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BEFORE THE CANADA TRANSPORTATION ACT REVIEW PANEL

OCTOBER 6, 2000

Introduction

The Association of American Railroads appreciates the opportunity to express its views regarding the statutory review of the Canada Transportation Act currently underway.

The Association of American Railroads is the primary trade association representing the interests of North American railroads. Our members, which include Canadian National, Canadian Pacific and a number of other Canadian railroads, account for the vast majority of rail mileage, rail employees, and rail revenue in Canada, Mexico and the United States. U.S. member railroads collectively own and operate hundreds of miles of rail line in Canada, and Canadian railways own and operate a number of U.S. railroads, including three major Class I carriers.¹

The U.S. rail industry's interest in the ongoing review of the CTA is deep rooted. Simply put, whatever affects Canadian railroads also affects railroads elsewhere in North America. This is so because the North American freight rail system is an operationally and administratively integrated system of some 190,000 route miles operated by more than 600 individual rail companies. Together, these firms provide what is by far the most efficient, cost-effective freight rail system in the world. Importantly, U.S. and Canadian railroads — in sharp contrast to railroads nearly everywhere else — are almost entirely privately-owned and provide rail service without appreciable government subsidies.

As you well know, the review of the CTA, like the preparation of the Estey and Kroeger Reports before it, has provided an opportunity for certain groups in Canada to call for changes in the existing system of economic regulation of railroads. Some of the same calls are being heard in the United States.

¹ Defined by the Surface Transportation Board as freight railroads having annual operating revenue of \$258.5 million or more in 1999.

Proposals to alter the current system of economic regulation of railroads in both Canada and the United States include a variety of different approaches, ranging from the relatively benign (*e.g.*, encouraging the increased use of voluntary arbitration to settle railroad-shipper disputes) to the truly radical (*e.g.*, mandated forced access on all railroad rights-of-way under terms set by the government). Few of these proposals represent truly new thinking; most have been advocated, and rejected, at one time or another in the past. In the United States, many of these proposals were explicitly rejected by Congress as recently as 1995 during deliberation on the ICC Termination Act.

The end result of most of these proposals is the same: they would have the government force railroads to lower their rates to certain favored shippers at the expense of other shippers, rail employees, rail investors and the public at large. And if the favored groups had their way, the government would take such action without requiring any showing of anti-competitive conduct by railroads, without showing that railroads had actually abused their market power, without showing that railroad profits are excessive, and without any opportunity for cost coverage or ability to sustain rail investment.

The U.S. rail industry is opposed to such measures, for good reason, and my comments below will expound on these reasons in more detail. And while there are certainly some important differences between the U.S. and Canadian railroad industries and the environments in which they operate, there are strong and significant parallels. Drawing on the U.S. experience and these parallels, my comments will focus on the dangers that excessive government economic regulation of railroads presents to rail customers, to the economy at large, and to railroads themselves.

The Impact of the Staggers Act

To begin, it would be useful to briefly describe the history and consequences of the economic regulation of U.S. railroads.

In 1887, the U.S. Congress passed the Interstate Commerce Act, creating the Interstate Commerce Commission (ICC) and making railroads the first U.S. industry subjected to comprehensive federal economic regulation. For the next 93 years, the federal government controlled broad areas of railroad operations, ultimately leading to the near destruction of the industry.

By the 1950s and 1960s, harmful regulation of railroad rates and services, the rapid growth of truck and barge competition (aided by tens of billions of dollars in federal funding for construction and maintenance of the interstate highway and inland waterway systems) and huge losses in passenger operations led to ever greater railroad bankruptcies, abandonments, service deterioration, deferred maintenance and general financial decline.

By the 1970s, archaic regulations, in combination with strong competition from other modes and changing shipping patterns, drove the railroad industry literally to the brink of ruin. During the 1970s, virtually every major railroad in the Northeast United

States — including the giant Penn Central — as well as several major Midwest railroads filed for bankruptcy. More than 21 percent of the nation’s rail route mileage was accounted for by railroads operating under bankruptcy protection. Between 1970 and 1979, the rail industry’s rate of return on net investment never exceeded 2.9 percent, reached a low of 1.2 percent and *averaged* a paltry 2.0 percent.

