impact on the nominal and real revenues in both the trucking and the rail freight industries. It looks, though, as if possibly that trend might have begun to reverse itself in 1983, but there are insufficient data to say anything conclusive along this line.

Revenues per tonne shipped are shown in Figure 35. Here, despite the fact that both industry interviews and the data on the origins and destinations of shipments consistently indicate that the average length of haul is higher for railroads than for trucks, the revenue per tonne (regardless of the distance involved) is substantially higher for trucks than

Figure 36

FREIGHT REVENUE PER TONNE INDICES

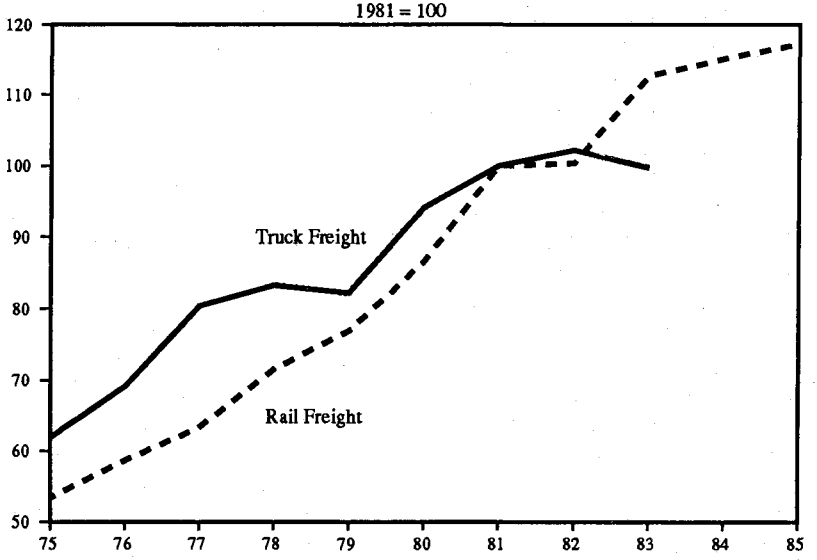


Figure 37

RAIL FREIGHT CAR & TRUCK KILOMETRES

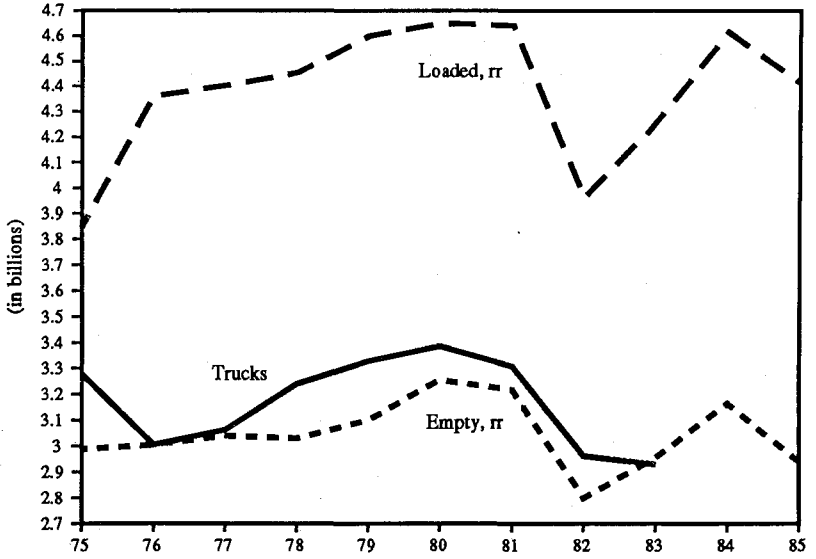


Figure 38

OUTPUT PER WORKER: RAIL & TRUCK FREIGHT

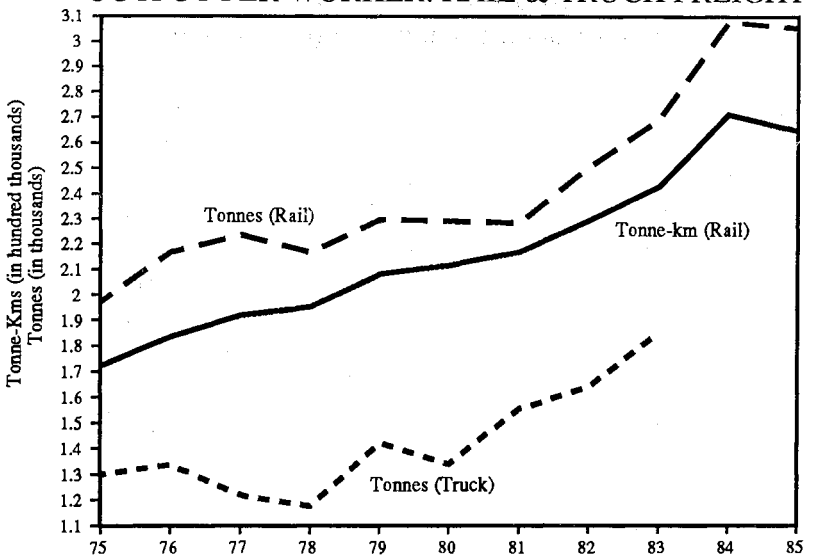
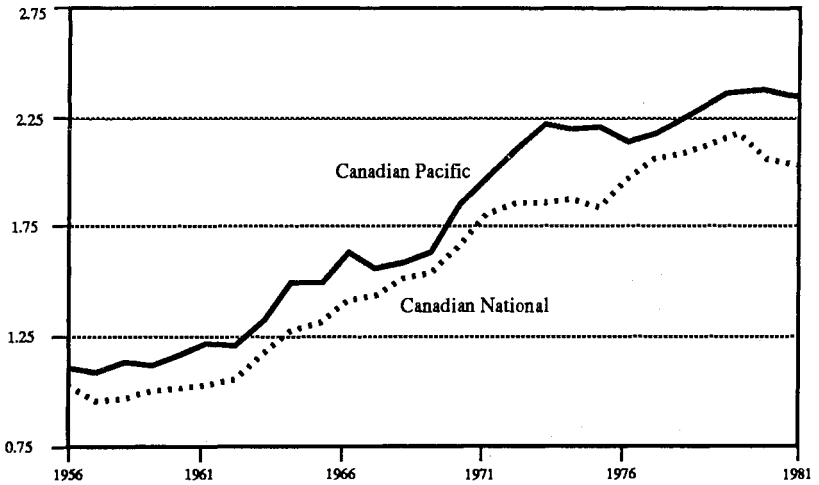


Figure 39

CANADIAN CLASS I RAILWAYS
TOTAL FACTOR PRODUCTIVITY
CP 1956 = 1.0



Source: Logistics and Transportation Review. 21:3:267.

TABLE 49
TOTAL FACTOR PRODUCTIVITY
CANADIAN CLASS I RAILWAYS (CP, 1956, = 100)

Year	Canadian National	Canadian Pacific
1956	0.89	1.00
1957	0.82	0.98
1958	0.84	1.02
1959	0.86	1.01
1960	0.87	1.06
1961	0.89	1.12
1962	0.93	1.11
1963	1.06	1.23
1964	1.17	1.43
1965	1.22	1.43
1966	1.33	1.57
1967	1.35	1.49
1968	1.44	1.52
1969	1.47	1.58
1970	1.62	1.80
1971	1.75	1.94
1972	1.81	2.12
1973	1.82	2.23
1974	1.85	2.20
1975	1.80	2.20
1976	1.92	2.16
1977	2.02	2.22
1978	2.05	2.30
1979	2.11	2.40
1980	1.97	2.41
1981	1.96	2.40

Source: Freeman, *et al.*, 1986, p. 267.

for railroads. Firms in the trucking industry face much higher marginal costs and much lower fixed costs than do railways, and so their shipping rates are commensurately higher; however, short hauls tend to be more expensive via rail freight. Overall, what emerges from this information is that trucking rates seem to have risen less rapidly than rail rates (Figure 36), suggesting that the comparatively more rapid growth in total revenues in trucking reflects more rapid growth in real output in trucking, as compared with rail freight.

Productivity

The number of kilometres travelled is presented again in Figure 37 for comparison between the rail and truck freight industries. The data show quite clearly that despite minor year-to-year swings, the number of miles travelled by trucks and by rail freight cars tended to move together over the time period. In particular, the distance travelled by vehicles declined the most for both modes in 1982, the most serious recession year.

Output per worker is displayed in Figure 38. For railway freight, one can see that although the tonne-kilometres per employee increased more smoothly than tonnes carried per employee over the decade, both measures of productivity increased and did so at approximately the same rate. While the data are less complete for trucking, output per worker in that industry appears to have increased at about the same rate, on average, between 1975 and 1983.

These measures of productivity changes, albeit rough, are quite similar to those generated using much more sophisticated techniques. Much work has been done during the past decade investigating "total factor productivity" in Canadian Class I Railways (Caves and Christiansen, 1980, and Freeman, et al., 1986). These studies aggregate firms' outputs and inputs, imposing as few and as plausible restrictions on the aggregation process as possible. They then calculate the ratio of output to input for each firm. The results from Freeman, et al. are summarized in Table 49 and in Figure 39. As with the data presented in Figure 38, productivity appears to have increased in general from 1975 through 1979 and to have tailed off a bit between 1979 and 1981.

Those unfamiliar with the studies by Caves and Christiansen and by Freeman, et al., might conclude from the data of Table 49 and Figure 39 that CN has consistently been less efficient than CP. A point made in both studies, however, has been that CNs comparative inefficiency is the result of its being required to service numerous routes which profit-maximizers would have abandoned decades ago. In this sense, CN has indeed been less

efficient than CP; the prohibitions on route abandonment have been quite costly to Canadians, and these costs are reflected in part in the lower total factor productivity of CN. As these studies also point out, however, when total kilometres of track serviced is taken into account, there is no significant difference in total factor productivity between the two railroads. In other words, CN appears to use its inputs just as productively as CP does, once CN's longer and less remunerative route structure is taken into consideration. It will be of interest to policy makers, that the lack of any noticeable difference between CN and CP productivity emerged especially clearly after the *de facto* deregulation of rail rates in 1967.

