The Last Spike?

Another Look at the Canadian Rail Industry

by Dr. Ian Hudson

SUMMARY

This study is an attempt to determine the trends in the Canadian rail industry since the beginning of deregulation in 1987. Deregulation was the response chosen by the federal government to challenges that were facing the rail industry that continued the dominant trend in the 1980s and 1990s to a free market economy based solely on the considerations of private cost.

Since 1987, the rail industry has had quite mixed results. Companies are enjoying an upturn in profitability over the last couple of years, but this has been accomplished despite little or no increases in revenue. Employees in the rail industry have fared particularly poorly with layoffs across all job categories and, with the notable exception of management, very little in the way of real wage increases. Last, it is probably fair to say that the customers who are still served by rail roads are served well, as prices have fallen. However, there is a growing base of customers that are being abandoned by the rail roads. In addition, although the evidence is not yet conclusive, there may be cause for concern over the growing number of accidents in rail transport.

The impetus behind deregulation was part of the desire to make the Canadian rail industry more competitive with both U.S. rail and trucking. Many analysts have concluded that deregulation has gone some way towards accomplishing these goals, but the process of cost cutting started by deregulation must continue. There are several reasons to believe that this logic is flawed. First, the competition between Canada and the U.S. railroads may be overstated. Second, there are reasons to believe that the Canadian railroads may not be able to continue to increase profits solely through the cost cutting measures they have so far employed. Third, it is quite possible that competition between rail and truck is currently conducted in a policy environment that artificially favours the trucking industry. The most logical solution to this problem is not make the rail industry decrease its expenses to compete, but to increase the costs to trucking, which are currently artificially low. In this way, crucial social cost considerations could be included in the private cost calculation. Ironically, by neglecting to include social cost as part of the transportation framework, the government is hindering the market mechanism, not aiding it.

INTRODUCTION

In 1987, the Canadian government started a lengthy process aimed at gradually deregulating the rail industry in Canada. Over a decade later it is time to take stock of just what has happened to this industry since the government started to make its momentous changes. This study is an attempt to do just that. It is divided into three sections.

The first will examine the conditions immediately prior to 1987 that led the Conservative government of Prime Minister Brian Mulroney to start the deregulation process.

The second will examine the trends in the industry in the decade since deregulation in an attempt to highlight the changes that have occurred.

The third will attempt to determine whether, given, trends the claim that deregulation was necessary because of U.S. rail and trucking, is valid.

it is time to **take stock** of what has happened to the rail industry in Canada since the beginning of deregulation

REGULATORY CHANGES

The rail industry in Canada has undergone drastic changes in the last decade. Following the example set by numerous other countries, most importantly the United States, the Canadian federal government has decided that it would remove its presence from the industry. The Canadian government was once very much the guiding hand in the industry, regulating prices, safety and service, subsidizing companies and, of course, owning the Canadian National Railway. Over the last ten years almost all of these interventions have been either altered or eliminated altogether in order to move the industry to a more market-based, competitive model.

In this introductory section we will try, very briefly, to explain the conditions in the industry that led the government to take these steps and also to specifically identify the myriad of changes that make up the deregulation of the rail industry in this country.

State of the Industry Leading up to Deregulation

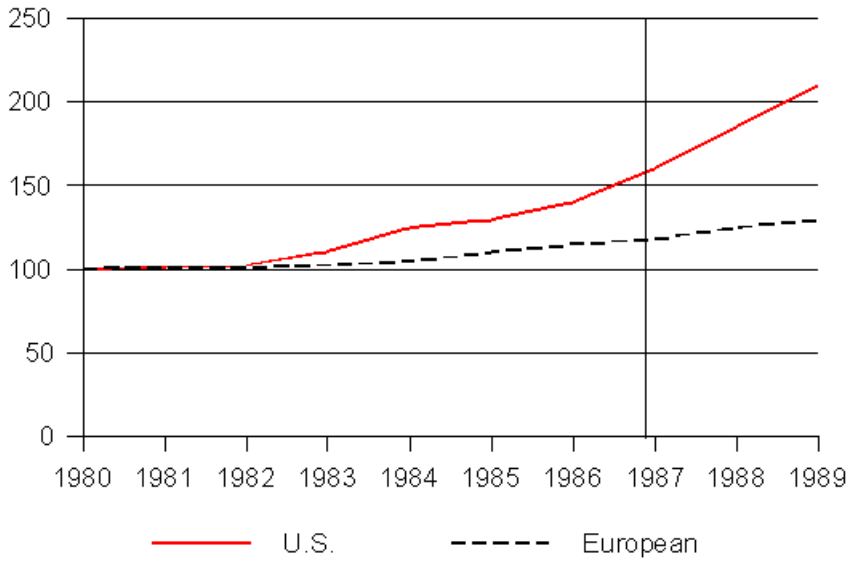
Competition from U.S. rail

One of the most threatening, yet paradoxically, promising developments facing the Canadian rail industry was the deregulation of the rail industry in the United States. Deregulation in the United States preceded Canada's first, tentative efforts in 1987 by seven years with the passage of the Staggers Act in 1980. The results were quite startling. Prices for shipping freight dropped dramatically, while at the same time profits for carriers increased. Productivity and freight carried have also shown dramatic improvement. This was quite threatening for Canadian rail because long hauls across country could very easily be routed along the northern U.S. border instead of traveling through the transcontinental lines along southern Canada. However, the experience of

GRAPH 1.1

Productivity of U.S. and European Rail (Index 1980=100)

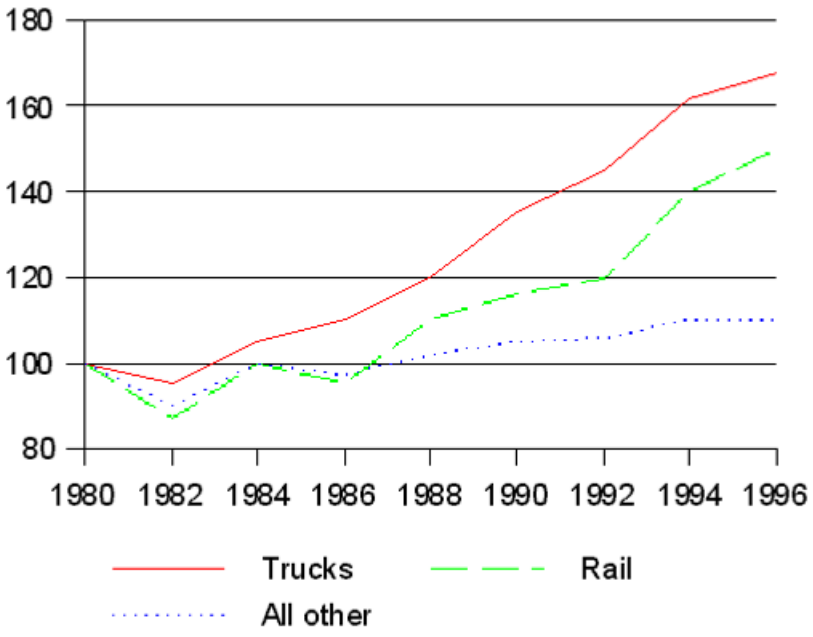
Source: Railroad Facts 1997, Association of American Railroads



GRAPH 1.2

U.S. Intercity Traffic (Index 1980=100)

Source: Railroad Facts 1997, Association of American Railroads



the U.S. in restoring profitability to an industry at least as troubled as Canada's led some in this country to conclude that if deregulation was good for the U.S. it could achieve the same results in Canada.

Graphs 1.1 to 1.3 illustrate the performance of the U.S. rail industry after the Staggers Act was passed. Prices are lower, shipping and productivity have increased, and while rail has not increased its shipping quite as much as trucks have, post Staggers, it has certainly come close to keeping pace.

Revenue per tonne-kilometer is often used as a proxy for rail freight rates. In 1990, just after the National Transportation Act (NTA) was passed in Canada, U.S. rail roads made CDN$ 0.021 while Canadian rail roads made CDN$ 0.026 per tonne-kilometer. Although this is not an exceptionally large gap, especially once exchange rate fluctuations are considered, it does mean that on traffic that can be shipped either through Canada or the U.S., Canadian rail is less likely to be chosen. In addition, for those goods that could only be shipped on Canadian routes, the price for transporting these goods was higher than under the U.S. rail system, increasing costs to Canadian companies. Despite the relatively small size of the gap, the prevailing wisdom of the time attributed the higher Canadian rates to government intervention in the free market, and concluded that in order for Canadian railroads to become more competitive, the industry needed to be deregulated.

Competition from trucking

In addition to competition from U.S. rail, Canadian rail companies were facing competition from alternative modes of transportation. The Canadian trucking industry was taking a substantial amount of traffic from the railways, especially on short hauls with smaller loads.

If we take an index of the freight carried by truck and rail starting in 1981, truck and rail shipping follow very similar trends until 1984. Between 1984 and 1987, truck transport started to increase dramatically, while rail transport remained relatively constant. (Graph 1.4) Rail deregulation was seen as a way not only of reducing the costs of rail transport to make it more competitive, but also of giving rail companies more flexibility in their rate schedules to allow them to compete with trucking firms.

It is important to realize that trucking received (and still receives) some very important subsidies from the government. Therefore, the regulated rail industry was not the only transportation sector to have access to government funds in the 1980s. While rail companies bear the cost of maintaining their own track, the same is not true of trucking companies, who receive a large, largely hidden subsidy since, as we will demonstrate later, their fuel taxes and license fees do not cover their share of the cost of the roads on which they operate.

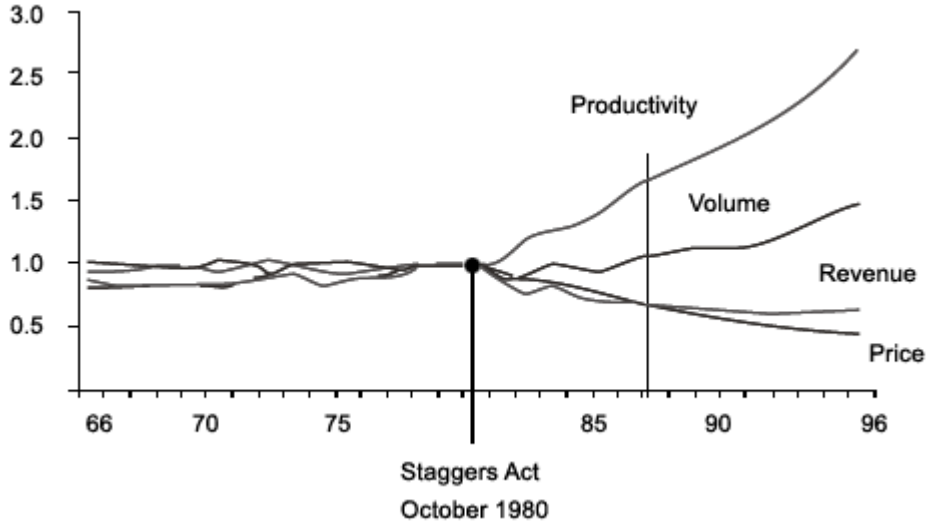
Changing pattern of trade

Of course, the challenges facing the rail industry were also a reflection of the changes facing the nation as a whole. During this period the pattern of trade in the country was very much shifting from east-west traffic within the country to north-south trade between Canada and the United States. For rail companies, with fixed routes, mostly running east to west, the declining relative importance of interprovincial trade meant that they were missing out on the fastest-growing shipping routes.