Railroads lacked the capital to properly maintain their tracks. By 1976, more than 47,000 route-miles — about 25 percent of the nation’s total — had to be operated at reduced speeds because of dangerous conditions. The amount of deferred maintenance was in the billions of dollars and the term “standing derailment” (in which stationary railcars simply fell off poorly maintained track) entered the railroad lexicon. By 1978, the rail share of intercity freight had fallen to 35 percent, down from 75 percent in the 1920s.

The weakness of the U.S. rail industry was no surprise, given the increasingly strong intermodal competition and the extent and severity of the inequitable railroad regulation. Maximum and minimum rail rates were set by regulatory fiat, and often were completely unrelated to costs or demand. Railroads had no conceivable mechanism for covering the full costs of their system. As the U.S. Department of Transportation noted in 1978, “The current system of railroad regulation ... is a hodgepodge of inconsistent and often anachronistic regulations that no longer correspond to the economic condition of the railroads, the nature of intermodal competition, or the often-conflicting needs of shippers, consumers, and taxpayers.”²

The status quo was clearly untenable, so Congress essentially had two options: nationalization, at a continuing cost of untold billions of dollars, or deregulation and reliance on the free market. Congress wisely chose deregulation, and almost exactly 20 years ago this month passed the Staggers Rail Act of 1980. In enacting the Staggers Act, Congress recognized that railroads faced intense competition from trucks and other modes for most freight traffic, but prevailing regulation prevented railroads from earning adequate revenues and competing effectively. Survival of the railroad industry required a new regulatory scheme that allowed railroads to establish their own routes, tailor their rates to market conditions, differentiate rates on the basis of demand, and have the opportunity to earn revenues adequate to sustain their operations.

The basic principle of the Staggers Act was simple: railroads should be permitted to act much as other businesses in managing their assets and pricing their services. Some of the Act’s more important provisions were the following:

- Demand and competition were to be the principal regulators of rail rates; rate regulation was to continue only where effective competition was absent.
- Railroads were allowed to price competing routes and services differently, to

² U.S. Department of Transportation, *A Prospectus for Change in the Freight Railroad Industry* (October 1978), p. 25.

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- Railroads and shippers could enter into confidential contracts covering rate and service provisions.
- Procedures for the abandonment and sale of rail lines were streamlined.

The Staggers Act did not completely deregulate the U.S. rail industry. In addition to retaining authority over a variety of non-rate areas, the ICC retained the authority to set maximum rates or take certain other actions if a railroad was found to have abused its market power or engaged in anti-competitive behavior. Thus, the Staggers Act established a “safety net” to address the needs of rail customers for whose traffic there is no effective competition.

It is difficult to overestimate the benefits that have accrued to the U.S. economy, shippers, and the U.S. rail industry because of the removal of most of the destructive economic regulations that had debilitated the railroads prior to the Staggers Act. Consider:

- Lower rail rates brought about by Staggers — down 57 percent in real terms (measured by revenue per ton-mile) from 1981 to 1999 — have saved shippers and their customers \$10 billion or more per year, according to independent analyses. These rate declines, which have occurred across commodities and geographical areas, have been made possible by sharp reductions in railroad costs that have been passed on to rail customers. As one scholar aptly put it, “The problem facing the rail industry is that nearly all of its hard-earned cost savings are given to customers in the form of lower rates.”³
- According to the U.S. Department of Labor, productivity gains in the U.S. railroad industry since Staggers have exceeded those of nearly every other U.S. industry. Revenue ton-miles per constant dollar of operating expense is a useful overall productivity gauge. By this measure, which incorporates all cost components that contribute to rail operations, overall rail productivity rose 171 percent in the post-Staggers period, compared to just 10 percent in the comparable pre-Staggers period. These huge productivity gains made the significant rate decreases