Unfortunately, there are no similar total factor productivity studies available for firms in the for-hire trucking industry. This material on railways, though, because of its consistency with other data presented in this and the previous chapter, suggests that the comparisons presented here are probably quite accurate.

Conclusions

This chapter has shown that there has been growth in nearly all aspects of the for-hire trucking industry during the past decade: revenues, real output, output per vehicle, and output per worker. There has also been some indication that trucking firms have tended to increase their concentration on shorter, intraprovincial shipping in response, in part, to rising fuel costs. And there is also some evidence that trucking firms are beginning to specialize more on shipping freight, leaving the terminal work to the shippers and receivers of the freight.

The future of the trucking industry depends in large measure on two influences: the regulatory environment and fuel cost uncertainty. It seems rather clear that entry and rate regulations in Canada are going to be less tight in the future as a result of bills C-18 and C-19. The changing regulatory environment will most likely encourage more competition along some of the more lucrative routes. At the same time, it will likely encourage more use of the services of the for-hire trucking industry and less use of close substitutes, such as private trucking, pseudo-leasing, and freight-forwarding.

As this is being written, the expected price of fuel must be quite uncertain. On the one hand, fears of additional conflagrations in the Persian Gulf have put upward pressure on prices. On the other hand, high production rates in the Middle East (and more cheating by members of the OPEC cartel) have put downward pressure on prices. Rising fuel prices will likely mean that the trends observed over the past decade will

continue: trucking will increasingly emphasize intraprovincial and shorter trips; also, increased planning and administrative functions will be implemented to save on fuel costs from multiple deliveries and empty backhauls. Alternatively, falling prices will, after a sufficiently long lag that people come to expect lower prices to remain that way, tend to reverse the trends observed in the past decade.

CHAPTER 5

TAXI-CABS

In most major metropolitan areas, entry into the taxi-cab industry is regulated. To obtain legal operating authority, potential operators must either: (1) demonstrate that it would serve the public's "necessity and convenience," as defined often quite nebulously by a regulatory body; (2) follow a prescribed set of rules which carefully defines a queuing system to wait for a licence to be granted; or (3) purchase a licence, directly or indirectly, from someone already in the industry. While most larger Canadian cities have these or similar types of regulations, limiting the number of taxis to no more than a certain percentage of the population (e.g., one taxi-cab per 1300 residents), some do not. Cities without such entry restrictions include both Windsor and Sarnia, Ontario.

Despite the level and type of entry regulation in most cities, virtually every Canadian municipality regulates the fares that may be charged by taxi-cabs licensed within their jurisdiction. These fares are typically set at a certain amount per kilometre plus a certain fixed amount, regardless of the length of the trip. In addition, longer intercity fares are often subject to negotiation between the passenger(s) and driver.

In a related segment of the market, most of the larger Canadian airports regulate which taxi-cabs may pick up passengers, and sometimes restrict the fares that may be charged for standard-length trips. Entry regulation into airport taxi business is typically justified on the basis of reducing the negative externalities that result from congestion and not infrequent physical competition for passengers. The regulation of fares in all segments of the market is based on the assumption that fare regulation reduces bargaining and transactions costs for both buyers and sellers in the industry.

More thorough discussions of "the rationales and irrationales" of entry and fare regulation are available in Palmer (1984) and in Papillon (1982).

This portion of this study instead addresses past and expected future growth and productivity trends in the taxi-cab industry. In general, the above-cited sources question the rationales and efficiency of entry regulation while recognizing the difficulties of implementing deregulation once vested interests have been created in highly profitable licences. Their position on fare regulation is mixed, recognizing the value of letting market forces work, yet also recognizing potential savings in information, shopping, and negotiation costs.

Taxi-cab Data

Statistics Canada collects no annual data that relate specifically to the taxi-cab industry, other than the local taxi fare component of the Consumer Price Index. In addition, the only general trade publication for the industry serves and possesses data almost exclusively concerning the industry in Toronto, Ontario. Consequently, the data for this portion of this study have been pieced together from numerous other sources, including private interviews, surveys, and academic studies of the industry. The two richest sources of data are those already cited, by Papillon and by Palmer.

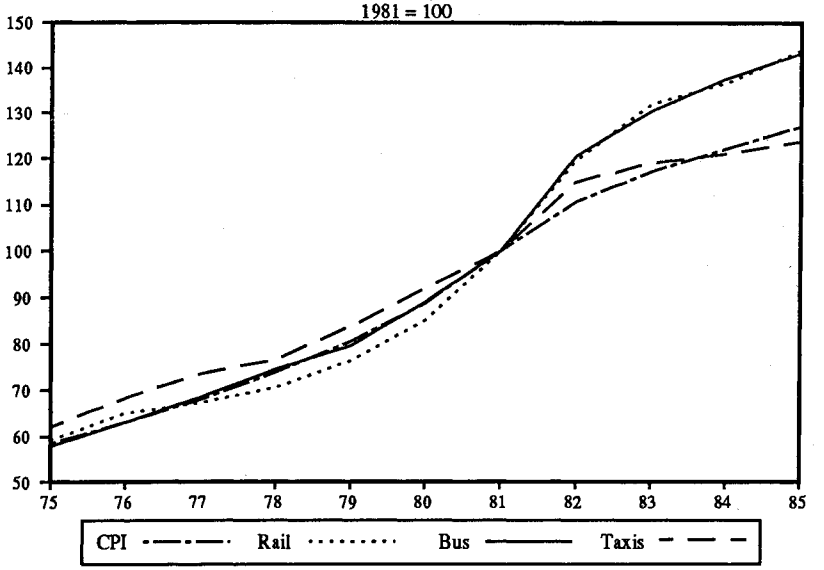
Taxi-cab Fares

The local taxi-cab fare component of the Consumer Price Index is shown in Figure 40. Compared with the CPI and with rail and bus fares, taxi-cab fares rose more slowly in nearly every year from 1975 to 1985. During some years, regulatory lag may have accounted for the slower rise in taxi-cab fares, but for the fare index to have persistently lagged the Consumer Price Index, other influences must have been at work. In some instances, improved organization and dispatching have reduced the costs of doing business. In others, technological changes involving electronic metering and changing fuel-type to propane have lowered costs. In general, it is quite plausible that these reduced costs ameliorated the upward pressure on fares.

Taxi-cab Profits

In 1978-79, after imputing all economic costs, Palmer estimated that the rate of return to a taxi-cab licence was about 15 percent per year in several different cities which had significantly different regulatory regimes. At that time, this rate of return represented a risk premium of approximately three percentage points, if expectations had been for the licence owners to receive no future capital gains. Interviews at that time suggested, however,

Figure 40
FARE INDICES, RAIL & BUS
1981 = 100



that many members of the industry expected at least nominal capital gains; and the pattern of licence prices since then has verified that these expectations were correct. For example, taxi-cab licences which *de facto* exchanged for a market price of $30,000 in 1979 exchanged in 1987 for about $105,000 in Toronto, Ontario. In London, Ontario, the increase in the market price of taxi-cab licences has been even greater in percentage terms, rising from less than $2,000 in 1979 to $12,000 in 1987.

Of course, the only reason that licence prices rise is that potential purchasers expect to receive higher future quasi-rents from operating the licences. These quasi-rents will rise if revenues are expected to increase faster than the costs of operating the licence. One of the major reasons this has happened over the past decade is that the demand for taxi-cab services has risen, due to such influences as increasing incomes and increasing time costs of alternatives, while the number of taxi-cabs licensed has increased less quickly. With demand increasing faster than the restricted supply, prices and revenues have been rising faster than operating expenses, and hence quasi-rent returns to licences have increased.

One clear indication of the restraining influences of entry regulations on the growth of the taxi-cab industry comes from the very small increase in the number of licensed taxi-cab drivers and chauffeurs in Canada,

TABLE 50
THE NUMBER OF LICENSED
TAXI DRIVERS AND CHAUFFEURS

Jurisdiction	1961	1971	1981
Canada	13714	25080	27685
Newfoundland	296	650	545
Prince Edward Island	23	85	130
Nova Scotia	624	1120	1295
New Brunswick	326	560	535
Quebec	5702	9725	8710
Ontario	4259	8195	9425
Manitoba	721	1050	980
Saskatchewan	277	620	610
Alberta	542	1165	2310
British Columbia	918	1850	2985
Yukon Territories	--	15	50
Northwest Territories	--	40	100

Source: Decennial Census of Canada: Population by Province and by Occupation.

Note: Column sums and the total do not agree because of rounding and sampling errors.

especially between 1971 and 1981 (see Table 50, which presents data from the Canadian decennial census). Despite growing fares and fare revenues, and despite growing real values of licences in many communities, the number of licensed drivers increased by very little over the decade. The number of drivers nearly doubled from 1961 to 1971, but the increase was only about 10 percent from 1971 to 1981. While other influences were surely at work, the combination of these results is also consistent with the hypothesis that entry regulation inhibited the growth of service provision in the taxi-cab industry. Some of these other influences would include improved and subsidized urban transit systems, increased relative costs of fuel, and increased liability insurance requirements in some municipalities.

The taxi-cab industry responds like most competitive industries, in that the resources used in it have a very high price elasticity of supply and respond relatively quickly to changes in demand. These changes in demand have predominantly been reflective of changes in economic activity across the different provinces and in the resulting population flows. In particular, the large increases in the number of licensed drivers in Alberta and in

British Columbia between 1971 and 1981 are coincident with other economic changes in those provinces which one might reasonably expect would increase the demand for taxi-cab services. At the same time, the declines in the numbers of licensed drivers in Newfoundland, New Brunswick, Quebec, Manitoba, and Saskatchewan are all consistent with economic and political changes in those provinces which would likely lead to a decline in the demand for taxi-cab services.