Between 1977 and 1987, for example, the value of merchandise trade between Canada and the United States more than tripled from $31,196 million to $99,764 million. In the

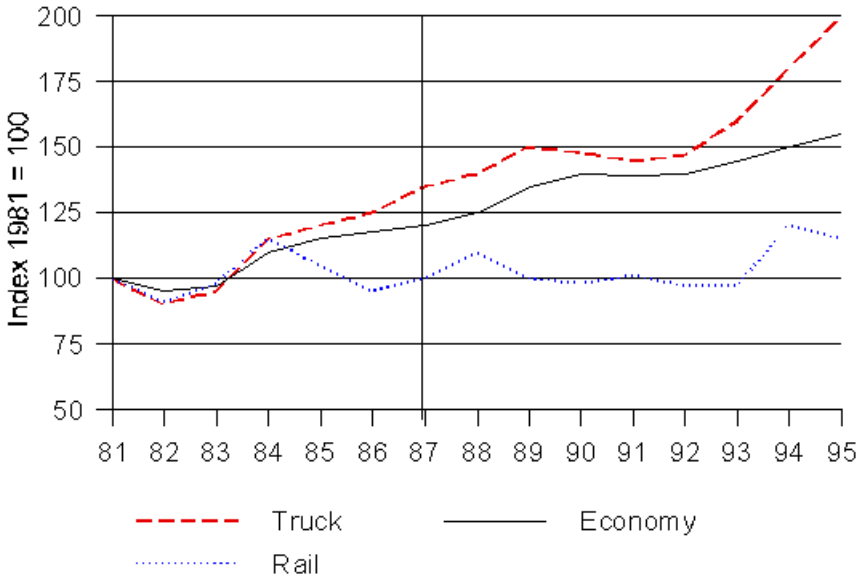
GRAPH 1.3

U.S. Major Freight Railroad Performance 1966-1996 (Index 1981=100)
Productivity – Revenue ton-mile per constant dollar operating expenses
Volume – Revenue ton-mile
Revenue – Constant dollar operating revenue
Price – Constant dollar revenue per ton-mile



GRAPH 1.4

Output Change (Rail and Truck)
Source: Transportation in Canada 1996, p. 159



province of Manitoba, exports outside of the country were increasing at a much more rapid rate than interprovincial trade. Between 1982 and 1987 merchandise exports out of the country grew from $2,554 to $3,435 million, an increase of 34% while interprovincial merchandise trade increased from $3,241 to $4,004, an increase of 24%. While this may not seem like a large difference, it was taken as being the beginning of a very substantial change in the direction of North American shipping.

While the trend to increasing trade with the United States was readily apparent in the 1980s, the signing of the FTA provided a fresh impetus for a growth in north-south trade. This was part of a broader government strategy of the time to pursue a trade policy that actively encouraged a more liberal approach to international trade. While the Canadian government was reducing international trade barriers through the expansion of the General Agreement on Tariffs and Trade, it more aggressively attempted to secure more access to the wealthy and geographically convenient U.S. market through the FTA. The signing of the FTA certainly meant an expansion in trade between the two countries. However, this trend proved problematic for the rail industry that traditionally had made its money in inter-provincial trade.

Profitability prior to deregulation

On the eve of deregulation, the Canadian rail industry had been performing passably well. Although it was receiving a reasonable amount of government support (especially the CN) the industry as a whole was showing profits in most years. In 1985, 1986 and 1987, the industry recorded $243, $150 and $380 million in net income. CP accounted for most of this with a net income of $133, $119 and $228 million in the three years. Although CN lost $36 million in 1986, it was still able to earn a net income of $75 million in 1985 and $77 million in 1987.

Prevalent ideology

Although the Canadian rail industry was facing some serious competition, it was still profitable when the government decided to deregulate. The fact that both the Conservative and Liberal governments in the late 1980s and early 1990s chose deregulation as the response to the increased competition very much reflected the ideology of these two administrations. In the eighties and nineties, the political debate surrounding economic and industrial policy has become remarkably straightforward in that there seems to be little public support, and few dissenting voices in which to create that support, for anything other than market-based solutions.

TABLE 1.1

Payments to the Rail Industry from the Federal Government (millions of dollars and percentage of total rail revenue)
Source: Statistics Canada – Rail in Canada

	1982 millions	%	1987 millions	%
CN	301	10%	108	3%
CP	231	11%	47	1%
VIA	449	75%	517	80%
TOTAL	1013		705	

In this atmosphere, the solutions to the problems facing the railways were always going to be sought in the free market. The result was a gradual but steady withdrawal of the state. Table 1.1 shows that, prior to 1987, although the federal government had been dedicating some funding to the rail industry, with the exception of VIA Rail, the amounts were not particularly substantial. (It should be noted that this table does not include the subsidies under the Western Grain Transportation Agreement (WGTA), which will be discussed later.) However, in an atmosphere of broad-based cuts to federal spending, it was unlikely that the rail industry would escape unscathed. In fact, the cuts after 1987 merely continued a trend that was well-established in the previous five years.

Chronology of Regulatory Change

Given the prevalent ideology and the challenges facing the railway, deregulation was, in some ways, the only solution that was ever seriously considered. The first tentative steps toward a deregulated industry began in 1987 with the passage of the National Transportation Act. The NTA made prices more flexible by allowing rail companies to negotiate confidential contracts with customers. It also started the process of permitting the rail industry to have more control over the communities it serves by permitting them to abandon up to four percent of their total track each year. While technically the rail companies were able to reduce the amount of track, and therefore the number of communities, that they serviced, the abandonment process was subject to governmental review, a process which the rail companies claimed was mired in red tape presenting a very real obstacle to the rail companies' ability to eliminate low traffic lines. In 1993, the rail companies' complaints about both the overly bureaucratic process and the physical limits to rail line reduction were heeded by the government, which introduced a much less stringent review process and eliminated the yearly track reduction maximum.

The next major change in the regulatory regime in the railways came two years later with the introduction of the Rail Safety Act (RSA) in 1989. This act was introduced in an effort to keep pace with changes in American legislation. The main goal of the RS A was to separate the *safety* from the *economic* regulations governing the rail industry. While separating the two types of regulation does not necessarily compromise safety standards, much of the motivation behind the regulatory change was to introduce more flexibility into how rail companies maintained their safety standards so that they could compete effectively with U.S. companies. As a result, the main emphasis of the new legislation was to give companies the flexibility to deal with safety issues in the most cost effective manner. While a review of the legislation in 1994 concluded that there was no evidence of reduced safety (On Track, Railway Safety Act Review Committee, 1994), unions have argued that the reductions of inspections and safety personnel will inevitably have an adverse impact. In addition, the unions argue that the whole emphasis of the legislation in facilitating flexibility and cost reduction has meant that the regulatory bodies have somewhat abandoned their role as a safety watchdog and

ceded this power to the companies themselves.

The Liberal government's most substantial move towards the adoption of a market based rail industry occured in 1995. In the 1995 budget they committed themselves to reducing or eliminating all of the federal subsidies to the rail industry. Perhaps the most visible program that was to be eliminated was the Western Grain Transportation Act, or the Crow rate, which subsidized the movement of export crops from the prairies to shipping ports. While this subsidy was paid to the railways, the benefits of the subsidy were divided between rail companies, farmers and their customers. In 1992-1993, the agreed price for shipping grain was $32.12 per tonne, of which the federal government paid $20.14 and farmers paid the remaining $11.98. In this year the WGTA cost an estimated $720 million. However, in the new climate of reduced government and increasing international pressure to eliminate export subsidies, especially in agriculture, the WGTA was particularly vulnerable to elimination. While this subsidy did go to the farmers it certainly helped the rail industry in that it increased the amount of traffic in the industry and most likely allowed them to charge a higher price.

Although this was certainly the largest federal subsidy in the rail industry, it was by no means the only one. As we have seen in the previous Table, by 1987 VIA, and to a lesser extent CN and CP all received public money that directly subsidized their operations. For example, the federal government compensated the rail companies for the operation of uneconomic branch lines. With a last, final, payment to CN in order to prepare it for privatization, the Liberal government, for all intents and purposes, removed the rail companies (except VIA) from the list of recipients of public funding.

The move to eliminate government influence in the rail industry took a quite dramatic turn in 1995 when the government announced that it would privatize CN. Following in the footsteps of other former crown corporations like Petro Canada and Air Canada, ownership of CN was transferred from the federal government to private investors through a public share offering. Depending on how the share offering is interpreted, it was either the most successful share offering by a Canadian public company or an outrageously naive undervaluation that cost the Canadian government $400 million. In either case, this was a rather dramatic step further along the path to a completely market-based model for the Canadian rail industry.

The last major change occurred in 1996, when the government replaced the NTA and the Railway Act with the Canadian Transport Act (CTA). The CTA changed the name of the National Transportation Agency to the Canadian Transportation Agency. This change was not merely superficial, the new agency was given a new mandate with a much reduced regulatory role. Among the changes in moving from the old NTA to the CTA was the elimination of any governmental review process preceding the abandonment of rail lines. This change was implemented because the lengthy procedure that was required under the previous legislation to demonstrate to the government that a line was not financially viable would often result in rail companies allowing service to deteriorate. This was done because it made little sense to maintain infrastructure that companies were hoping to abandon and, also, because to gain

government approval for abandonment the company had to demonstrate a lack of profitability on the line. This gradual reduction in attention to the lines that rail companies were in the process of abandoning made it difficult to find purchasers for the deteriorating lines. The hope was that this change in legislation would encourage large rail companies to find short line companies willing to purchase the lines they want to abandon. This has certainly been the case in the United States, where smaller rail companies purchased more than half of the track abandoned by the larger railways after deregulation. Whether this change does, in fact, encourage the expansion of short line rail in Canada (to be examined later in this study), it most certainly improves the flexibility of the larger rail companies when it comes to reducing their unwanted track.

The latest government actions confirm that they are committed to a more commercially oriented rail system. After some important and costly failures in the grain handling system in Western Canada, the government decided to review the process by which farmers transport their goods. The Estey Report was submitted in December, 1998 and largely recommended further moves toward establishing a more competitive, less regulated transport system. Among the key suggestions concerning the rail industry was to replace the existing maximum rate scale with a more flexible price scale that would limit overall rail revenues from grain transport, and increasing access to rail lines by small carriers.

The government accepted the recommendations contained in the Estey Report and commissioned Mr. Arthur Kroeger to work with the stakeholders in the grain transportation industry to formulate an implementation plan. The Kroeger Report was tabled in September 1999. However, difficulties in mediating a consensus between the stakeholders has resulted in little in terms of concrete implementation . While the process of implementing the Estey Report has been somewhat problematic there is little question that the goals of the Estey Report have been accepted and that these goals are very much in line with the government's previous commitments to end intervention in the rail industry.

These, then, are the changes that the government has chosen to make in response to the unquestionably problematic circumstances facing the industry by the middle of the 1980s. What the remainder of this study intends to do is set out the trends that have occurred in the industry since deregulation has been put in place.

TRENDS IN THE CANADIAN RAIL INDUSTRY SINCE 1987

When deregulation was chosen as the preferred solution to what were perceived as Canada's rail woes, it was hoped that it would result in sweeping and beneficial changes to the industry. Most obviously, and most easily attainable, deregulation was intended to reduce government expenditure on the rail industry. Without including the WGTA, spending by the federal government dropped from $705 million in 1987, to $313 million in 1997. Since VIA was far and away the largest recipient of public funding, they suffered the most from the reductions in funding, losing almost $270 million in this period. CN was also negatively affected with their funding cut by $40 million.