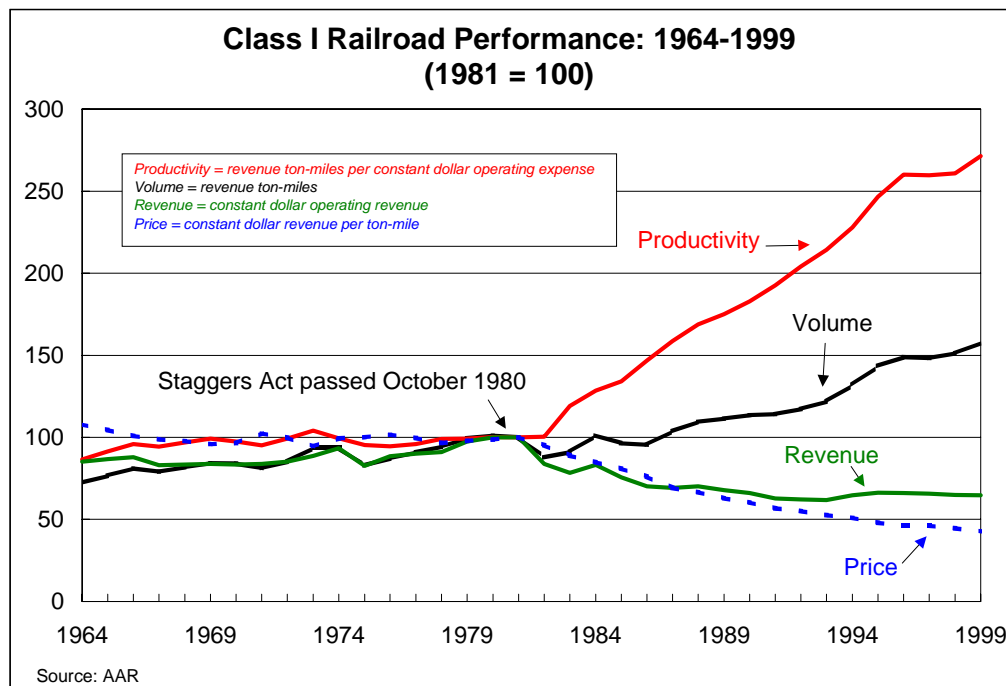
³ Carl D. Martland, “Sources of Financial Improvement in the U.S. Rail Industry,” in *Proceedings of the Transportation Research Forum*, 39th Annual Meeting, 1997.

Individual rail rates are not available for study, since approximately 70 percent of all U.S. rail traffic is transported under confidential terms agreed to by the rail customer and the participating railroad(s). Revenue per ton-mile (RPTM) is commonly used as a rate surrogate because it measures both the actual payments made by rail customers and the bases for which the rates are assessed — weight and distance. However, it is sometimes claimed that revenue per ton-mile (RPTM) is an unreliable indicator of railroad rates, since it can be affected by changes in commodity mix, length of haul, equipment ownership, and other shipment characteristics. While RPTM can be affected by such changes, numerous studies that have controlled for changes in commodity mix and shipment characteristics have confirmed that the decline in RPTM is not simply a statistical illusion.

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- After decades of steady decline, the U.S. rail market share (measured in ton-miles) bottomed out at 35 percent at the end of the 1970s and has trended slowly upward since then. It now stands at about 40 percent. The market share gains reflect the increased responsiveness and cost effectiveness of U.S. railroads in the post-Staggers era.
- Railroads have improved their financial performance considerably. The average rate of return on net investment for Class I U.S. railroads — which had been falling for decades — rose from an annual average of 2.0 percent in the 1970s to 4.4 percent in the 1980s and 7.0 percent from 1990-1999.
- Rail investment has reached levels that would have been unimaginable prior to Staggers. From 1980 to 1999, U.S. Class I railroads alone spent more than \$263 billion — 45 percent of operating revenue, on average — on infrastructure and equipment. They are committed to spending billions more in the years ahead to help ensure they have the capability to offer high quality, cost-effective service.
- Railroad accident, employee injury, and cargo loss and damage rates are all down about 70 percent since Staggers, thanks in large part to the massive investments in plant and equipment (which have had a definitive safety-enhancing component).