A simple linear regression of the number of drivers in each province on the number of people working in each province yielded the following results:

$$\#\text{ of drivers} = 185.5 + 2357\ (\#\text{ working population}) \quad R^2 = .834$$
$$(187)$$

(Data sources: 1961 Census of Canada Vol. 3, Part 3, Table 15
1971 Census of Canada Vol. 3, Part 1, Table 34
1981 Census of Canada Vol. 1, Table 3)

The standard error of the estimated co-efficient is 187, meaning that the co-efficient is highly significantly different from zero. Including average earnings per working person and/or dummy variables for the decades and/or the square of the number of working people had virtually no impact on the R^2 of the regression. If one makes the quite plausible assumption that the supply of workers to these occupations is very elastic, then this regression has estimated what is probably the most important parameter in the demand for taxis and taxi drivers. Quite sensibly, there are more taxi drivers (and presumably a greater demand for taxis) in those jurisdictions with more working people. As the working population of an area increases, so does the demand for taxi-cab service. Limiting entry into the industry in these areas has two major effects: owners of taxi licences find their wealth increasing, often by large amounts; and potential customers are sometimes forced to seek higher cost and/or less convenient alternatives to taxi service. Precisely these phenomena are being observed as people relocate in Ontario from the West in the 1980s.

Changing Productivity

It has been documented elsewhere that there are small but important economies of scale in dispatching and in the organization of taxi-cab firms (Palmer, 1984). It was shown that firms in markets where the bulk of

demand is provided via telephone calls and radio dispatching have evolved to a minimum size of at least twenty taxi-cabs per firm. Those firms with fewer taxi-cabs persistently have fretted about their high overheads and the need to recruit more members, and if unsuccessful have been remarkably regular in their demise. This relationship has been so strong that it has emerged in quite different markets from Southern California to Washington, D.C. to London, Ontario.

This minimum surviving scale of many taxi-cab firms has occurred, though, only in cities with relatively minor entry restrictions. Firms of only twenty taxi-cabs rarely survive in markets where entry is highly restricted and where taxi-cab operating licences have a comparatively high market value. In these settings, although there are few, if any, efficiency gains from expanding the dispatching side of the business, the gains from keeping the taxi-cabs well-organized and carefully scheduled along with their drivers more than offset the increased organization and administrative costs associated with the larger firms. Licences of very high value generate very high explicit or implicit interest costs for their owners. More importantly, very high potential revenues are foregone by the owners every time a taxi-cab is idle and not being driven due to employee illness or turnover. Larger firms, because they can reduce the variability of employee absenteeism regardless of its cause, are able to predict and schedule drivers' shifts more efficiently. Doing so involves more administrative costs, however, which make such planning worthwhile only in markets with high revenue potential per taxi-cab.

Another relationship which has revealed itself in previous studies of the taxi-cab industry is that the amount of service provided by a single taxi-cab is positively correlated with the value of the licence for a single taxi-cab. In markets where the annual licences are essentially open to anyone who can pass a basic driving and geography test, most taxi-cabs are driven for only one shift per day, and many are driven only part-time; the opportunity costs of idle time for the taxi-cabs are very low, especially during off-peak periods. In markets where the licences are tightly restricted, taxi-cabs are kept busy much of the time; the effect of the entry regulations is that the excess amount demanded grows during peak periods relative to off-peak periods of demand. But from a licence owner's viewpoint, perpetual excess demand simply means that he or she can always keep the taxi-cab busy, even during off-peak periods. Because this condition exists, people are willing to pay a great deal for the licence; and because this condition exists, the opportunity cost of not operating the taxi-cab for more than one shift is very high. Hence we see much more "double-shifting," as it is called, in markets with more restrictive entry regulations.

Fare Regulations

The past decade and a half has provided an excellent opportunity to study the effects of fare regulation in the taxi-cab industry during periods of rising costs. In these periods, if there is any regulatory lag so that fares rise less quickly than costs, firms in the industry will suffer losses. The effects of these losses differ from one metropolitan area to another, depending on the severity of their entry restrictions. In cities with comparatively open entry, the less efficient operators tended to suffer larger losses, earlier losses, and longer lasting losses (if they survived). As the competitive neoclassical economic model predicts, these firms exited from the industry, thus raising the expected revenues for the remaining firms. The clearest example of this case is the comparatively easy entry market of Washington, D.C., where the number of licensed taxi-cabs and drivers declined in the late 1970s as regulated fares failed to keep up with operating costs.

In more restrictive markets, however, the effect of regulatory lag was not to reduce the numbers of firms or to diminish the provision of services, but rather to erode the market valuation of the licence by reducing the expected future profitability of operating it. The declining value of taxi-cab licences throughout southwestern Ontario in the late 1970s provides clear evidence of this side of the picture.

CHAPTER 6

CONCLUSION

Increasing Specialization

There is a steady theme which has emerged from the previous four chapters of this study: in each of the industries examined, there is a tendency toward increased specialization by firms serving increasingly narrowly defined market segments.

In the bus passenger service industry, the larger firms are tending to provide more service on longer intercity runs, while the smaller firms are specializing in contract service and shorter runs. In addition, tour operators and charter services are a growing segment of that industry.

In the rail industry, some passenger service has been discontinued, while other passenger service has been improved. In this case, the very long haul portion of the business has been displaced considerably by the airlines; much of the rail passenger service that exists is commuter-type and intermediate (half-day or less) haul business.

Rail freight has probably changed the least of all the industries studied. The bulk of its business still tends to be long-haul, with items of comparatively low value-to-weight ratios. The data have revealed, though, that an increasing portion of railway business has involved longer distance shipments from the western and prairie provinces to marine ports for shipping to international customers.

Just the opposite trend has been observed in the trucking industry. Here, firms have tended to increase the amount of short-haul, intraprovincial shipping. Longer distance trucking has exhibited smaller increases or, between many origin-destination pairs, decreases.

Both railway and truck freight shipping have demonstrated productivity increases during the past decade, as measured by increased tonnes carried or increased tonne-kilometres produced per employee or per unit of capital.

These indications of increased productivity seem rough, but they closely mirror other, more detailed measures of total factor productivity changes.

Even in the taxi-cab industry, differences have emerged over time. In those markets with high population densities, firms are less dependent on the telephone and dispatch business, but are able to generate considerable business from hotel taxi stands and from cruising the streets. Alternatively, in markets with lower population densities, virtually all of the business is conducted through a dispatching centre, with customers placing orders over the telephone, and these orders being relayed to drivers via two-way radio. In some of the larger markets, firms and drivers are able to specialize, some emphasizing what has come to be known as "the street and stand" business, with others emphasizing "the house and bar" business.

In each industry the growing specialization can be seen as the result of two dominant economic forces. The first of these forces is that increasing specialization is being sought in the market. Customers and clients are willing to pay a premium for the services of firms which are able to satisfy their particular requirements. At the same time, the co-ordination, communication, and administration costs for firms attempting to provide more specialized services have fallen comparatively over the past decade. With the high costs of providing customer-oriented services, firms have been forced to experiment with alternative service delivery techniques if they wished to survive the competition. Hence, even within these firms in the service sector of the economy there has been a notable growth of the provision of in-house support

Employment and Productivity Outlook

Passenger Bus Service

The evidence presented in Chapter 2 strongly indicated two trends in the bus passenger industry. In addition to the increasing specialization observed in the industry, it appears that the demand for traditional bus passenger service is negatively related to real incomes. We could see definite indications that the amount of service provided varied inversely with real GNP per capita. Given the fairly plausible assumption that the supply of bus service is highly price elastic, these observations are consistent with the hypothesis that the demand for it is inferior.

As was noted in Chapter 2, the implications of this finding, keeping in mind its limited statistical validity, for the industry and its prospects are twofold: (1) if and as real incomes per capita continue to increase, the demand for traditional intercity passenger bus service is likely to continue to decrease; and (2) this decline in demand for traditional bus service,

whether resulting from rising incomes or from better and/or lower-priced substitutes, will induce a redeployment of some of the industry-specific capital.

This redeployment of capital will occur within the industry for two reasons. First, some capital, such as managerial knowledge, driver experience, and the buses themselves are by and large industry specific: they have considerably lower-valued uses outside the broadly defined industry. Second, the increasing availability of this capital will contribute to the growing tendency within the industry to offer specialized services such as charters or tour packages. That many firms in the industry are already moving in these directions now is certainly consistent with this analysis.

Finally, possible changes in fuel prices will affect the industry in predictable ways. If fuel prices increase, firms will attempt to economize more on fuel use by using even more administrative and support staff to improve the scheduling and routing decisions. Also, the trend toward using smaller vehicles on the lower demand routes will continue. If, though, fuel prices decline in real terms, these trends will be less evident. If fuel becomes comparatively inexpensive, then it will be more efficient for firms to use more fuel relative to vehicles or support staff. Planning will be less precise, and larger vehicles to meet unanticipated high demands will be more common.

Railways

The data presented in Chapter 3 indicate that there has been a general trend upward over time in output and revenues in the railway industry. Further examination of the data reveals, however, that this impression can be refined. In particular, rail freight output has changed in the same direction that real GNP has changed over time. The implication of this relationship is that as GNP continues to grow over time, so should output and labour demand in the railroad industry.

In addition, though, future demand for rail services will depend integrally on what happens to trucking rates. During the past decade, railway revenues have increased less rapidly than trucking revenues, and if deregulation in the trucking industry has the predicted effect of increasing the attractiveness of trucking vis-a-vis rail freight service, then the outlook for the railway industry is for less growth.

The increasing specialization observed over the past decade will most likely continue, especially so long as grain shipping for export is subsidized. In addition, growing competition from pipelines, surface water

carriers, and air freight will both impinge upon revenue and output growth in the railway industry, and encourage even more specialization. While there are far too few observations available to confirm these relationships, they seem reasonable, based on the relationships revealed in Chapter 3 and based on traditional neoclassical economics.