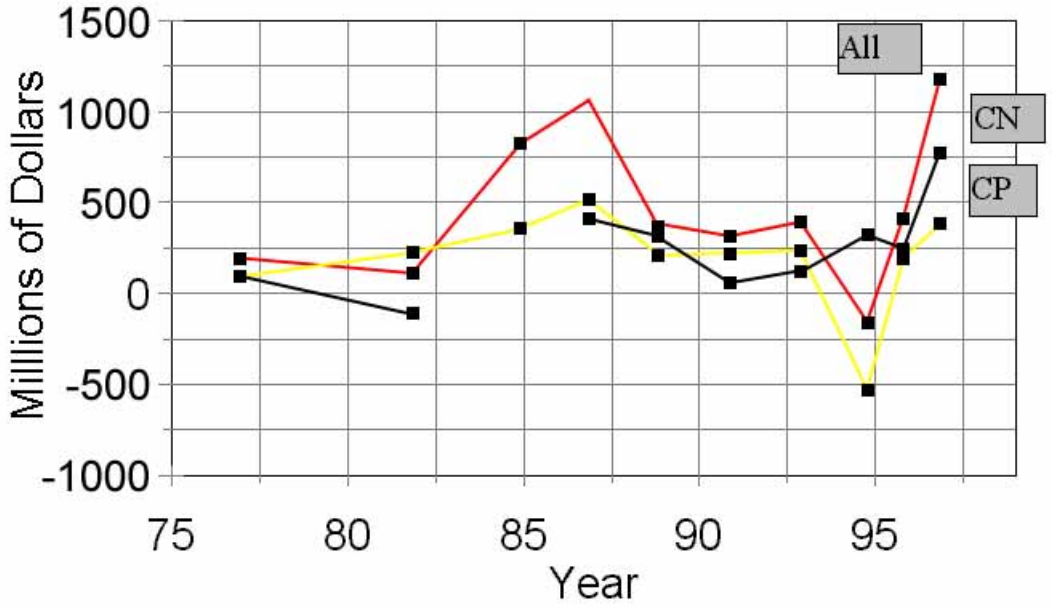
The other goals of deregulation cannot simply be achieved by reducing government spending. Broadly speaking, deregulation was the government's chosen policy to improve conditions in the Canadian rail industry. It was supposed to allow the Canadian companies to become cost competitive with both trucking and U.S. rail, improve customer service and maintain corporate profitability. The question to answer, then, is to what extent has deregulation accomplished these goals and whether or not there have been other adverse consequences of the change in regulatory regime. There are three separate groups that are stakeholders in the rail industry: the corporations, employees and customers. In examining industry trends since deregulation we will examine the changes that have occurred to each of these three groups.

Corporations

The financial statistics of the rail industry are quite mixed. CN is enjoying substantial increases in the value of its stock and net income is showing signs of improving for both CN and CP. When CN initially floated stock as a public company in 1995, the issue price was $27. By the beginning of 1998, the stock was trading at $84: more than three times the initial offering price. While this is undoubtedly a financial boon for those purchasing the initial offering and does demonstrate that investors were confident about the value of CN shares, this should not be taken as sufficient evidence that the company was, and will

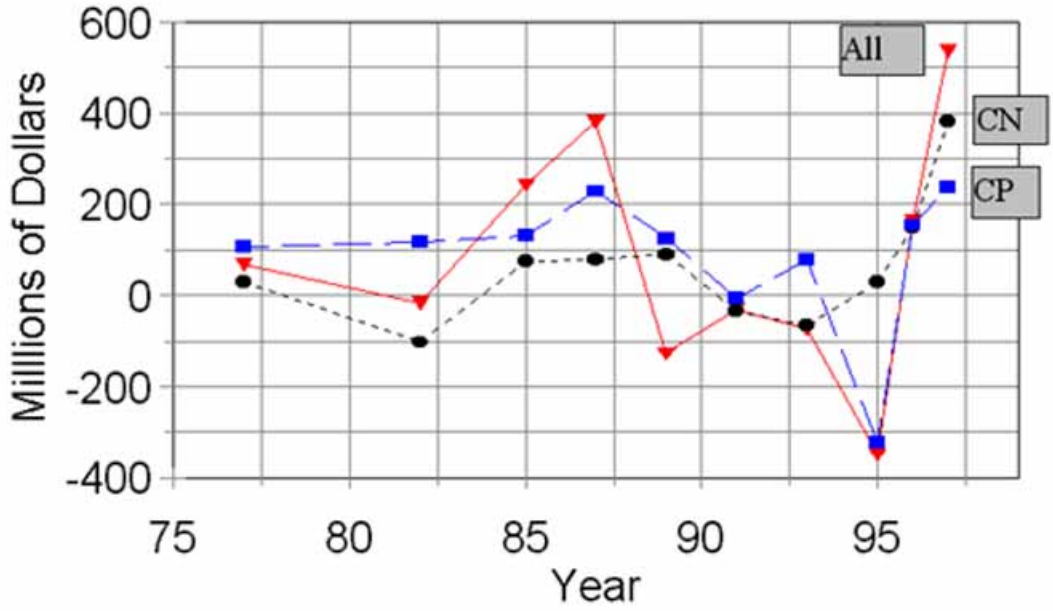
GRAPH 2.1

Operating Income



GRAPH 2.2

Net Income



continue to be, successful.

Operating income on rail activities showed a marked improvement in 1997, but this only helped the rail industry recover from a quite problematic early 1990s. (Graph 2.1) In fact, none of the rail companies improved their operating income in the decade after 1987. By 1987, rail operating income for all of the companies had risen to just over $1 billion dollars. After 1987, operating income remained, for the most part, positive but did not approach the 1987 level until a full decade later. CN and CP's operating income reflected this trend. While CP had one particularly bad year in 1995, the basic trend was one of decline after 1987, until a very recent recovery.

If we look at the whole of the rail industry's operations, including non rail income, net taxes, and other charges and fees, we can get a picture of the total bottom line of the rail industry. (Graph 2.2). This paints a rather bleaker picture of the profitability of rail companies immediately after 1987. Overall, the rail industry lost money each year until 1996. It must be stressed that much of these losses were due to the disastrous financial condition of VIA. However, both CN and CP had problematic years in the early 1990s. After a reasonable 1989, CN suffered through several money losing years before moving back into the black in 1995. While CP did not fare nearly as poorly in the early 1990s, they had a disasterous 1995, with a net loss of $325 million. It should be noted, however, that this year included very sizeable restructuring charges for such things as a write-down of track, relocation of the head office, rationalizing shops and underutilized lines, reducing staff and environmental remediation of rail sites. Of these, the write-down of rail assets was far and away the most expensive at $703 million (CP Annual Report, 1995).

Having said this, the rail industry as a whole has had a very positive last couple of years. In each of1996 and 1997 net income for both CN and CP increased dramatically. In 1997, CN reported a final net income of $380 million, its highest ever, and CP recorded a similarly impressive $237 million net income. The question, then, is whether these last two numbers can be taken as evidence that the challenge of restructuring after deregulation has been met by the rail industry, or whether these numbers are merely a brief turnaround.

One possible reason for concern is that there has been little in the way of dramatic revenue growth in either the rail industry as a whole or for any individual company. (Graph 2.3) Indeed, it would be a fair comment to say that it has taken a decade for the rail industry to approach the revenue levels that were reached in 1987. In 1987, the industry reported $7.9 billion in revenue. While revenues did not

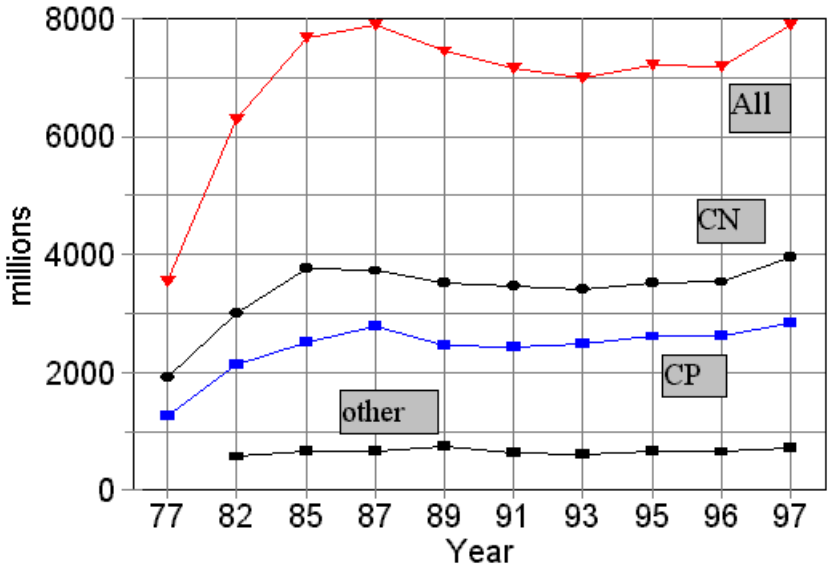
TABLE 2.1

Government Payments to Canadian Railroads
(millions of dollars)
Source: Rail in Canada, selected years

	1989	1991	1993	1995	1996	1997
CN	105	88	104	79	70.5	61
CP	40	27	33	31	33	36
VIA	470	348	232	242	208	202
TOTAL	653	491	499	377	325	313

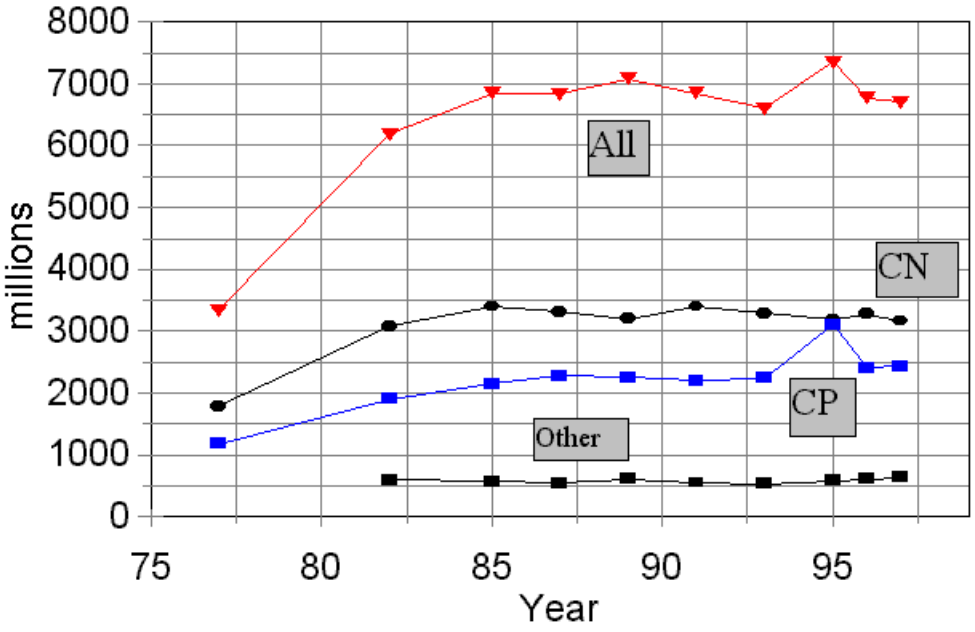
GRAPH 2.3

Operating Revenue



GRAPH 2.4

Operating Expenses



decrease greatly for the next decade, they did decrease slightly, only bouncing back to reach $7.9 billion in 1997. As one might expect, these trends were very much mirrored by the two major revenue earners CN and CP. In 1987, the two companies made $3.7 and $2.8 billion respectively. They failed to reach this figure for the next decade. Only by 1997 did both companies manage to climb again to this level with revenues of $3.9 and $2.8 billion.