The chart below illustrates the remarkable gains U.S. railroads have made under the current regulatory regime.



The reforms engendered by the Staggers Act have been an extraordinary and incontrovertible success. The flexibility Staggers provided has enabled U.S. railroads to rationalize their systems; reinvest in productive rail infrastructure; generate greater volumes of traffic and higher levels of service; dramatically increase productivity; improve profitability from once anemic levels; and improve safety, while at the same time sharply lowering rates for shippers.

All of this has directly benefited rail customers. As Clifford Winston and Curtis Grimm recently wrote, “[D]eregulation was not just a boon for the rail industry. Shippers benefited too. Based on the first decade of deregulation, one study found that the annual benefits to shippers from lower rates and improvements in service time and reliability amounted to at least \$12 billion (1999 dollars).”⁴

Railroad Competition

As described above, the Staggers Act allowed the U.S. rail industry to become a competitive factor in the transportation marketplace. The regulatory system it spawned relies on market competition to govern rail rates and service, and at the same time, provides regulatory protection against the abuse of railroad market power.

Nevertheless, in both Canada and the United States some groups claim that railroads do not face effective competition. Instead, these groups claim, railroads today have too much market power. These groups often point to the number of railroads serving a particular location to make their point, claiming that excessive market power should be presumed to exist any time an individual shipper or receiver is served by a single railroad. Such a presumption rests on the fallacy that service to a single shipper by a single railroad is equivalent to monopolization. As a point of fact, North American railroads face extensive competition for the vast majority of their business, *including* cases where a shipper is served by only one railroad.

Rail competition can take many forms. Rail-to-rail competition is one such form for many shippers. In the United States, for example, BNSF and UP compete fiercely over the Los Angeles to Chicago corridor, among many others, while CSX and NS battle head-to-head for traffic up and down the Eastern seaboard. In Canada, it is undeniable that CN and CP compete intensively throughout the country. (This competition is made even more intense by the use of interswitching and other access provisions available under existing Canadian law.) In addition, of course, Canadian railroads also compete extensively against their U.S. counterparts in many markets. Export traffic to the Pacific Northwest is just one example. In short, in both Canada and the United States, shippers are continually exercising their options to play one railroad off against another.

More broadly, railroads everywhere compete not just among themselves, but in

⁴ Curtis Grimm and Clifford Winston, “Competition in the Deregulated Railroad Industry: Sources, Effects, and Policy Issues,” in *Deregulation of Network Industries: What’s Next*,” (AEI-Brookings Joint Center for Regulatory Studies, September 2000), p. 44.

the larger market for freight transportation services. As such, they face extensive competition from trucks and, depending in part on geography, water carriers and/or pipelines for their traffic. The rail share of intercity freight traffic is a vivid illustration of the intensity of this competition. In the United States, rail's share of intercity freight revenue is only around 10 percent, despite the fact that railroads provide around 40 percent of the transportation service as measured by ton-miles. The U.S. rail revenue share is down from 31 percent in 1965. In Canada, railroads account for some 63 percent of ton-miles⁵, but only receive some 24 percent of transportation revenue.⁶

Rail customers also take advantage of product competition, which refers to the ability of shippers and receivers to substitute one product for another in their production process. Coal transported to electric utilities is a good example. Although coal for use in electricity generation is a critical commodity for U.S. railroads, some 44 percent of the electricity generated by utilities in the United States is produced from fuel sources other than coal and, in fact, competes against coal-fired generation. In Canada, most rail coal movements are for export; domestic movements to power plants are limited by the fact that some 84 percent of the electricity generated by Canadian utilities is produced from fuel sources other than coal.⁷