During the past decade, output per unit of capital appears to have remained relatively constant (or at least to have had no clearly identifiable trend). Instead, most of the improvement in railway total factor productivity appears to have come from increased output per worker. Technological change for the future is difficult to extrapolate from the past; if, however, the trends of the past three decades continue, total factor productivity (including labour productivity) will increase. The result will be that the slowly growing demand for railway services coupled with productivity increases will lead to small, at best, employment growth in the industry.

Trucking

Like the railroad industry, the trucking industry has exhibited growth paralleling the growth of real GNP. Also like the railroad industry, the trucking industry has experienced steady increases in output per worker. Unlike the railroad industry, though, the trucking industry will likely experience more rapid growth in demand in the future.

During the past decade, revenues increased more rapidly in the trucking industry despite the fact that revenues per tonne increased less rapidly in that industry. Trucking has passed rail shipping in revenues, and is likely to continue its relatively higher growth rate for two important reasons.

First, increased specialization in the trucking industry has already been identified as a source of improved growth and productivity. Speculative extrapolation of these past trends suggests that more specialization will lead to even more growth in the future.

Second, and probably more importantly, deregulation in the trucking industry will likely lead to lower rates and improved service. These effects will encourage shippers to utilize the services of the trucking industry in greater proportions in the future and to rely less on close substitutes like freight forwarding or private trucking.

Changing Regulations

Buses

Regulation of passenger bus service is likely to decline over the next decade or two. While safety standards for vehicles and drivers will continue their importance within the industry, the predicted reduction in demand for industry output will encourage the firms to try to increase their revenues in other ways. As non-regulated firms increase the competition for some customers in specialized niches, the regulated firms will argue both that the unregulated services should become regulated and that the incumbent firms should be allowed to compete with specialized firms on an unregulated basis. The trend in the industry, though, has been for the second of these two pleadings to be met, and the firms in the industry have been facing increased competition as the regulations have been eased.

In addition, firms are finding related but less heavily regulated niches of the market to be more profitable. Charter services and tour operations, while regulated to some extent, are typically less regulated. As bus firms provide more of these types of services and less of the traditionally regulated services, the overall influence of regulation on firms in the industry will tend to diminish.

Railways and Trucking

There has always been a fairly high cross-price elasticity of demand between rail and truck shipping for many customers. The National Transportation Act of 1967 explicitly recognized the need to free up the railroads to compete effectively with trucking services. Also, legislators in the United States recognized the importance of freeing both modes of transportation as they embarked on their deregulation program.

Deregulation of trucking in Canada, as it is currently proposed, will increase this intermodal competition along some routes. Consequently shippers along major shipping corridors will face lower relative shipping rates by either truck or rail and/or improved quality of service. Deregulation will also reduce the amount of cross-subsidization in the two industries, though, raising the transportation rates to shippers who had not previously borne the full long-run marginal costs of shipping services. If governments wish to provide subsidized shipping to these firms, they will no longer be able to do so via regulations which allow the freight carriers to make large profits on some routes, but which require them to use these profits to subsidize freight services on alternative routes. Instead, the subsidies, if desired, will have to be more explicit and more direct.

Yet another effect of trucking deregulation in Canada will be that the growth of private trucking will diminish considerably. Much of private trucking in Canada has emerged as a direct response to entry and rate regulations which have increased the shipping costs to many firms. For some of these shippers, it became less expensive to create their own in-house trucking facilities than to use regulated for-hire trucking services. As (and if) deregulation in the trucking industry progresses, fewer firms will find private trucking to be cost effective since market-determined rates will in many instances be lower than the present rates. Consequently, the growth of private trucking will almost certainly wane; and this portion of the overall trucking industry could possibly even diminish in absolute size over the next five years.

Taxis

It is extremely unlikely that entry into local taxi-cab industries will be deregulated in the foreseeable future. Incumbent licence owners form a small, well-organized interest group which lobbies quite carefully and frequently to preserve its regulation-induced monopoly rents. At a recent hearing in Metro Toronto, 60 licence owners appeared in the audience, several with prepared addresses, strictly because they had heard a rumour that the author would be advocating entry deregulation during that hearing. Political reality suggests that municipal lawmakers will be loathe to take away the wealth of these people, many of whom worked at low wages to acquire the right to obtain a licence, and many others of whom borrowed heavily to purchase a licence.

However, similar arguments were made a decade or two ago about other types of ground transportation. In all three of the other industries studied here, deregulation has occurred in one way or another. In many cases it can be argued that in fact the deregulation followed rather than led market forces. Increased competition in providing substitute services meant that the scope for regulatory discretion had become severely limited. No longer could regulators expect firms with valuable operating authorities to provide unprofitable services to certain classes of customers if competition was eroding the profits on lucrative routes and eroding the value of their licences. In the end, Darwinian survivalism probably had more to do with deregulation than any of the arguments put forward by well-meaning academics, the author included: firms simply could not survive under previous regulations in the face of growing legal, maybe-legal, and outright illegal competition. The deregulation of the railways in the United States,

which followed that in Canada by more than a decade, was clearly in response to changing and evolving market forces.

Perhaps equivalent forces will affect the taxi-cab industry. In New York City, gypsy cabs and limousine services have taken on an almost legitimate status as substitutes for licensed taxi-cabs. Similar substitutes of legal and questionable status are emerging in Canadian markets with tight entry restrictions. Perhaps the growth of these non-licensed substitutes in the taxi-cab industry will provide enough competition in the future that entry restrictions will take on less importance for consumers, and the market values of licences will decline. Given current trends in the industry, however, the future in which this happens will be quite distant.

This interpretation of the history of changes in the regulations of these industries is probably the most speculative and most far-reaching of the analyses presented in this study. It not only relies on a view of the political process which recognizes the importance of vested interest groups in creating and enforcing regulations, but it also places considerable importance on entrepreneurial creativity in devising ways to circumvent these regulations. The result of this approach is that the process of "creative destruction" whereby Schumpeter (1950) described the workings of a free market is extended here to political economy in a larger sense. If this analysis is correct, continued technological changes and continued intermodal competitive activity will increasingly tax the abilities of different agencies to regulate specific industries. But as the old regulations disappear through this process, it is also possible that superagencies will emerge to regulate intermodal competition.

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APPENDIX

Most of the analysis presented in this study relies heavily on data collected by Statistics Canada on the various industries. The tables in the study almost always refer to the tables contained in this Appendix, which are in turn compilations of Statistics Canada data. The tables in this Appendix, and their sources, are:

Table A1— Bus Data for Size Classes I & II

Passenger Bus and Urban Transit Statistics, 53-215, 1974-1984

Table A2—Bus Data for Size Classes I - III

Source: Same as for Table A1

Table A3—Bus Data for Size Class III

Source: Same as for Table A1

Table A4—Railway Data

Railway Operating Statistics, 53-003, 1982-1984

Railway Transport, 52-207. 1975-1984

Railway Transport, 52-214, 1977-84

Railway Transport in Canada, 52-215, 1982-1985

Table A5—Additional Truck and Rail Freight Data

Sources: Same as for Tables A4 and A6

Table A6—Trucking Data for Size Classes I - III

For-Hire Trucking Survey, 53-224, 1973-1983

Motor Vehicle Survey, 53-222, 1975-1982

Road Transport, 53-006, 1978-1982

Trucking in Canada, 53-222, 1983-1985

Table A7— Fare and Revenue/Tonne Indices

Census of Canada, 1961, 1971, & 1981

Bank of Canada Review, various issues

Calculations based on previous tables

TABLE A1

BUS DATA FOR SIZE CLASSES I & II

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	83/77	84/75
Classes:	I&II	I&II	I&II	I&II	I&II	I&II	I&II	I&II	I&II	I&II	I&II	I&II
1 # establishments	19	18	20	22	21	19	19	20	20	20	1.000	1.053
2 $ Revenues (000's)	160331	184224	212648	224634	229202	265607	273623	323513	340241	315378	1.600	1.967
3 Regular Bus Service	110049	124549	141664	147630	149974	170723	173659	214612	226690	209901	1.600	1.907
4 Intercity	109737	123471	140667	146443	148763	170485	173480	214497	226666	209881	1.611	1.913
5 Charter	15184	17304	22012	21946	23337	26721	26941	30533	32621	34513	1.482	2.273
6 Contract	1610	1154	1382	1245	1235	1177	1125	1021	956	1634	0.692	1.015
7 Urb, Suburb, & Other	1266	1719	1213	1444	1451	268	844	926	942	665	0.777	0.525
8 Other	32533	40575	47373	53556	54416	66955	71134	76534	79055	68685	1.669	2.111
9 $ Expenses (000's)	146468	168048	194060	206921	219570	250317	271559	310419	324806	305308	1.674	2.084
10 Transp.	73361	81560	95934	102233	107252	120301	129618	145366	147576	144616	1.538	1.971
11 Maintenance	22659	26741	29843	32727	35834	38993	43182	45709	45996	44711	1.541	1.973
12 Terminal	21050	24349	28113	31412	34589	41428	45992	52388	56354	54016	2.005	2.566
13 Traf & Sales	5802	6855	7183	7644	6737	7848	7710	8422	8264	7986	1.150	1.376
14 Ins & Claims	2861	2867	3454	3115	2393	2992	2907	3589	3408	3278	0.987	1.146
15 Admin & other	20735	25676	29533	29790	32765	38755	42150	54946	63207	50701	2.140	2.445
16 Net Transp Revenues	13863	16176	18588	17713	9632	15290	2064	13094	15435	10070	0.830	0.726
17 Net Income	22376	19374	28813	24322	49830	23930	24806	27444	10426	14203	0.362	0.635
18 Owners' Equity	118580	89724	91225	95679	125963	142574	134384	135659	119059	119719	1.305	1.010
19 Revenue Equip ($000's)	77177	83080	82279	80714	88967	94338	104249	109919	128241	138024	1.559	1.788