Of course, profits do not depend only on revenues. Net income can increase if costs are controlled. As is likely in a time of high inflation, expenses, as well as revenues, were increasing dramatically prior to deregulation. In 1987, industry expenses totaled $6.9 billion. Although expenses crept above $7 billion twice in the next decade, in recent years expenses again fell below this level. (Graph 2.4) CN and CP incurred $3.3 billion and $2.3 billion in expenses in 1987 and this number increased little, in general, in the next decade, although CP saw a considerable, but one time jump in expenses in 1995. The rail industry has certainly focused on controlling the expenses side of the profit equation, and evidence seems to indicate that they have been quite successful in this area. As we will see later, the primary method in which this has been accomplished is through reductions in labour costs.

Despite the lack of increase in the revenue numbers for the rail industry, many analysts are quite optimistic about the future of the Canadian rail industry. The dramatic upturn in net income is taken to be a sign that the Canadian rail industry is succeeding in its goal to become competitive with U.S. rail and trucking. However, unless revenue numbers show some improvement, continued improvement in income can only come from reduced costs. This is especially problematic since there is some question about the degree to which costs can continue to be cut after the massive reductions of the past several years.

Employees

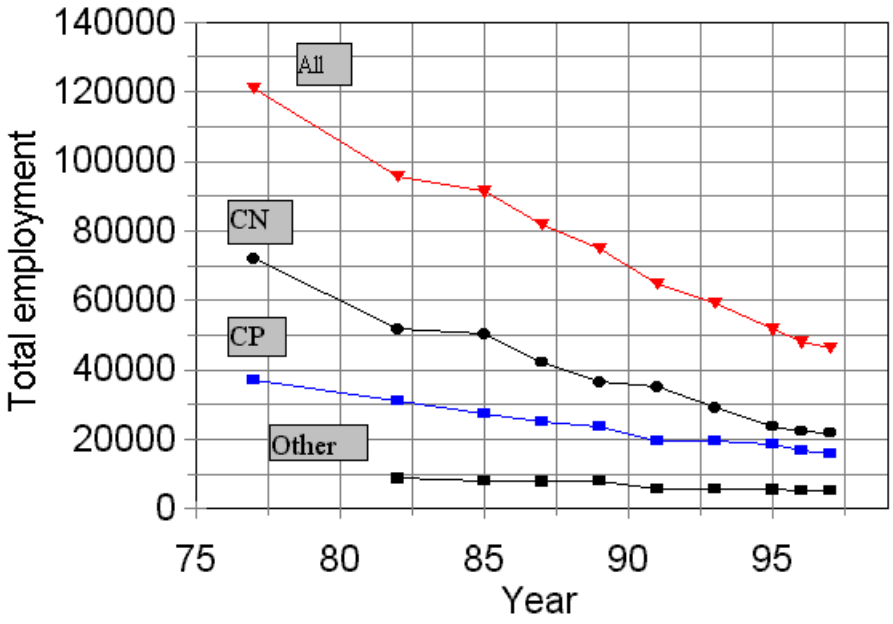
The gains that have been made in profitability and stock prices in the railways can be directly attributed to sharp reductions in the labour bill. The last decade has not been a kind one for workers in the rail industry. Employment had been in steady decline well before the government decided to move to a more market-based industry. However, since 1987 employment has been drastically cut in the industry. (Graph 2.5) In 1987, the rail industry as a whole employed 82,000 workers. By 1997, that number had fallen to 46,493, an astonishing decline of 43%. The workers of CN have borne the largest share of this burden with employment dropping by 48%, while at CP employment decreased by 36% between 1987 and 1997.

The cuts in employment have been sufficiently deep that no occupations within the workforce have escaped unscathed. Having said that, certain groups have survived the cull with fewer casualties than others (Graph 2.6). Clerical workers, for example have been the most adversely affected by layoffs, with their employment declining by almost 65% between 1987 and 1997. It is interesting to note that what are termed "managerial and supervisory staff" have not fared any better than their blue collar counterparts when it comes to being laid off. Both groups saw their numbers slashed by over 40% over the last decade. The professional and technical staff also experienced job reductions, but relatively speaking, they were the least affected, with a 30% loss.

Of course, in absolute terms the burden of the cuts fell much more heavily on the "other" category, comprising the bulk of the "blue collar" labour force, since it is far and away the largest portion of the workforce. Between 1987 and 1997, this group saw its workforce shrink by 20,786, while the number of managerial

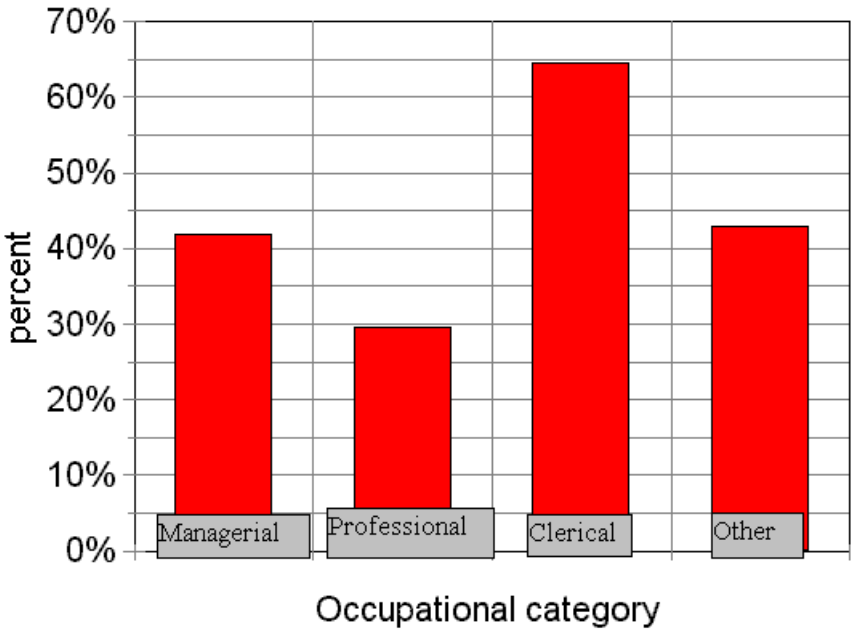
GRAPH 2.5

Employment



GRAPH 2.6

Job Losses 1987–1997 (by occupational category)



workers, for example, only fell by 2,766. It is important to note that despite slashing their workforce, the railroads are still hauling more tonne- kilometers worth of freight. This has been made possible through employing new technology and contracting out tasks that were previously conducted by company workers.

The other indicator of how employees in the rail industry have been faring is changes in their wages. When assessing the income of workers, it is not the dollar figures that are important, but the purchasing power of those dollars. As a measure of the real incomes of workers in the rail industry, this study has taken their nominal salaries and wages and adjusted them for changes in the Consumer Price Index. Average annual compensation for the employees in the industry has increased faster in the post 1987 period than between 1977 and 1987. (Graph 2.7) Between 1977 and 1987 real annual compensation in the industry only increased by 3.6% from $40,750 to $42,208. Between 1987 and 1997, however, it increased by 18% to $50,000.

This aggregation of earnings for all of the employees in each company mask some important distinctions between different occupational categories in the rail industry. (Graph 2.8) Although management and supervisory staff suffered along with the rest of the workforce when it came to layoffs, they have fared somewhat better in terms of salary in the last decade. Managers and supervisory workers have seen their real incomes increase by 21% in the last decade. In stark contrast, craft workers received a 10% increase in their real incomes in the same period. General labourers have fared even worse, with a very meager 6% increase.

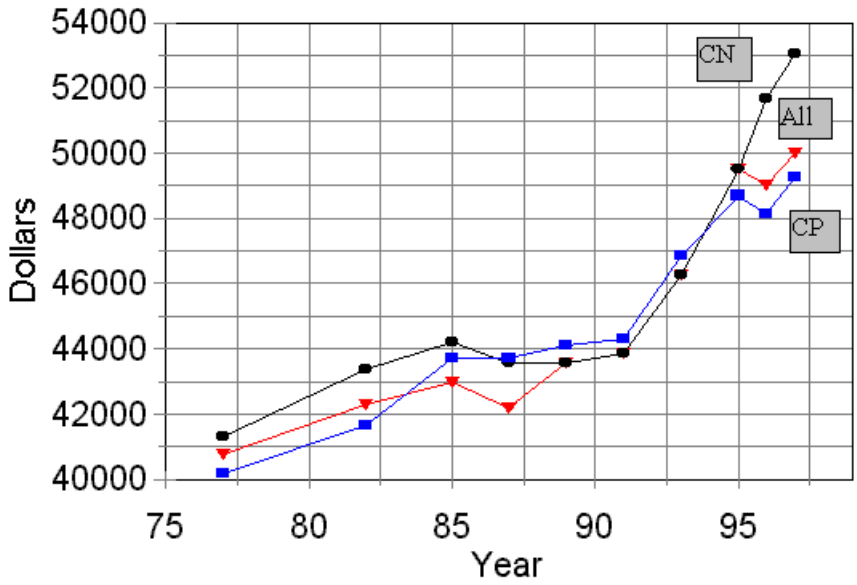
The hourly wage statistics tell a slightly more erratic story. (Graph 2.9) While the hourly wage in the industry as a whole has increased relatively steadily for the past two decades, the employees of CN have had quite a fluctuation in hourly wages. Real hourly wages in the industry increased from $18.87 in 1977 to $19.75 in 1987 to $21.00 in 1997. CN workers were making $18.67 in 1977, which increased to a high of $19.93 in 1985 but then fell over the next four years to $18.68 in 1989. By 1997, however, the real hourly wage had rebounded to $20.72, just below the industry average.

The information on average hourly wage includes the wages of all rail employees. Once again, aggregating all of the occupational categories hides important information on the distribution of wage increases between different groups of employees. If we remove the increases that are attributed to management and supervisory positions and focus solely on workers in the running trades, craft workers and labourers, there is very little improvement in the hourly wage. (Graph 2.10) Real wages for craftsmen and labourers have increased by less than a dollar an hour in real terms in the entire ten year span between 1987 and 1997. The running trades fared even worse, with an actual decline in their real hourly wages.

In general, the last decade has not been a happy one for the employees of the railroad. Layoffs have struck, with varying intensity, across all of the firms and occupational categories. The only group that seems to have received anything positive from the last decade are the management and supervisory staff who have managed to maintain their jobs. Their real incomes have increased substantially. Other workers have not been so lucky with relatively little gain in their real hourly wages or real annual income.

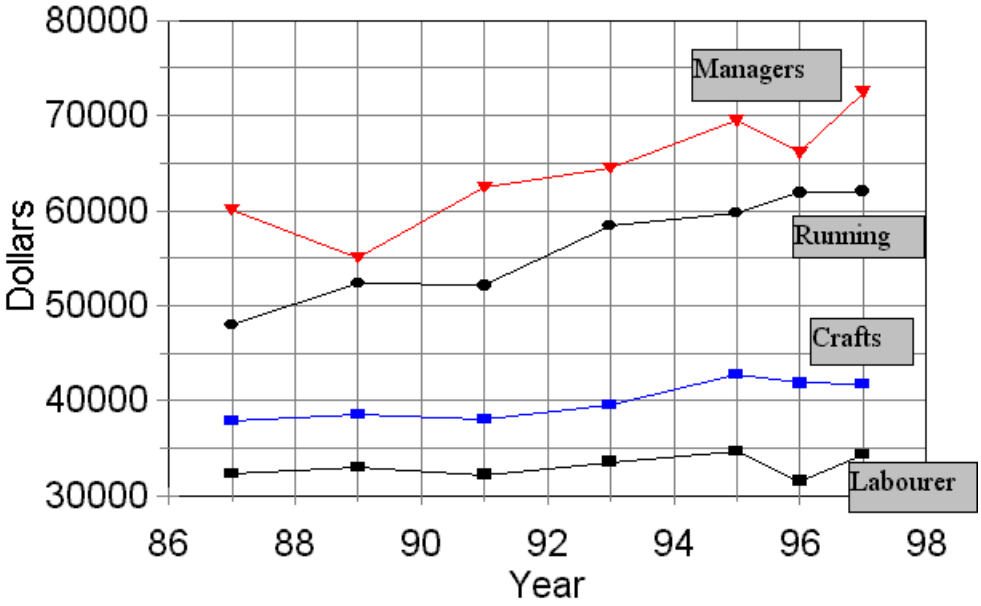
GRAPH 2.7

Average Annual Compensation (constant dollars: 1992=100)



GRAPH 2.8

Average Annual Compensation (constant dollars: 1992=100)



Customer Service

It was hoped that deregulation would produce a more competitive rail industry that would be more responsive to consumer demands for better service and lower shipping prices. In this way deregulation was not only supposed to help the industry itself, but the rest of the country as well, which would benefit from lower transportation costs and quicker shipping times. In this section we will examine the changes in customer satisfaction by looking at the changes in prices, the reach of rail service and safety.