Geographic competition, which refers to the ability of shippers and consignees to buy from or sell in any number of geographic areas, also constrains railroads in many markets. This source competition extends to both domestic and international commerce, an important consideration for economies like Canada's that rely so heavily on exports. Just as coal or grain buyers in Illinois can rely on sources in several different states, coal or grain buyers in Japan can purchase their products from Canadian or, say, Australian sources. It is hardly in the best interest of a U.S. railroad serving an Indiana coal mine or an Iowa grain elevator to price its transportation service so high as to make that coal or grain uncompetitive at destination compared to coal or grain sourced from different states and transported by another carrier. Likewise, it makes no sense for Canadian railroads to price their transportation service so high as to make Canadian products uncompetitive on the world market. It strains credibility to claim that this kind of pressure does not effectively constrain railroad rates in a multitude of markets, including markets served by a single railroad.

And, of course, railroad customers frequently possess extensive countervailing market power. This is particularly true of large, sophisticated companies with multiple locations. As only one example, these companies can obtain price or service concessions by shifting or threatening to shift traffic among plants — causing the railroads that serve

⁵ Transportation Table, National Climate Change Process, *Foundation Paper on Climate Change: Transportation Sector* (December 1998), p. 17.

⁶ Andrew Shea and Joseph Schulman, *Lower Rates and Improved Performance*, (The Conference Board of Canada, February 2000), p. 5.

⁷ Analysis and Modelling Group, National Climate Change Process, *Canada's Emissions Outlook: An Update* (December 1999), p. C-22.

them to compete against each other. Indeed, some individual rail customers rival or exceed the size of the entire rail industry.

A fundamental principle of the economics of regulation is that regulators should not intervene in markets where competition is reasonably effective. This is especially true in railroad markets, where regulators' past performance (as evidenced in the United States in the pre-Staggers period) left so much to be desired. A prominent economist was certainly correct when he recently wrote, "The preponderance of scholarly evidence developed in transportation economics over the past several decades leaves no question that the government should greatly reduce its role in all aspects of transportation."⁸

Differential Pricing

Many of the same groups that wrongly claim that railroads in North America are monopolies also call for limiting the railroads' price-making freedoms. The primary rationale for these groups is the false notion that railroads abuse their market power by charging higher rates to shippers with fewer transportation options than to shippers with more transportation options.

A railroad must balance the desires of each customer to pay the lowest possible rate with the requirement that the overall network take in enough money to keep it functioning now and into the future. The best way that anyone has developed for railroads to do this is through the use of "differential" (sometimes called "demand-priced") pricing. Differential pricing is not an abuse of market power. Rather, it is a pricing technique commonly practiced by competitive industries throughout the United States and Canada, including by many of those who want to prevent its use by railroads. Absent government subsidies, differential pricing is essential to railroads' financial viability.

This is so because of the cost and demand characteristics freight railroads face. On the cost side, railroads have extremely high fixed costs (*e.g.*, the track structure and related facilities) that must be covered regardless of traffic level. On the demand side, rail shippers differ widely in terms of their willingness to pay for rail service. On one extreme, some rail traffic can easily shift to truck or other alternatives, and would do so if railroads charged much over their variable cost of moving that traffic. On the other extreme, some rail traffic is less easily diverted to other modes and has fewer competitive alternatives; this traffic can be charged higher markups to reflect the attendant higher demand for rail service.

Given this demand structure, railroads would lose customers if they were required to charge all traffic the same markup over variable costs. Instead, railroads price their services on the basis of demand, with those shippers with the greatest demand for rail service paying higher markups than shippers with lower demand. This way, railroads cover their variable costs and realize varying contributions to fixed costs from the greatest

⁸ Clifford Winston, "You Can't Get There From Here: Government Failure in U.S. Transportation," *Brookings Review*, Summer 1999, pp. 37-49.

number of customers.

Differential pricing benefits *all* shippers because lower rates to some shippers generate revenue (helping to cover fixed costs) which otherwise would not be realized. Indeed, given their demand structure, *only* by pricing in accordance with demand (with reasonable regulatory ceilings on maximum rates) can railroads efficiently recover all of their costs, serve the largest number of rail customers, and maintain the viability of a nation's rail system. (See Appendix A for a simplified example of the dynamics of differential pricing.)