20 # employees	4953	5280	5598	5308	5634	5612	5372	5584	5406	4851	0.966	0.979
21 Transp	3025	3077	3330	3135	3369	3290	3053	3083	2902	2653	0.871	0.877
22 Drivers	2850	2929	3234	3013	3267	3206	2975	3008	2833	2554	0.876	0.896
23 Other	175	148	96	122	102	84	78	75	69	99	0.719	0.566
24 Maintenance	821	864	880	809	823	789	799	927	927	836	1.053	1.018
25 Terminal	544	744	804	738	806	843	857	865	864	774	1.075	1.423
26 Sales	146	133	124	115	133	150	139	155	150	88	1.210	0.603
27 Admin. & other	417	462	460	511	503	540	524	554	563	500	1.224	1.199
28 Average Compensation	13263	14459	15954	18307	20937	23781	26121	29188	32659	34996	2.047	2.639
29 Transp	14450	15669	17506	19942	22552	26313	29125	32318	36529	39159	2.087	2.710
30 Drivers	14527	15617	17497	19819	22836	26554	29388	32633	36932	39723	2.111	2.734
31 Other	13189	16716	17823	22984	13451	17119	19115	19653	19957	24626	1.120	1.867
32 Maintenance	11741	12831	13895	16680	19530	21141	23388	27195	29782	30693	2.143	2.614
33 Terminal	10570	12086	11846	14683	17638	19745	21201	23783	27615	29742	2.331	2.814
34 Sales	13836	14917	19540	20261	20925	21067	23993	25394	29433	34193	1.506	2.471
35 Admin. & other	10962	13128	14870	15642	17716	19265	21393	24605	26050	28374	1.752	2.588
36 # of Buses	1674	1888	1993	1739	1783	1701	1642	1611	1476	1454	0.741	0.869
37 Highway	1235	1396	1482	1286	1339	1329	1363	1346	1238	1209	0.835	0.979
38 Owned	1097	1132	1177	970	1031	1025	1066	1109	1002	1089	0.851	0.993
39 Leased	138	264	305	316	308	304	297	237	236	120	0.774	0.870
40 Other	438	492	511	382	444	372	277	265	238	245	0.466	0.559
41 Owned	396	389	378	249	300	261	177	165	138	141	0.365	0.356
42 Leased	42	103	133	133	144	111	100	100	100	104	0.752	2.476
43 # passengers (000's)	33493	31952	34747	32506	33043	32846	29215	29772	29646	25574	0.853	0.764
44 Intercity	32567	31051	33358	31319	32160	32089	28434	29111	28711	24493	0.861	0.752
45 Other	927	900	1389	1186	883	757	781	661	935	1081	0.673	1.166
46 Total Kms. (000's)	173164	177296	194057	187789	186341	199496	182843	195104	192887	179169	0.994	1.035
47 Intercity	172261	176547	192905	186267	184818	198178	181472	193794	190776	176710	0.989	1.026
48 Other	903	748	1152	1522	1523	1318	1371	1310	2111	2459	1.832	2.724

49 Kms./bus (000's)	103.44	93.91	97.37	107.99	104.51	117.28	111.35	121.11	130.68	123.22	1.34	1.19
50 intercity/hiway	139.48	126.47	130.17	144.84	138.03	149.12	133.14	143.98	154.10	146.16	1.18	1.05
51 Passengers/bus (000's)	20.01	16.92	17.43	18.69	18.53	19.31	17.79	18.48	20.09	17.59	1.15	0.88
52 intercity/hiway	26.37	22.24	22.51	24.35	24.02	24.15	20.86	21.63	23.19	20.26	1.03	0.77
53 Kms./passenger	5.17	5.55	5.58	5.78	5.64	6.07	6.26	6.55	6.51	7.01	1.16	1.36
54 intercity	5.29	5.69	5.78	5.95	5.75	6.18	6.38	6.66	6.64	7.21	1.15	1.36
55 Total Comp ($000's)	65690	76342	89311	97171	117961	133458	140322	162983	176555	169765	1.977	2.584
56 Transp	43710	48215	58295	62518	75977	86570	88919	99635	106006	103890	1.818	2.377
57 Drivers	41402	45741	56584	59714	74605	85132	87428	98161	104629	101452	1.849	2.450
58 Other	2308	2474	1711	2804	1372	1438	1491	1474	1377	2438	0.805	1.056
59 Maintenance	9639	11086	12228	13494	16073	16680	18687	25210	27608	25659	2.258	2.662
60 Terminal	5750	8992	9524	10836	14216	16645	18169	20572	23859	23020	2.505	4.003
61 Sales	2020	1984	2423	2330	2783	3160	3335	3936	4415	3009	1.822	1.490
62 Admin & Other	4571	6065	6840	7993	8911	10403	11210	13631	14666	14187	2.144	3.104
63 Comp/expenses	0.448	0.454	0.460	0.470	0.537	0.533	0.517	0.525	0.544	0.556	1.181	1.240
64 Transportation	0.596	0.591	0.608	0.612	0.708	0.720	0.686	0.685	0.718	0.718	1.182	1.206
65 Maintenance	0.425	0.415	0.410	0.412	0.449	0.428	0.433	0.552	0.600	0.574	1.465	1.349
66 Terminal	0.273	0.369	0.339	0.345	0.411	0.402	0.395	0.393	0.423	0.426	1.250	1.560
67 Traffic & Sales	0.348	0.289	0.337	0.305	0.413	0.403	0.433	0.467	0.534	0.377	1.584	1.082
68 Admin & Other	0.194	0.212	0.207	0.243	0.253	0.249	0.249	0.233	0.220	0.263	1.062	1.357
69 Drivers/Tot Empl	0.575	0.555	0.578	0.568	0.580	0.571	0.554	0.539	0.524	0.526	0.907	0.915
70 Buses/Driver	0.587	0.645	0.616	0.577	0.546	0.531	0.552	0.536	0.521	0.569	0.845	0.969
71 000's of km/driver	60.76	60.53	60.01	62.33	57.04	62.23	61.46	64.86	68.09	70.15	1.135	1.155
72 Total Kms. (millions)	173.16	177.29	194.05	187.78	186.34	199.49	182.84	195.10	192.88	179.16	0.994	1.035
73 Net Trnsp Rv/Transp Rv	.0864	0.0878	0.0874	0.0788	0.0420	0.0575	0.0075	0.0404	0.0453	0.0319	0.5189	0.3692
74 Net Trnsp Rv/Rv Equip	.1796	0.1947	0.2259	0.2194	0.1082	0.1620	0.0197	0.1191	0.1203	0.0729	0.5327	0.4061
75 Net Income/Owners Eqty	.1886	0.2159	0.3158	0.2542	0.3955	0.1678	0.1845	0.2023	0.0875	0.1186	0.2772	0.6287
76 Ownrs Eqty/Rev Equip	1.5364	1.0799	1.1087	1.1854	1.4158	1.5113	1.2890	1.2341	0.9284	0.8673	0.8373	0.5645

TABLE A2
BUS DATA FOR SIZE CLASSES I - III

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	83/77	84/74	84/75
1 # establishments	68	29	25	35	34	35	34	31	32	33	38	0.943	0.559	1.310
2 $ Revenues (000's)	138302	162866	186569	217300	227678	232154	269553	276505	327342	342947	322356	1.578	2.331	1.979
3 Regular Bus Service		111636	125861	144809	149805	151862	173067	175510	216975	228697	214729	1.579		1.923
4 Intercity				143376	148618	150651	172718	175238	216423	228645	214658	1.595		
5 Charter		15775	17924	22746	22250	24015	27747	27444	30956	32938	35406	1.448		2.244
6 Contract		1776	1353	1736	1601	1272	1177	1125	1234	992	2293	0.571		1.291
7 Urb, Suburb, & Other		1266	1719	1213	1444	1451	379	937	1363	942	665	0.777		0.525
8 Other		32724	40789	47791	53764	54765	67531	71662	77365	79401	69284	1.661		2.117
9 $ Expenses (000's)	123343	148972	170181	198768	210272	222973	254135	274291	314510	327290	311696	1.647	2.527	2.092
10 Transp.		74886	82894	98554	104125	108992	122226	131130	147584	148823	148113	1.510		1.978
11 Maintenance		23047	27024	30689	33169	36507	39786	43752	46454	46392	45668	1.512		1.982
12 Terminal		21145	24478	28370	31566	34763	41605	46131	52589	56486	54429	1.991		2.574
13 Traf & Sales		5802	6855	7183	7644	6737	7848	7710	8422	8264	7986			
14 Ins & Claims		2861	2867	3454	3115	2393	2992	2907	3589	3408	3278			
15 Admin & other		21231	26064	30519	30653	33581	39678	42660	55873	63915	52222	2.094		2.460
16 Net Transp Revenues	14959	13894	16387	18532	17406	9181	15418	2214	12832	15657	10660	0.845	0.713	0.767
17 Net Income						49830	23930	24806	27444		14203			
18 Owners' Equity		119193	90356	92723	96261	126550	143049	134685	136159	119325	120785	1.287		1.013
19 Revenue Equip ($000's)		79135	85465	86829	84410	91682	98140	106153	112206	129837	142236	1.495		1.797
20 # employees	5014	5097	5398	5857	5474	5768	5762	5453	5692	5472	5005	0.934	0.998	0.982