The most obvious (although not only) measure of customer service in any industry is changes in the price. If Canadian rail companies lower their prices to transportation consumers then this has crucial benefits, not only to the companies that use rail to ship their goods but to the rest of society as well, since they should receive at least some of those benefits in the form of lower retail prices.

Since prices are confidential, proxy measures must be used. A broad measure of the prices charged to consumers is the revenue earned per tonne - kilometer of freight shipped. Using this measure as a proxy for prices, it appears as though the cost of shipping by rail has decreased fairly substantially. (Graph 2.11) In 1987, rail shippers earned 2.7 cents per tonne - km. By 1997, this had fallen to 2.4 cents. The decrease is much more marked if we examine the two largest rail companies, CP and CN who were earning 2.7 and 2.6 cents per revenue tonne - km respectively in 1987. By 1997 both rail companies had succeeded in lowering prices to 2.0 for CN and 2.1 cents for CP. It would appear that allowing the Canadian railroads more flexibility in setting their own prices has thus far resulted in lower prices for consumers.

One of the most important, not to mention contentious, aspects of the deregulation of the railroads was the decision to make it easier for the companies to abandon unprofitable lines. This is a fairly logical extension of a policy to permit free market forces more sway. However, the result of this has been a predictable decrease in the amount of track and, therefore, number of communities served by the railways.

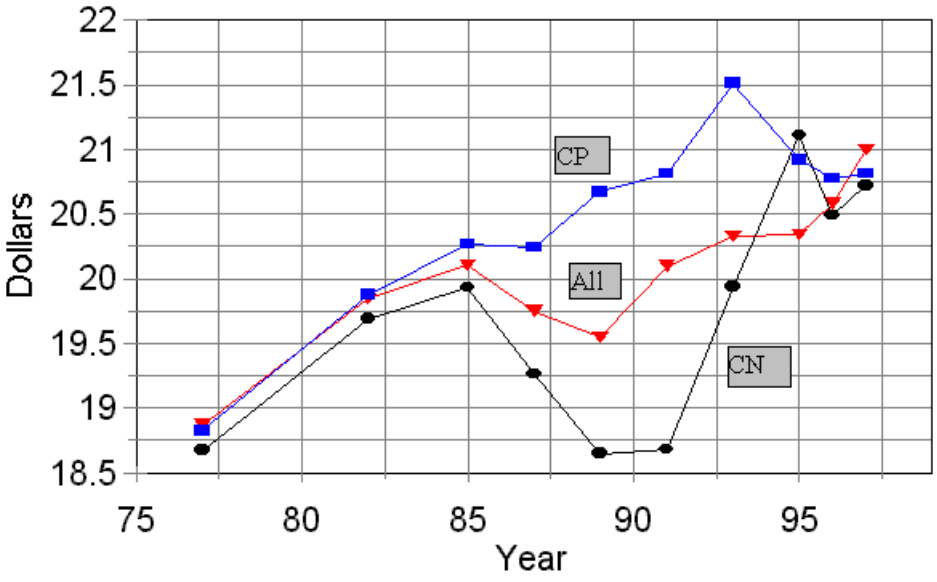
This is reflected in the decline in total track operated by railways in Canada. In the decade prior to 1987, this had remained fairly constant, falling very slightly from 95,000 kms to 94,200 kms. In the next decade the length of track operated in Canada diminished by a substantial 20% to 74,900 kms. (Graph 2.12) Both major freight railroads cut back, with CN reducing track operated by 27% from 51, 400 to 37,700 and CP by 24% from 33,400 to 25,300 kms.

After the Stagger's Act, the major rail companies in the U.S. also rapidly shed themselves of unprofitable lines. Importantly, short line rail companies quickly stepped in to fill the void. Before 1980, only 44 short line carriers operated in the United States. In only the following eight years, an additional 196 lines were created (Dooley, 1991) It was hoped that deregulation in Canada would produce similar results. However, as graph 2.12 demonstrates, short line railways have not come close to replacing the decrease in track by the two largest carriers.

It is probably also worth noting that the conditions of employment on short line carriers are not comparable to those of the main line. Indeed, according to Bonsor (1995,

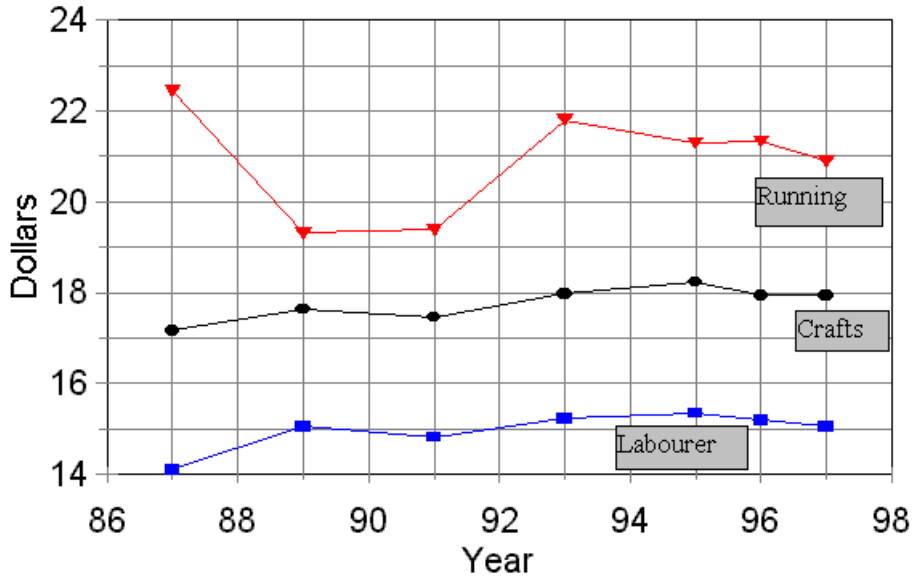
GRAPH 2.9

Hourly Wage (constant dollars: 1992=100)



GRAPH 2.10

Hourly Wage (constant dollars: 1992=100)



p. 68), the most important cost advantage that allowed the short line carriers to operate profitably where their main line counterparts lost money was the reduced labour costs from more flexible work rules, smaller crew requirements and often lower wage and benefit rates. In 1990, the Supreme Court of Canada ruled that the Canadian Western Railway, a short line operator who purchased a line from CN in 1986, did not have to operate under the union/CN collective agreement. This would appear to set a precedent that frees short line companies from successor rights, which means that when the track is purchased, the collective agreement with the union is not part of the package. Preliminary findings show that costs have been reduced in Canada where short line operations have started. For example, the Goderich to Stratford line in Ontario was purchased from CN in 1992 and reduced labour inputs by about 40% (Bonsor, p. 69) In 1997, real average annual compensation for employees of class 2 and 3 rail companies was $10,000 less than those at CN and $6,000 less than CP. (Rail in Canada, 1997) Although it has not yet occurred, short line rail could fill at least some of the market abandoned by the two main rail lines. While this would solve the service problem, it would not completely replace the lost employment since short line railroads would be looking to dramatically reduce labour costs.

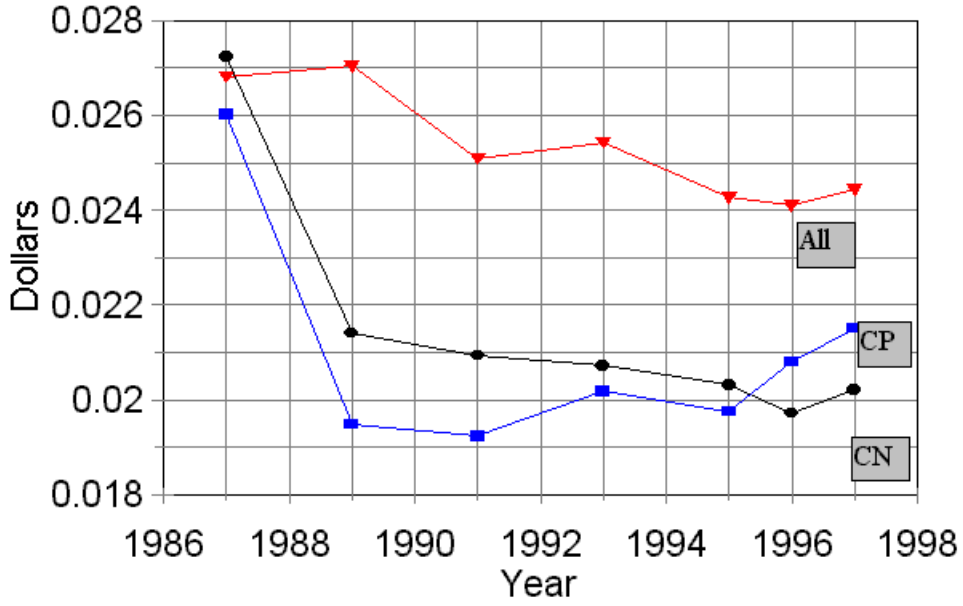
For many types of goods, rail is the cheapest form of transportation. Communities that are eliminated from rail service have to pay a higher shipping cost than they would have had there been rail service. This is only the most obvious cost of rail line abandonment. Increased traffic on the provincial and municipal roads results in larger expenditure by these governments for construction and maintenance. In addition, the tax revenue paid by the rail companies for their grain handling facilities will also be eliminated with abandonment, reducing the fiscal base of the affected government. However, it must also be stressed that there is a "benefit" to rail line abandonment as well since rail companies save money when they are allowed to rid themselves of unprofitable lines. The question, then, is whether the costs outweigh the benefits and who bears the burden.

Arthur Wilson conducted a study on the abandonment of rail lines and grain handling facilities in the Brandon area. He found that while there was additional traffic on the road system, there was no noticeable impact on governmental expenditures. However, for a few towns and villages, served only by one elevator or rail line, abandonment had a fairly serious negative impact on tax revenue. For these towns, elevators and rail lines accounted for around 10% of total tax revenue, which was lost with abandonment. This was not nearly as much a problem for larger municipalities or cities which had a larger tax base and were served by more than one rail line and elevator. In addition, while the impact on specific towns was significant, the absolute value of taxes lost was not overly large, around $17,000 in one year for the two affected towns (Wilson, 1989, p. 41).

The main increase in costs was the increased cost of transportation to the producers who had to haul their grain a longer distance. Wilson estimated that the abandonment cost producers an additional $2.59 per tonne, or about $800 000 in total. However, this additional cost is much smaller than the saving in eliminating the unprofitable

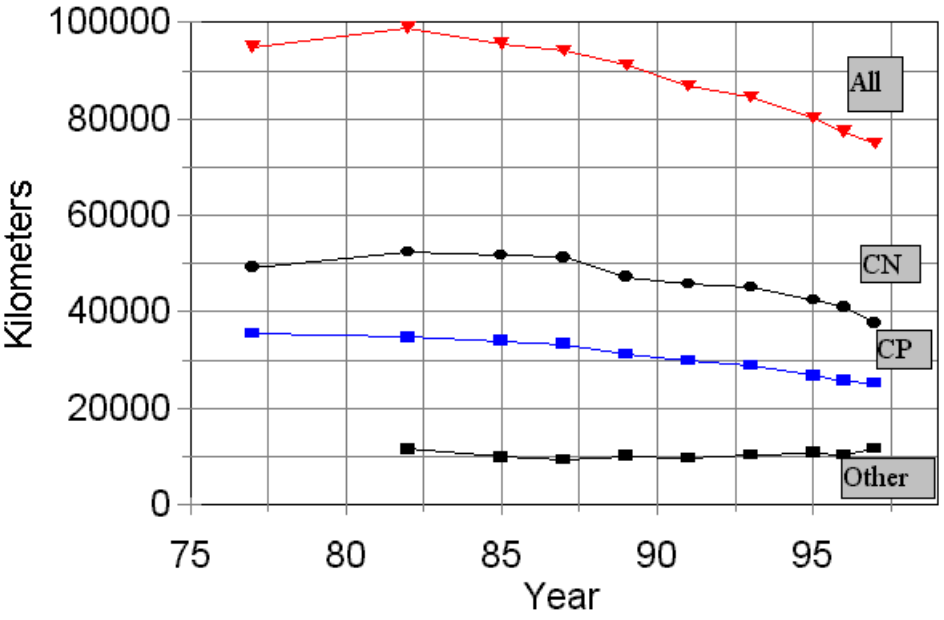
GRAPH 2.11

Rail Prices in Canada (revenue / tonne-km)



GRAPH 2.12

Length of Track



lines and grain handling facilities, which he estimated at about $14 million. The conclusion the author comes to is that there is an overall net benefit of $13 million (Wilson, p. 67).

Of course, talking about net benefits to society at large hides the important distributional impact of these changes, in which the rail companies gain and the farmers and municipalities lose. In the study cited above the author is using net benefits as an acceptable measure of welfare change when one group gains and another loses. This assumes that one dollar lost by a farmer is exactly equal to one dollar gained by the railroad. It may be that each dollar that no longer contributes to the maintenance of farm incomes and the small communities supported by those incomes should be weighted more heavily than a dollar gained by the rail companies.

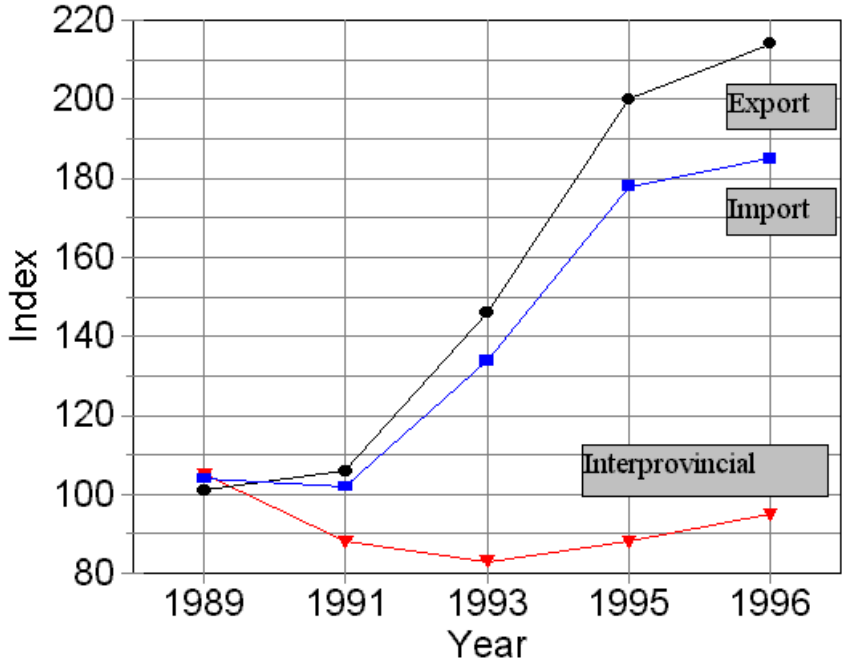
In addition, there is reason to believe that the relative costs and benefits cited in the study will change as rail line abandonment continues. First, this study was conducted during the earliest days of rail line abandonment, when companies could be expected to start divesting themselves of their most unprofitable lines. As this process continues, lines that are less and less unprofitable will be abandoned, lowering the benefit to the rail company. In contrast, part of the reason that the costs to producers were not overly large is that they only had a relatively small extra distance to ship their goods to the next elevator. As more lines are abandoned, this distance will likely increase, increasing the additional costs borne by farmers. It would seem likely, therefore, that as lines continue to be abandoned, the costs will become larger and the gains smaller. Last, the impact of government spending on infrastructure should also be expected to increase. Since trucks have a much larger impact per vehicle mile than cars, the increased truck traffic would probably have a larger impact over a longer period of time increasing costs beyond those found by Wilson.

While the railways were getting out of servicing many Canadian communities, they were eagerly expanding into the U.S. market. CN bid $2.4 billion for the U.S. company, Illinois Central, in order to expand its track through the middle of the United States, from Chicago to New Orleans. This expansion means that the CN - Illinois Central now ranks as the fourth largest railroad in North America in terms of the length of track owned. This trend continued with the dramatic announcement that CN and Burlington Northern were to join forces, under the banner of North American Railways to form the continent's largest railroad.

This is an understandable strategy on the part of the railroads to adapt to the changing pattern of trade in North America. Since 1987, interprovincial trade has not expanded with anything approaching the rapidity of trade with the United States. (Graph 2.13) If we take 1988 as a base year, trade with the U.S. has increased dramatically. By 1996, exports to the U.S. have more than doubled while imports have almost doubled. In stark contrast, interprovincial trade in Canada in this period had actually declined by around 5%. This change in the pattern of trade is reflected in the shipping statistics of the railroads. (Graph 2.14) Since 1987, there has been little or no growth in the tonnage shipped within Canada. On the other hand, the tonnage hauled to and from the U.S. has increased substantially. Despite the increase in

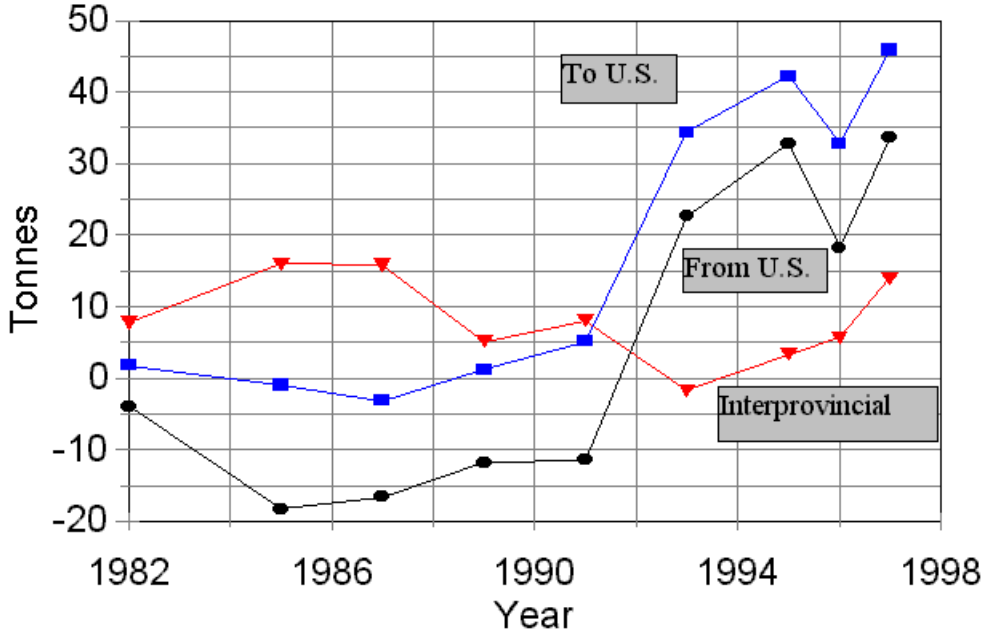
GRAPH 2.13

Trade Index



GRAPH 2.14

Railway Freight (percent change from 1977)



north-south shipping by the railways, it is important to note that the increase in rail shipping has not kept pace with the increase in trade. If we compare graph 2.14 to 2.13, it is clear that the increase in cross border imports and exports after 1988, drastically outpaces the increase in rail shipments after 1988.

Despite the reduction of track operated, the railways have quite steadily increased the amount of freight they have carried. The most common measure of the amount of freight carried is arrived at by multiplying the tonnes of freight carried by the distance that freight is hauled. The number of tonnes - kilometers moved by all of the railways combined increased from 217.4 million in 1977 to 267.8 million in 1987, an increase of 23%. (Graph 2.15) This increase continued thereafter, although at a slower rate, so that by 1997 railways were moving 308.5 million tonne - kms of freight, a 15% increase from 1987. The question, then, is how to interpret these data. The fact that rail companies are carrying more freight would seem to indicate that, while they seem to be serving fewer regions, they are serving their remaining centers more intensively.

One method of examining rail's customer service record is to examine the extent to which its increased shipping is a result of attracting

TABLE 2.2

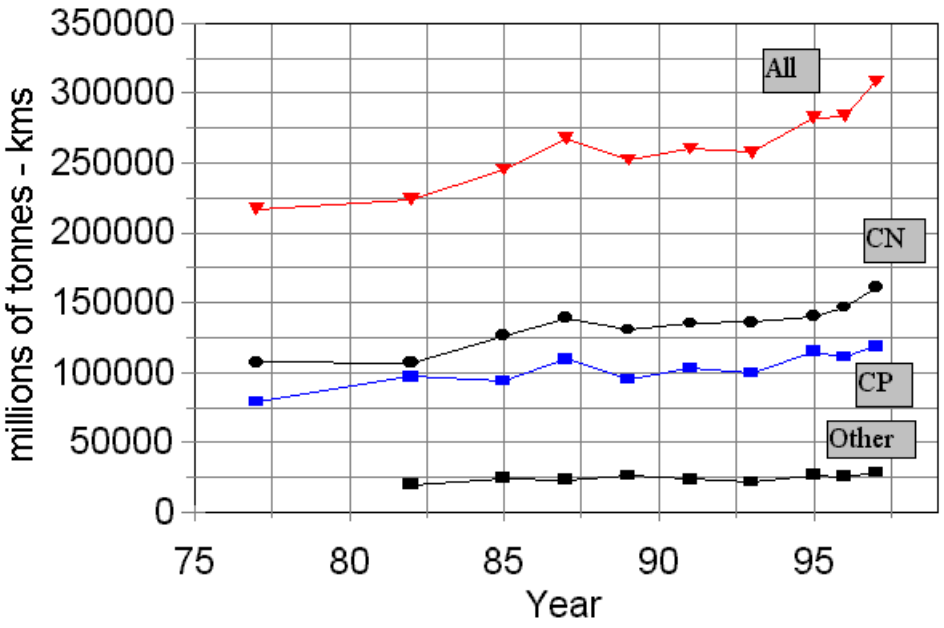
Types of Goods Transported by Rail in Canada (thousands of tonnes)
Source: Rail in Canada, selected years, Leading Commodities Transported by Railways