21	Transp					3247	3446	3385	3105	3150		2752			
22	Drivers		2944	3002	3400	3125	3344	3301	3027	3075	2871	2653	0.844		0.901
23	Other					122	102			75		99			
24	Maintenance		839	879	926	831	838	807	805	942	933	849	1.008		1.012
25	Terminal		546	755	811	741	811	848	860	871	867	781	1.069		1.430
26	Sales						133			155		88			
27	Admin. & other		447	476	500	540	540	572	544	574	582	535	1.164		1.197
28	# of Buses	1786	1768	1964	2183	1885	1866	1805	1704	1683	1526	1558	0.699	0.872	0.881
29	Highway	1344	1289	1451	1575	1348	1405	1407	1405	1371	1270	1260	0.806	0.938	0.978
30	Owned		1151	1187	1266	1032	1096	1102	1106	1133	1034	1140	0.817		0.990
31	Leased		138	264	309	316	309	305	299	238	236	120	0.764		0.870
32	Other	442	478	513	608	466	461	398	297	312	256	298	0.421	0.674	0.623
33	Owned		431	389	472	333	317	287	197	212	156	194	0.331		0.450
34	Leased		47	103	136	133	144	111	100	100	100	104	0.735		2.213
35	# passengers (000's)	36961	34936	33169	36634	33059	33724	33283	29585	31187	29743	25702	0.812	0.695	0.736
36	Intercity				34429	31872	32774	32457	28719	29732	28788	24621	0.836		
37	Other				2205	1186	950	826	866	1455	955	1081	0.433		
38	Total Kms. (000's)		177219	182182	199680	191261	189973	203119	185014	197838	194399	182773	0.974		1.031
39	Intercity				197945	189739	188381	201521	183421	195987	192270	180291	0.971		
40	Other				1735	1522	1591	1598	1593	1851	2129	2482	1.227		
41	Kms./bus (000's)		100.24	92.76	91.47	101.46	101.81	112.53	108.58	117.55	127.39	117.31	1.393		1.170
42	intercity/hiway				125.68	140.76	134.08	143.23	130.55	142.95	151.39	143.09	1.205		
43	Pass Per bus ('000s)	20.69	19.76	16.89	16.78	17.54	18.07	18.44	17.36	18.53	19.49	16.50	1.161	0.797	0.835
44	intercity/hiway				21.86	23.64	23.33	23.07	20.44	21.69	22.67	19.54	1.037		
45	Kms./passenger		5.07	5.49	5.45	5.79	5.63	6.10	6.25	6.34	6.54	7.11	1.199		1.402
46	intercity				5.75	5.95	5.75	6.21	6.39	6.59	6.68	7.32	1.162		
47	Drivers/Tot Empl		0.578	0.556	0.581	0.571	0.580	0.573	0.555	0.540	0.525	0.530	0.904		0.918
48	Buses/Driver		0.601	0.654	0.642	0.603	0.558	0.547	0.563	0.547	0.532	0.587	0.828		0.978
49	Km/Driver ('000s)		60.20	60.69	58.73	61.20	56.81	61.53	61.12	64.34	67.71	68.89	1.153		1.144

TABLE A3
BUS DATA FOR SIZE CLASSES III

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	83/77	84/75
1 # establishments	10	7	15	12	14	15	12	12	13	18	0.867	1.800
2 $ Revenues (000's)	2535	2345	4652	3044	2952	3946	2882	3829	2706	6978	0.582	2.753
3 Regular Bus Service	1587	1312	3145	2175	1888	2344	1851	2363	2007	4828	0.638	3.042
4 Intercity			2709	2175	1888	2233	1758	1926	1979	4777	0.731	
5 Charter	591	620	734	304	678	1026	503	423	317	893	0.432	1.511
6 Contract	166	199	354	356	37		0	213	36	659	0.102	3.970
7 Urb, Suburb, & Other				0		111	93	437				
8 Other	191	214	418	208	349	576	528	831	346	599	0.828	3.136
9 $ Expenses (000's)	2504	2133	4708	3351	3403	3818	2732	4091	2484	6388	0.528	2.551
10 Transp.	1525	1334	2620	1892	1740	1925	1512	2218	1247	3497	0.476	2.293
11 Maintenance	388	283	846	442	673	793	570	745	396	957	0.468	2.466
12 Terminal	95	129	257	154	174	177	139	201	132	413	0.514	4.347
13 Admin & other	496	388	986	863	816	923	510	927	708	1521	0.718	3.067
14 Net Transp Revenues	31	211	-56	-307	-451	128	150	-262	222	590	-3.964	19.032
15 Owners' Equity	613	632	1498	582	587	475	301	500	266	1066	0.178	1.739
16 Revenue Equip ($000's)	1958	2385	4550	3696	2715	3802	1904	2287	1596	4212	0.351	2.151
17 # employees	144	118	259	166	134	150	81	108	66	154	0.255	1.069
18 Drivers	94	73	166	112	77	95	52	67	38	99	0.229	1.053
19 Maintenance	18	15	46	22	15	18	6	15	6	13	0.130	0.722
20 Terminal	2	11	7	3	5	5	3	6	3	7	0.429	3.500

21 Admin. & other	30	14	40	29	37	32	20	20	19	35	0.475	1.167
22 # of Buses	94	76	190	146	83	104	62	72	50	104	0.263	1.106
23 Highway	54	55	93	62	66	78	42	25	32	51	0.344	0.944
24 Owned	54	55	89	62	65	77	40	24	32	51	0.360	0.944
25 Leased	0	0	4		1	1	2	1	0			
26 Other	40	21	97	84	17	26	20	47	18	53	0.186	1.325
27 Owned	35	0	94	84	17	26	20	47	18	53	0.191	1.514
28 Leased	5	0	3						0		0.000	0.000
29 # passengers (000's)	1443	1217	1887	553	681	437	370	1415	97	128	0.051	0.089
30 Intercity			1071	553	614	368	285	621	77	128	0.072	
31 Other			816		67	69	85	794	20		0.025	
32 Total Kms. (000's)	4055	4886	5623	3472	3632	3623	2171	2734	1512	3604	0.269	0.889
33 Intercity			5040	3472	3563	3343	1949	2193	1494	3581	0.296	
34 Other			583	0	68	280	222	541	18	23	0.031	
35 Kms./bus (000's)	43.14	64.29	29.59	23.78	43.76	34.84	35.02	37.97	30.24	34.65	1.022	0.803
36 intercity/hiway			54.20	56.00	53.98	42.86	46.40	87.72	46.69	70.22	0.861	
37 Passengers/bus (000's)	15.35	16.01	9.93	3.79	8.20	4.20	5.97	19.65	19.94	1.23	0.195	0.080
38 intercity/hiway			11.52	8.92	9.30	4.72	6.79	24.84	2.41	2.51	0.209	
39 Kms./passenger	2.81	4.01	2.98	6.28	5.33	8.29	5.87	1.93	15.59	28.16	5.231	0.019
40 intercity	4.71	6.28	5.80	9.08	6.84	3.53	19.40	27.98	4.123			
41 Drivers/Tot Empl	0.653	0.619	0.641	0.675	0.575	0.633	0.642	0.620	0.576	0.643	0.985	
42 Buses/Driver	1.000	1.041	1.145	1.304	1.078	1.095	1.192	1.075	1.316	1.051	1.150	1.051
43 Kms/DDriver ('000s)	43.14	66.93	33.87	31.00	47.17	38.14	41.75	40.81	39.79	36.40	1.175	0.844

TABLE A4
RAIL DATA

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85/75
1 RAILWAY REVENUES ($M):												
2 Freight	2263.2	2630.0	2935.3	3208.1	3721.5	4134.1	4635.2	4514.6	5286.7	6225.7	6137.5	2.712
3 Passenger	83.8	89.8	99.0	128.6	369.1	478.3	569.6	195.8	210.4	218.5	244.7	2.920
4 Other	386.8	472.6	503.8	545.6	661.8	721.5	939.8	1591.0	1530.3	1195.5	1286.7	3.323
5 Total Railway Rev.	2733.8	3192.4	3538.1	3882.3	4752.4	5333.9	6144.6	6301.4	7027.4	7639.7	7668.9	2.805
6 RAILWAY EXPENSES ($M):												
7 Road & Struct. Maint.	501.9	569.5	626.3	668.0	744.3	798.7	936.4	946.9	1037.1	1138.4	1143.0	2.277
8 Equipment maintenance	544.9	574.1	665.4	747.3	837.3	949.6	1082.7	1509.9	1609.8	1796.5	1807.9	3.318
9 Rail Transportation	1119.3	1196.7	1299.2	1411.0	1804.2	2081.5	2420.7	2156.9	2201.2	2426.7	2440.6	2.180
10 Miscellaneous & Gen.	346.4	400.1	409.0	473.7	572.2	628.7	690.0	1571.4	1589.5	1589.8	1453.6	4.196
11 Traffic+Misc+taxes	635.9	735.6	758.1	849.1	1026.2	1173.3	1302.4	1571.4	1589.5	1589.8	1453.6	2.286
12 Total Railway Exp.	2802.0	3075.9	3349.0	3675.4	4412.0	5003.0	5742.2	6185.1	6437.6	6951.4	6845.1	2.443
13 NET RAILWAY REVENUES	-68.2	116.5	189.1	206.9	340.4	330.8	402.4	116.3	589.8	688:3	823.8	****
14 Other income	120.6	143.4	149.5	229.2	288.6	288.2	267.2	10.3	10.0	4.9	-385.4	-3.196
15 Gross income	52.4	259.9	338.6	436.1	629.0	619.0	669.6	126.6	599.8	693.2	438.4	8.366
16 Total deductions	193.8	223.0	270.3	244.9	272.1	197.1	227.1	145.1	202.9	194.1	195.1	1.007
17 NET INCOME	-141.4	36.9	68.3	191.2	356.9	421.9	442.5	-18.5	396.9	499.1	243.3	****
18 Locomotive unit-kilomtres (Diesel and Electric Combined), in millions:												
19 Freight	274.9	294.8	303.9	312.2	318.3	315.8	306.8	257.1	270.1	292.3	282.8	1.029
20 Passenger	72.0	46.1	47.9	48.2	11.7	5.2	4.5	27.0	25.2	25.2	27.3	0.379