	1988			1995			1997		
		% of total	tonnes (000s)		% of total	tonnes (000s)		% of total	tonnes (000s)
1	Coal	17.5	47,116	Iron Ore	14.2	38,698	Coal	15.5	44,157
2	Iron Ore	14.8	39,835	Coal	14.2	35,453	Iron Ore	15.0	44,030
3	Wheat	8.5	22,960	Wheat	7.9	19,659	Wheat	10.1	23,874
4	Potash	4.6	12,336	COFC	5.5	12,455	COFC	6.8	14,905
5	COFC.	3.8	10,273	Potash	4.8	7,052	Potash	5.5	6,628
Total Top 5		**49.2**	**132,520**		**46.6**	**113,317**		**52.9**	**133,594**

(COFC – containers on flat cars)

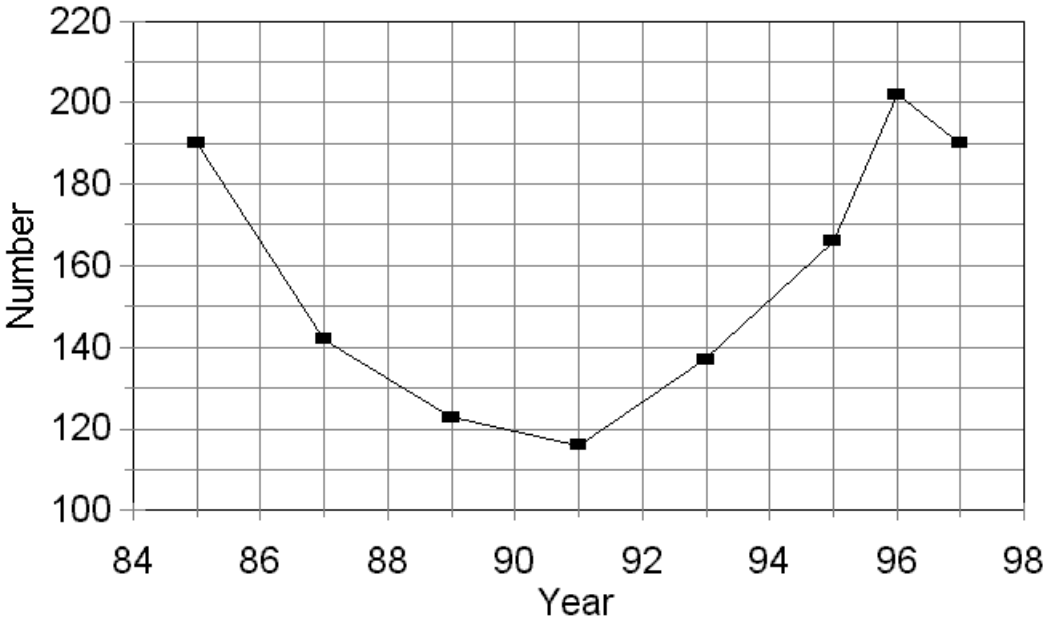
GRAPH 2.15

Freight Carried



GRAPH 2.16

Main Track collisions / derailments



new customers. If this were the case, it would indicate that rail was becoming more competitive in shipping goods beyond its traditional product base. It appears, however, that the increase in shipping can be attributed to increases in rail's traditional customers. (Table 2.2) By 1997, the tonnage shipped by the top five commodities recovered to 1988 levels. In general, changes in shipping patterns by these top five commodities reflect the overall shipping trends by the railways. It is also worth noting that not only have these commodities increased their tonnage in the last couple of years, they also now make up an even larger share of freight than in 1988. This seems to indicate that the gains in rail in recent years are, at least to a certain extent, driven by increases in shipping by their traditional customers and not by attracting new business.

It is also true that trucking companies are hauling freight that could be shipped by rail. If we look at the goods that are most often shipped by the trucking industry, it is quite striking that many of them are well suited to shipping by rail. (Table 2.3)

What this indicates is that although trucking and rail services may not be perfect transportation substitutes, there is a considerable range of goods over which they do compete. This lends weight to those that argue the rail industry remain cost competitive with the trucking industry.

Any examination of whether the rail industry is serving the transportation needs of Canadians must include an examination of their safety record. It is important to stress that Canadian railways are remarkably safe. In comparison to the rail industry of almost any other country, Canadian railways have an impressive safety record. However, there are some potentially troubling trends in the rail industry that could place this excellent record in jeopardy. If we take main track collisions and derailments as a measure of safety, there

TABLE 2.3

Type of Goods Shipped by Truck (1997)
Source: Trucking in Canada, 1997

Rank		Tonnes (000s)
1	Pulpwood Chips	13,148
2	General Freight	11,243
3	Plate, Sheet and Strip Steel	8,802
4	Logs and Bolts	7,840
5	Lumber and Sawn Timber	7,125

TABLE 2.4

Commercial Vehicle vs Rail Safety
Source: On Track, 1994, Table 2.1, p.14

	Commercial Vehicle	Rail
Accidents per billion tonne-km	1,169	3.63
Fatalities per billion tonne-km	13.88	0.50

has been an alarming rise since 1991. (Graph 2.16) Prior to 1991, there had been a steady and constant decline in the number of collisions and derailments each year, but after 1991, there has been a remarkable increase, rising to rates that have not been seen since 1985.

Simply counting the number of problems is one measure of safety, but it makes no allowance for the amount of traffic that is being moved. The Transportation Safety Board keeps track of the number of accidents per millions of train kilometers. Since data became available in 1989, there has been little change in this measure. In 1989, there were 7.7 accidents per million of train - kilometers. In 1996, that figure jumped to 8.4, but this fell again in 1997 to 6.6.

It should be stressed that despite these perhaps problematic statistics about rail safety, it is a remarkably safe form of transport, especially when compared with trucking. Rail has a much lower rate of accidents and fatalities per tonne-kilometer than trucking. (Table 2.4)

The implication is that by switching from transporting goods by vehicle to rail, we could greatly reduce the number of accidents and fatalities associated with moving goods.

Summary of Trends

A very quick summary of the trends in the industry since 1987 would probably claim that companies are enjoying an upturn in profitability, but that this has been accomplished despite little or no increases in revenue. Employees in the rail industry have fared particularly poorly with layoffs across all job categories and, with the notable exception of management, very little in the way of real wage increases. Last, it is probably fair to say that the customers who are still served by railways are well-served , as prices have fallen. However, there is a growing base of customers that are being abandoned by the railways. In addition, although the evidence is not yet conclusive, there may be cause for concern over the growing number of accidents in rail transport.

ANALYSIS

It should be readily apparent from the preceding section that it is very difficult to divorce the rail specific changes from broader societal changes. For example, the increased international movement of goods and services that both instigated the FTA process and was encouraged by the FTA, led to more competition from US rail, and in turn placed pressure on the government regulatory regime surrounding the rail industry. In this section, therefore, we will take the broader changes, such as the FTA, as given and explore some of the alternatives that could be explored within this existing framework to improve the situation of railways in this country.

The standard analysis has been that the deregulation of the industry was at the very worst a necessity, which brought some discomfort, and at best saved a bloated and dependent industry. The analysts who take this position often point to the very intense competition between trucks, U.S. rail companies and Canadian rail companies. In this fiercely competitive industry, there is no room for inefficiency or high unit labour costs. The result, while obviously problematic for employees, has important benefits for broader society and the now competitive rail companies. In this competitive world the continuation of market-based reforms and reduction in operating costs are not only necessary but highly beneficial. According to this scenario, the competition between these three forms of transport shows no signs of abating and therefore, Canadian rail companies must continue to strive for constant reductions in operating expenses and increases in revenue.

Much of this analysis focuses on the growing competition between Canadian and U.S. rail. One of the most important indicators is the operating ratio, which is obtained by expressing costs as a percentage of total revenue, and is used as an indicator of the capacity for profits in the rail company's operations. In 1997, CN managed to trim its operating ratio to 79%, down from hovering around 95% for most of the early portion of the 1990s. This achievement was lauded by industry analysts who were amazed at CN's rapid improvement. However, these same analysts also warn that the operating ratio in the four largest U.S. railways averaged 75%. In this constant quest to cut costs in an industry

that is earning little new revenue, the Canadian companies must continue to be ever vigilant in order to compete with their U.S. counterparts. Despite the dramatic improvement in labour productivity in Canadian lines, U.S. railroads carry an average of 1.66 times the freight per employee of CP and CN. (Globe and Mail, "Rail Industry Fights to Stay on Track", Oct. 24, 1998, B1) According to the traditional analysis, the conclusion is inescapable - Canadian rail companies have made important strides in reducing their expenses and restoring profitability as a result of deregulation, but every effort must continue to be made to minimize costs in order to remain competitive with their U.S. competitors.

Indeed, Canadian companies must be particularly vigilant in their quest for efficiency since current conditions that favour Canadian rail are unlikely to continue indefinitely. The most important factor favouring Canadian companies over their U.S. counterparts is the current low value of the Canadian dollar. At the time of writing the Canadian dollar is hovering around $0.68. If Canadian companies are considering shipping goods on U.S. routes, this current exchange rate makes this much more expensive, giving Canadian routes a noticeable advantage. However, the low Canadian dollar is something of a double-edged sword, for while it does make Canadian routes more attractive, it also increases the costs to Canadian companies if expenses are incurred in U.S. dollars. For example, in 1998 CN had more than $US 2.3 billion dollars in long term debt that has to be repaid in U.S. currency (CN 1998 Annual Report, p. 60). When the Canadian dollar falls in value each Canadian dollar purchases less U.S. dollars increasing the costs of repaying the debt. In addition, inputs, such as locomotives, that are purchased from the U.S., also become more expensive with a lower Canadian dollar, further increasing the costs to Canadian companies compared to their U.S. counterparts. The value of the Canadian dollar aside, the point remains that the intense competition in the transport industry will continue to force the Canadian rail roads down their current path.

There are some important factors, however, that are overlooked by this seemingly straightforward analysis. For example, U.S. and Canadian rail services are often not in direct competition. Obviously, much of the rail traffic that is shipped in Canada could not be rerouted through the U.S. Bonsor estimates that only about 30% of the rail traffic is transborder, and therefore, subject to U.S. competition (Bonsor, 1995, p. 83). Having said this, it is certainly apparent that it is transborder traffic that is the fastest growing component of shipping and this will inevitably bring Canadian and U.S. carriers into more direct competition.

There is one other reason to believe that the emphasis on cutting labour expenses may not continue. While analysts have emphasized the importance of continued productivity gains in the U.S. rail industry, they argue that some sources of productivity growth have already been exhausted. Chief among the productivity gains that are unlikely to continue in the future are gains through reduction of labour costs both through reductions in the labour force and wages (Railway Association of Canada, 1998, p. 9). The implication of this is that Canadian companies will no longer need or be able to further reduce their labour costs in order to compete with U.S. rail.

Many analysts have also argued that even without competition from the U.S., Canadian

rail companies must dramatically cut costs due to competition from trucking. The problem with this argument is that the trucking and rail industries do not operate on a level playing field. Truck operators receive some quite considerable subsidies that give it a cost advantage over rail. There are two important type of subsidies offered the trucking industry. The first is the public funding of the road infrastructure on which trucks rely. The second is the deliberate neglect of the much larger negative externalities that are involved in trucking.

While rail companies have to pay property tax on the rights of way, as well as their own construction and maintenance costs, trucking companies do not have to bear these burdens. In principle, fuel taxes and licence fees are supposed to compensate the various levels of government for the truckers' share of road infrastructure spending. However, Bonsor argues that these charges do not cover the total, or often even the incremental, costs of providing highways for truckers. Cost recovery varies from anywhere between 47% and 74% for a "standard" rig. (Bonsor, 1995, p.82) In addition, it must be noted that rail companies also have to pay fuel taxes even though they obviously do not benefit from highway construction.