21	Train Switching	7.9	7.0	6.8	6.8	6.1	6.2	4.9	6.1	0.7	0.8	0.8	0.101
22	Yard Switching	44.5	42.4	42.3	42.6	42.8	41.7	40.4	42.0	41.1	42.6	38.6	0.867
23	Total	399.3	390.3	400.9	409.8	378.9	368.9	356.7	332.2	337.1	360.9	349.5	0.875
24	Train kms, in millions:	142.7	140.5	139.8	140.3	142.9	139.5	134.2	132.4	133.5	141.5	139.7	0.979
25	Freight	102.7	110.5	110.3	111.2	114.0	111.4	106.9	92.1	95.7	103.5	99.7	0.971
26	Passenger	40.0	30.0	29.5	29.1	28.9	28.1	27.4	40.3	37.8	38.0	40.0	1.000
27	Frt Train Hrs (000s)	2882.0	3087.0	3058.0	3085.3	3066.5	3095.5	2944.1	2622.5	2704.4	2906.6	2797.0	0.971
28	Frt car-kms, millions:	7537.1	7486.9	7558.0	7598.0	7821.4	8039.9	7986.0	6871.9	7325.0	7894.1	7465.9	0.991
29	Frt trns, loaded	3848.0	4364.3	4402.6	4452.3	4600.4	4648.8	4641.5	3963.2	4258.5	4612.6	4413.6	1.147
30	Frt trns, empty	2986.1	3005.6	3039.9	3030.0	3102.8	3258.5	3218.9	2799.3	2955.9	3166.0	2939.8	0.984
31	" " ,caboose	107.4	115.3	114.1	114.6	117.1	131.3	123.6	108.5	110.2	115.1	112.0	1.043
32	In pass. trains	595.6	1.7	1.4	1.1	1.1	1.3	2.0	0.9	0.4	0.4	0.5	0.001
33	Frt cars/Frt train	67.6	67.7	68.5	68.3	68.6	72.2	74.7	74.6	76.5	76.3	74.9	1.108
34	Passenger car km (mill)	225.4	215.6	209.6	209.6	195.1	188.3	186.1	250.0	233.1	233.8	247.9	1.100
35	Pass cars/Pass train	5.64	7.19	7.11	7.20	6.75	6.70	6.81	6.20	6.17	6.15	6.20	1.100
36	Avg Reported Rev/Pass $	3.56	3.80	4.15	5.23	15.57	20.83	23.41	9.2	9.9	10.0	10.7	3.002
37	Avg per pass km	2.86	3.08	3.34	4.18	11.63	14.58	17.39	7.4	7.2	7.5	8.0	2.814
38	Tonnes Carried, 000000s	225.9	238.8	247.2	238.8	257.9	254.5	246.9	239.7	249.8	288.2	278.9	1.235
39	Tonne-km, billions	197.2	202.2	212.4	215.4	233.8	235.0	234.4	219.4	225.4	254.0	242.1	1.228
40	Avg. km. hauled	873.0	847.0	859.2	901.8	906.8	923.4	949.1	915.3	902.3	881.3	868.1	0.994
41	Tonne-km/loaded car-km	46.7	47.6	49.4	49.5	51.9	51.6	51.8	55.4	52.9	55.1	54.9	1.175
42	Tonne-km/freight trn km	1830.0	1925.8	1936.6	2051.5	2109.8	2192.6	2382.2	2355.3	2454.1	2428.3	*1.327	
43	% freight-car-km empty	43.7	40.8	40.8	40.5	40.3	41.2	41.0	41.4	41.0	40.7	40.0	0.915
44	Pass carried, millions	23.6	23.6	23.9	23.9	23.7	23.0	24.3	21.3	21.2	21.9	22.9	0.972
45	Pass-km, millions	2930.4	2942.2	2966.5	3200.1	3174.9	3280.0	3275.9	2639.9	2932.3	2914.7	3040.5	1.038

46 Avg # of passengers/car	14.8	15.6	16.0	17.1	18.0	19.0	19.0	10.6	12.6	12.5	12.3	0.826
47 Avg pass trip length km	124.3	124.5	124.3	128.4	133.9	142.8	134.6	124.0	138.0	133.0	133.0	1.070
48 Commuter	22.1	23.1	23.2	23.8	24.9	25.7	26.0					
49 Non-commuter	492.2	473.0	456.0	466.4	417.4	388.4	368.2					
50 #commuters/non-com	3.6	3.4	3.3	3.2	2.6	2.1	2.2					
51 Freight Rev/tonne in $	10.4	11.7	12.6	14.2	15.6	17.6	20.1	18.8	21.2	21.6	22.0	2.122
52 Freight Rev/Tonne-Km,	1.161	1.331	1.418	1.526	1.639	1.816	2.033	2.058	2.345	2.451	2.535	2.184
53 Fuel Consumption, in millions of units												
54 Diesel oil, litres	2199.1	2126.7	2202.2	2293.7	2425.4	2337.1	2282.6	2027.0	2023.0	2141.6	2231.0	1.015
55 Crude oil, litres	135.1	208.9	214.0	139.1	92.0	147.2	115.0	43.0	95.7	92.6	105.0	0.777
56 Electricity, kwh	11.6	10.3	10.5	10.0	8.9	7.8	7.0	8.5	9.1	15.2	21.4	1.838
57 Total Fuel costs ($M)	171.8	191.9	227.0	264.6	311.7	402.6	559.8	596.6	642.5	706.5	771.0	4.488
58 EMPLOYMENT DATA:												
59 # of employees	127986	120872	121064	120035	122072	116719						
60 General	15061	14009	13918	13943	13713	14041	14157	13736	13032	12308	12678	0.842
61 Road Maintenance	22257	22628	23801	23621	23625	22985	23071	21455	22337	22774	21660	0.973
62 Equipment Maint.	29377	27967	28657	29541	30801	30814	30705	27556	26426	27220	26461	0.901
63 Transportation	47846	45481	44202	43116	44168	43154	40098	32876	31050	31309	30531	0.638
64 Total Rail	114541	110085	110578	110221	112307	110994	108031	95623	92845	93611	91330	0.797
65 Other	13445	10787	10486	9814	9765	5725						
66 Avg Hours Paid for	2165	2171	2162	2171	2190	2169						
67 General	2103	2114	2097	2100	2095	2094	2086	2083	2084	2093	2072	0.985
68 Road Maint.	2266	2272	2246	2247	2275	2269	2274	2197	2223	2240	2198	0.970

69	Equip. Maint.	2113	2127	2117	2122	1745	2118	2114	2095	2114	2129	2055	0.973
70	Transportation	2164	2169	2161	2172	2186	2170	2147	2133	2159	2211	2189	1.012
71	Total Rail	2163	2172	2160	2165	2179	2166	2157	2129	2151	2179	2136	0.988
72	Other	2187	2154	2180	2233	2312	2215						
73	Avg remuneration	13452	15039	16319	17435	19469	21340						
74	General	14187	15817	17048	18108	20273	22402	25552	29231	30932	32600	34356	2.422
75	Road Maint.	12813	14195	15321	16414	18728	20676	23242	25981	27634	29351	30121	2.351
76	Equip. Maint.	12813	14356	15513	16432	18345	20007	22422	25630	27436	29033	28795	2.247
77	Transportation	14191	15914	17383	18612	20596	22555	25756	29639	32022	34673	35794	2.522
78	Total Rail	13569	15153	16413	17493	19546	21439	24245	27605	29508	31466	32221	2.375
79	Other	12450	13884	15327	16783	18579	29410						

TABLE A5
ADDITIONAL TRUCK AND RAIL FREIGHT DATA

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	85/75
1 Rail Revenue/Employee	23.9	29.0	32.0	35.2	42.3	48.1	56.9	65.9	75.7	81.6	84.0	3.518
2 Rail Rev/Remuneration	1.8	1.9	1.9	2.0	2.2	2.2	2.3	2.4	2.6	2.6	2.6	1.482
3 RR Remun/Expenses:	0.555	0.542	0.542	0.525	0.498	0.476	0.456	0.427	0.426	0.424	0.430	0.775
4 General	0.146	0.139	0.139	0.134	0.117	0.116	0.116	0.108	0.106	0.100	0.112	0.767
5 Road Maintenance	0.568	0.564	0.582	0.580	0.594	0.595	0.573	0.589	0.595	0.587	0.571	1.005
6 Equip Maintenance	0.691	0.699	0.668	0.650	0.675	0.649	0.636	0.468	0.450	0.440	0.421	0.610
7 Transportation	0.607	0.605	0.591	0.569	0.504	0.468	0.427	0.452	0.452	0.447	0.448	0.738
8 RR Fuel Exp/Expenses	0.061	0.062	0.068	0.072	0.071	0.080	0.097	0.096	0.100	0.102	0.113	1.837
9 Truck Kms. Traveled	3280.2	3005.1	3063.4	3242.0	3329.2	3388.0	3308.9	293.7	2931.2			
10 Tne-Kms/RR Empl. (mill)	1.722	1.837	1.921	1.954	2.082	2.117	2.169	2.294	2.428	2.713	2.651	1.540
11 Tonnes/RR Empl. (000s)	1.972	2.169	2.236	2.166	2.296	2.292	2.286	2.507	2.691	3.079	3.054	1.548
12 Tnes/Truck Empl. (000s)	1.300	1.338	1.219	1.176	1.421	1.340	1.554	1.642	1.854			

TABLE A6

TRUCKING DATA FOR SIZE CLASSES I - III

	74	75	76	77	78	79	80	81	82	83	83/75	83/76
1 # of Establishments	1892	2578	2467	2882	3589	3889	4320	4145	4541	4209	1.633	1.706
2 Frt Transp Rev ($M)	2130.9	2035.0	2678.7	3084.1	3803.3	4427.3	4931.9	5424.9	5345.2	5544.4	2.725	2.070
3 Other Revenues ($M)	166.1	537.8	185.1	186.0	217.7	238.4	291.3	262.2	243.3	208.6	0.388	1.127
4 TOTAL OPERATING REV	2297.0	2572.8	2863.8	3270.1	4021.0	4665.7	5223.2	5687.1	5588.5	5753.0	2.236	2.009
5 Transp Expenses ($M)	1337.2	1476.1	1645.6	1910.4	2340.4	2708.9	3110.3	3364.6	3345.7	3415.3	2.314	2.075
6 Maint of Rev Eq ($M)	231.1	266.1	306.3	357.7	449.2	519.9	553.3	561.7	536.4	549.1	2.064	1.793
7 Terminal Expenses ($M)	193.7	205.8	225.6	264.9	318.1	352.5	373.3	398.0	367.6	380.0	1.846	1.684
8 Admin, Gen & Other ($M)	431.5	511.1	569.3	600.5	747.3	888.7	1023.3	1173.7	1199.1	1182.2	2.313	2.077
9 TOTAL OPERATING EXP	2193.5	2459.1	2746.8	3133.5	3855.0	4470.0	5060.2	5498.0	5448.8	5526.6	2.247	2.012
10 Net Operating Rev	103.5	113.7	117.0	136.6	166.0	195.7	163.0	189.1	139.7	226.4	1.991	1.935
11 Revenue Equipment ($M)	1094.4	1276.1	1346.9	1494.8	1793.9	2117.3	2489.0	2588.5	2647.2	2696.6	2.113	2.002
12 Total Assets ($M)	1450.9	1615.3	1699.5	1869.3	2298.3	2692.5	3166.0	3254.7	3164.6	3360.8	2.081	1.978
13 Owners' Equity ($M)	465.0	500.1	504.6	585.1	682.6	749.7	863.2	918.7	896.4	964.5	1.929	1.911
14 Average # Employees:		81296	80872	82526	94398	96584	96609	90782	83989	80546	0.991	0.996
15 Drivers & Supervisors		41507	42340	43169	48471	49928	49460	46108	43713	42630	1.027	1.007
16 Helpers		6497	6078	6295	6921	6980	6828	5770	5011	4557	0.701	0.750
17 Other Transp Empl		790	543	528	634	728	688	958	586	552	0.699	1.017
18 Maintenance		7579	7442	7656	8370	8672	8344	7698	7008	6700	0.884	0.900
19 Terminal & Platform		13324	12917	12972	15284	14901	15187	14295	12402	12100	0.908	0.937
20 Admin Gen & Other		11599	11552	11906	14718	15375	16102	15953	15269	14007	1.208	1.213

21 Total Compensation ($M)	872.8	958.5	1076.2	1192.7	1468.1	1739.1	1939.2	2062.1	1972.9	1993.7	2.080	1.853
22 Drivers & Helpers	538.7	568.9	650.6	723.0	875.6	1038.7	1166.7	1214.3	1162.2	1183.4	2.080	1.819
23 Other Transp Empl		7.8	6.1	8.3	8.6	11.4	11.0	15.9	11.9	11.4	1.462	1.869
24 Maintenance	80.7	91.6	99.2	112.3	132.2	156.8	168.7	174.5	168.1	168.2	1.836	1.696
25 Terminal & Platform	133.4	150.3	163.7	177.0	224.4	260.7	278.8	313.2	285.8	289.7	1.927	1.770
26 Admin Gen & Other	120.0	139.9	156.6	172.1	227.3	271.5	314.0	344.2	344.9	341.0	2.437	2.178
27 Average Compensation:		11790	13307	14452	15553	18006	20073	22715	23490	24752	2.099	1.860
28 Drivers & Helpers		11851	13437	14617	15807	18252	20727	23407	23853	25079	2.116	1.866
29 Other Transp Empl		9873	11234	15720	13612	15659	15988	16597	20307	20652	2.092	1.838
30 Maintenance		12086	13330	14668	15795	18081	20218	22668	23987	25104	2.077	1.883
31 Terminal & Platform		11280	12673	13645	14682	17495	18358	21910	23045	23942	2.122	1.889
32 Admin Gen & Other		12061	13556	14455	15444	17659	19501	21576	22588	24345	2.018	1.796
33 Fuel Consumption ($M)		170.7	227.2	262.6	313.7	304.4	449.5	562.4	615.7	621.6	3.641	2.736
34 Cdn ltrs Gasoline (mill)		443.2	389.6	380.1	406.7	392.3	413.4	301.0	195.0	157.1	0.354	0.403
35 Cdn ltrs Diesel (mill)		1115.2	1141.1	1225.6	1399.6	1439.4	1494.5	1480.4	1391.5	1358.3	1.218	1.190
36 Cdn ltrs Propane (mill)									9.2	12.9		
37 US ltrs Gasoline (mill)		1.9	2.3	1.6	1.6	0.6	1.3	0.9	0.3	0.2	0.102	0.084
38 US ltrs Diesel (mill)		34.8	31.8	31.8	33.3	43.6	49.6	46.2	53.3	49.3	1.416	1.550
39 Kilometres Traveled:		3280.2	3005.0	3063.3	3242.0	3329.2	3388.0	3308.9	2963.7	2931.2	0.894	0.975
40 Straight Trucks (mill)		641.6	724.2	660.8	747.3	743.3	776.4	722.8	643.7	623.0	0.971	0.860
41 Truck Tractors (mill)		2622.8	2265.9	2393.4	2487.1	2585.9	2611.6	2586.1	2320.0	2308.2	0.880	1.019
42 Other (millions)		15.8	15.0	9.2	7.6							
43 Total Kms (00000's)		32802	30050	30633	32420	33292	33880	33089	29637	29312	0.894	0.975
44 # of Trucks		51851	49629	50071	55069	56332	57413	53980	50562	48777	0.941	0.983

45 Straight Trucks		22550	19985	19644	21717	21987	21831	20184	18874	17650	0.783	0.883
46 Tractors		29301	29644	30427	33352	34345	35582	33796	31688	31127	1.062	1.050
47 Kms.Traveled/Truck (000's)		63.26	60.55	61.18	58.87	59.10	59.01	61.30	58.62	60.09	0.950	0.992
48 Straight Trucks		28.45	36.24	33.64	34.41	33.81	35.56	35.81	34.11	35.30	1.241	0.974
49 Truck Tractors		89.51	76.44	78.66	74.57	75.29	73.40	76.52	73.21	74.15	0.828	0.970
50 Revenue/Kilometre		0.784	0.953	1.068	1.240	1.401	1.542	1.719	1.886	1.963	2.502	2.059
51 Expenses/Kilometre		0.750	0.914	1.023	1.189	1.343	1.494	1.662	1.839	1.885	2.515	2.063
52 Transp/Total Exp	0.610	0.600	0.599	0.610	0.607	0.606	0.615	0.612	0.614	0.618	1.030	1.032
53 Maint/Total Exp	0.105	0.108	0.112	0.114	0.117	0.116	0.109	0.102	0.098	0.099	0.918	0.891
54 Terminal/Total Exp	0.088	0.084	0.082	0.085	0.083	0.079	0.074	0.072	0.067	0.069	0.822	0.837
55 Admin/Total Exp	0.197	0.208	0.207	0.192	0.194	0.199	0.202	0.213	0.220	0.214	1.029	1.032
56 Rev Equip/Assets	0.754	0.790	0.793	0.800	0.781	0.786	0.786	0.795	0.837	0.802	1.016	1.012
57 Remuner/Total Exp		0.390	0.392	0.381	0.381	0.389	0.383	0.375	0.362	0.361	0.926	0.921
58 Fuel/Total Exp		0.069	0.083	0.084	0.081	0.068	0.089	0.102	0.113	0.112	1.620	1.360
59 (Fuel+Remun)/Exp		0.459	0.475	0.464	0.462	0.457	0.472	0.477	0.475	0.473	1.031	0.997
60 Avg Kms/Driver (000's)		79.03	70.97	70.96	66.89	66.68	68.50	71.76	67.80	68.76	0.870	0.969
61 Avg # of Trucks/Driver		1.249	1.172	1.160	1.136	1.128	1.161	1.171	1.157	1.144	0.916	0.976
62 Net Operating Revenues as a % of:												
63 Total revenues	0.045	0.044	0.041	0.042	0.041	0.042	0.031	0.033	0.025	0.039	0.890	0.963
63 Total Expenses	0.047	0.046	0.043	0.044	0.043	0.044	0.032	0.034	0.026	0.041	0.886	0.962
64 Revenue Equipment	0.095	0.089	0.087	0.091	0.093	0.092	0.065	0.073	0.053	0.084	0.942	0.967
65 Total Assets	0.071	0.070	0.069	0.073	0.072	0.073	0.051	0.058	0.044	0.067	0.957	0.979
66 Owners' Equity	0.223	0.227	0.232	0.233	0.243	0.261	0.189	0.206	0.156	0.235	1.032	1.012
67 DATA FROM THE FOR-HIRE TRUCKING SURVEY:												
68 *Rev (for-hire survey)		1787.6	2041.5	2207.5	2524.0	3076.8	3328.0	3853.8	3848.0	4066.4	2.275	1.992
69 *Tonnes, mill. (")		105.7	108.2	100.6	111.0	137.2	129.5	141.1	137.9	149.3	1.412	1.380
70 *Revenue/Tonne (")($)		16.9	18.9	21.9	22.7	22.4	25.7	27.3	27.9	27.2	1.610	1.444

TABLE A7
PRICE AND REVENUE INDICES

		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1 Rail Fares,	1981=100	59.2	65.0	67.1	70.6	76.4	85.1	100.0	119.7	132.1	136.6	144.0
2 Bus Fares,	1981=100	57.7	63.0	68.6	74.5	79.6	89.2	100.0	120.8	130.5	137.6	143.3
3 Taxi Fares,	1981=100	61.9	68.4	73.6	76.6	83.8	92.1	100.0	115.1	119.1	121.2	123.8
4 CPI,	1981=100	58.5	62.9	67.9	73.9	80.7	88.9	100.0	110.8	117.2	122.3	127.2
5 Rail Rev/Tne,	1981=100	53.4	58.7	63.2	71.6	76.9	86.5	100.0	100.3	112.7	115.1	117.2
6 RR Rev/Tne-Km,	1981=100	58.0	65.8	69.9	75.3	80.5	88.9	100.0	104.0	118.6	123.9	128.2
7 Truck Rev/Tne,	1981=100	61.9	69.1	80.3	83.3	82.1	94.1	100.0	102.2	99.7		