The hidden transfer from taxpayers to the trucking industry for road construction and maintenance is difficult to calculate accurately. However, an examination of trucking activity in any given year (1995) can be used to arrive at some conclusions about whether their licensing fees and fuel taxes in any way reflect the cost of trucks using roads and highways. Table 3.1 examines the amount of traffic on roads and highways that due to trucking.

The primary responsibility for maintaining Canada's highway and road system fall on its provincial and local governments. In 1995, all of the provincial governments spent a total of $7.9 billion on highway construction and local governments spent an additional $6.7 billion on roads and streets. The grand total for one year would be $14.6 billion. (Transport in Canada, 1997, p. 41) A grand total of 408.8 billion kilometers were traveled on roads in 1995, of which 66.6 billion or 16% can be attributed to trucking. If it is fair that trucks pay for their portion of road use, and the damage done by a truck is the same as the damage done by a car, they should have paid about 16 percent of the total spent on road

TABLE 3.1

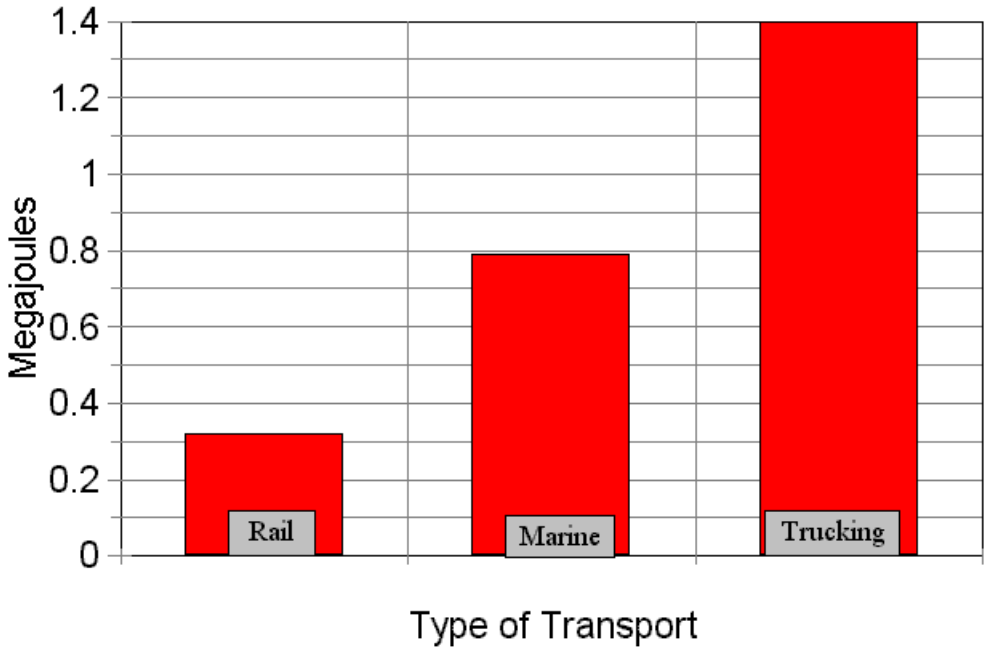
Highway and Road Use by Type of Vehicle (1995)
Source: Transportation in Canada, 1996

Vehicle Type	Registrations (millions)	Avg Kms/ Vehicle	Total Kms (billions)
Heavy Trucks	0.7	95,180	66.6
Gas Trucks	2.72	21,230	57.7
Cars	13.183	21,580	284.5

construction and maintenance. It is important to note here that this calculation drastically underestimates the share of costs that should be borne by the trucking industry because it ignores the very different weights of the different types of vehicles. This calculation assumes that different vehicles have the same impact per kilometer but this is not the case. Since heavy trucks are much heavier than cars or gas trucks, they do more damage to the road per kilometer traveled, therefore, the 16% figure *understates* the cost of the road construction and maintenance that they should bear. In fact, studies have shown that just one pass over a road by a truck is equal to as much as 3,000 passes by a car. Even the American Trucking Association (ATA) admits that one heavy truck equals 1,000 cars. (Lankard and Lehrer, 1999) If we choose the lower ATA estimate it is still clear that almost all of the vehicle induced damage on roads and highways is done by trucks. If each of the 66.6 billion kilometers traveled by truck is multiplied by 1,000, to 66,600, it becomes clear that, in terms of damage, trucks are the major contributor. The problem with this conclusion is that damage cannot be ascribed solely to vehicles. Even without any vehicle traffic, roads would still deteriorate due to such factors as weather and shifting soil. However, it is

GRAPH 3.1

Energy Use Ratios (per tonne-km)



possible to conclude that the vast majority of vehicle damage is due to trucks as opposed to cars

As the trucking industry correctly points out, they contribute to these costs through their fuel taxes and licence fees. It is roughly possible to calculate the amount that the trucking industry has paid in taxes by multiplying the amount of diesel fuel in each province by the tax rate levied by the provincial and federal government. The federal government levies a $0.04 tax per litre and each province charges its own tax. In Manitoba, for example the tax rate is $0.109. When all of the revenues collected by the provincial governments is tallied, diesel fuel taxes generate $1.3 billion. In Canada in 1995, diesel fuel sales for road use totaled 10.44 billion liters (Transportation in Canada, 1997), taxed at the federal rate of four cents a liter adds up to an additional $417 million. The total, then, is $1.7 billion. Again, this slightly overstates truckers' contributions to tax revenue since they are not the only type of road vehicle that uses diesel fuel. Still, using these estimates, and keeping in mind that they overstate the truckers' contributions to revenue and underestimate their share of highway use, the $1.7 billion in revenue constitutes only 73% of the $2.33 billion (16% of 14.6 billion). Truckers

TABLE 3.2

Emissions by Type of Transport

Sources: Environment Canada, Transportation Systems Division, 1994
Effects - International Center for Technology Assessment, The Real Price of Gas, 1999.

Rank	Oxides of Nitrogen	Volatile Organic Compounds	Particulate Matter	Carbon Monoxide	Carbon Dioxide
Effect	Smog, Acid Rain, Global Warming	Acid Rain, Health Effects	Cancer, Health Effects	Global Warming, Health Effects	Global Warming, Cancer
Best	*Rail*	*Rail*	Air	*Rail*	*Rail*
2	Marine	Marine	*Rail*	Marine	Marine
3	Truck	Air	Water	Air	Truck
Worst	Air	Truck	Truck	Truck	Air

do not even pay their costs if we outrageously assume that the damage from trucks and cars are the same. Since the damage from trucks is so much greater than cars, truck operators should be responsible for a considerably larger portion of the cost of construction and maintenance, meaning that there is a significant subsidy to truck operators.

In addition, it is important to note that since fuel taxes are also paid by rail companies on their diesel fuel consumption, if the trucking industry argues that the purpose of fuel taxes is to pay for road and highway maintenance, the rail companies are, in fact, paying for their competitors' infrastructure. The Manitoba government levies a $0.063/ litre charge on diesel fuel used by rail. In 1997, 179 million litres of diesel were purchased in Manitoba (Rail in Canada, 1997) resulting in a fuel tax bill of $11.2 million dollars in Manitoba taxes alone. Obviously, none of this can be thought of as payment for maintaining the infrastructure of the rail system by the government. Either diesel fuel taxes should not be thought of as a user fee for those who use the highways, or rail companies are contributing to the costs of their competitors' infrastructure.

The second issue is that trucking has a much larger social cost than rail. The 1994 Statistics Canada report *Human Activity and the Environment 1994* compared the energy use ratios of shipping by rail, marine and trucks. Of all of these methods of transportation, rail uses far and away the *least* energy per tonne - kilometer. In 1988, for example, hauling one tonne - kilometer of freight by rail used 0.32 megajoules of energy, marine transport used 0.8 and trucking 1.4 (Graph 3.1). Air traffic is so energy intensive that it distorts the chart, using 22 megajoules to haul one tonne - kilometer of freight. According to Transport Canada, while the fuel efficiency of marine transport has shown improvement since 1988, there has been virtually no change in the fuel efficiency of either rail or trucking (Transport Canada, Transportation in Canada, 1997, p. 101). Therefore, in comparison to trucking, rail is far and away the more energy efficient method of transportation. In fact, it appears to consume about four times less fuel than truck hauling.

The fuel efficiency of rail as opposed to truck can be illustrated using an alternative method. Measured in terms of tonne - kilometers, rail accounted for 45.6% of transportation activity, while trucking accounted for 23.5%, yet rail only used 11.8% of the energy in the transport sector, while trucks used a stunning 72.7%. (Transportation in Canada, 1998, p 71)

Of course, energy consumption is not the only environmental issue in transportation. Emissions also contribute to air pollution and are an important source of the greenhouse gasses that are causing global warming. Truck emissions average three times as high as rail emissions (per ton-mile), according to the Environmental Protection Agency. If we limit ourselves to greenhouse gas emissions, rail diesel only accounts for only 1.4% of the total in the transportation sector, while road diesel accounts for 22.2%. (Transportation in Canada, 1998, p. 60) This is especially remarkable since rail hauls a much larger proportion of the freight.

In 1994 Environment Canada, ranked the four major sources of transportation in terms of five different types of emissions. Rail was far and away the best method of transportation

overall. (Table 3.2)

Rail releases less emission than any other form of transportation in four of the five categories and is the second best in the other. It is certainly worth noting that the major form of competition for rail, trucking, appears to be the most environmentally damaging when it comes to emissions. It ranks as the worst in three of the five categories and second worst in the other two. The negative impacts of these emissions have seriously adverse effects on both human health and the environment. A study by the International Center for Technology Assessment estimated that these emissions from automobiles cost the U.S. at least US$29 billion in one year alone in health costs. (International Center for Technology Assessment, 1999, p. 26). This ignores the indirect effect on health and productivity from both acid rain and global warming whose effects are virtually impossible to quantify but are undoubtedly significant. The substantially higher social costs associated with moving freight by truck instead of rail is understandably ignored in the private market resulting in trucking rates that are much lower than they should be.

The result of both the much smaller environmental impact of rail and the hidden infrastructure subsidies given the trucking industry is that there is not a level playing field between these two industries. The logical conclusion is that the relative tax regimes between these two industries needs to be changed, with the trucking industry bearing a heavier burden than at present. One possible mechanism by which this might be accomplished is through toll roads. Tolls would be set so that truckers would meet the full cost of their traffic on the highway system. This would allow the tax on diesel fuel to be set at differential rates between rail and trucking to reflect rail's much lower impacts on the environment in terms of both energy consumption and emissions. In other words the tax rate on diesel could be raised for trucking and/or reduced for rail.

Changing the relative tax structure in this manner would have several positive effects. It would create an incentive to move goods on rail as opposed to trucking where substitution is possible. This would increase the growth in the rail industry and in turn help rail employment. It would also correct for the current hidden subsidies given the trucking industry that cause a distortion of traffic away from rail to the trucking industry at the expense of both the Canadian taxpayer and the natural environment.

While the prevailing analysis of the rail industry emphasizes the importance of deregulation and cost cutting in the context of stern competition from trucking and U.S. rail. However, trucks receive large public subsidies for the maintenance of their right of way, while rail does not. In addition, the social cost of their operation on the environment is never considered. Correcting for both these oversights would greatly improve the competitive situation of rail compared to trucks. There is also reason to believe that the emphasis on competition with U.S. rail may be overstated. Although there is no question that north-south traffic is increasing in importance, transborder shipping is still only a fraction of overall revenues. In addition, analysts are starting to realize that the severe cost cutting measures south of the border may be exhausted, further reducing the pressure on cost measures for Canadian rail.

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