Unfortunately, many of the proposals to reregulate the railroads — again, in both Canada and the United States — would gut the use of differential pricing by railroads. Manufactured rail-to-rail competition would artificially drive down rail rates to the point that full cost recovery would not be possible. There would no longer be a sufficient mix of high demand-high margin and low demand-low margin traffic to enable railroads to earn the total markups they need to cover their full costs.

It is axiomatic that no industry can sustain itself if it cannot produce income sufficient to cover full current and future costs. Yet no proponent of restricting the use of differential pricing by railroads in the United States, or, as far as I am aware, in Canada, has convincingly explained how the resulting enormous revenue shortfall could be made up. If unable to price differentially, over time a railroad would have to reduce its costs — perhaps through neglecting maintenance that otherwise would be performed, perhaps through reducing the frequency or quality of service, perhaps through foregoing the acquisition of new equipment or some other means. Eventually, the railroad would reach a stage where it would become economically rational to begin shedding traffic. Such a result is certainly not in the public interest, since shippers would lose rail service, nor is it what would occur under market-based pricing decisions.

Rail customers are not always "happy" with the prices they are able to negotiate with the railroads. Virtually every purchaser of goods or services, including railroads, would like to get a better deal than what they have from their suppliers. But there is no question that the vast majority of railroad rates, in both Canada and the United States, are market-based and driven by competition.

Railroads and Investment

As recounted earlier, the United States offers a stark reminder of what happens when a rail system is starved for capital. Prior to passage of the Staggers Act, rail investment was woefully deficient. In the 1970s, when most rates were set by government fiat and return on investment averaged two percent, U.S. railroads simply lacked the ability to invest at adequate levels. There was little doubt at the time that inadequate investment was a major factor contributing to the railroads' financial distress and unsatisfactory service. As Congress explained, "The simple fact of the matter is that the railroad industry is a capital-intensive industry which for decades has had inadequate

earnings to maintain its plant and facilities at a level necessary to achieve improved services.”⁹ Indeed, in 1980, Congress acknowledged the enormous capital shortfall (\$16 to \$20 billion by 1985) of the railroad industry, even after billions of dollars of emergency federal funding had flowed into the bankrupt Northeast railroads.

A similar situation occurred in Canada. By freezing the rates for the movement of grain in western Canada at the levels that prevailed in 1897 (the Crow Rates), the federal government was forced to spend billions of dollars to subsidize grain transportation in the 1970s and 1980s because the railways simply could not afford to invest in the grain transportation system. These government programs included the rehabilitation of branch lines, the purchase of a large fleet of covered hopper cars and the payment of subsidies to the railways to compensate them for their losses from the operation of branch lines.

Deregulation via the Staggers Act gave U.S. railroads the means and incentive to invest. By granting railroads pricing freedoms and providing them the *opportunity* to earn revenues sufficient to cover their ongoing cost of operations, deregulation sparked an industry transformation. As income increased, so did investment.

The capital intensity of freight railroads is immense. In fact, freight railroad capital expenditures on plant and equipment as a percentage of revenues is greater than in any other major industrial sector. U.S. Class I railroad revenues reached \$33.5 billion in 1999. Of that, railroad capital expenditures were \$6.6 billion, or 20 percent, more than five times the comparable figure for other industries. Maintenance expenses on right-of-way and equipment maintenance add another \$10 to \$12 billion in rail spending each year. This extraordinary level of funding is required year after year to provide the high quality assets necessary for the rail industry to operate efficiently, and has made the nation’s railroads stronger and more effective competitors. Importantly, unlike other transportation modes, railroads rely on private financing, not government funds, to pay for their infrastructure investments.

Further, compared on the basis of total assets required per dollar of revenue produced, U.S. railroads have significantly higher asset needs — \$2.57 of assets for each dollar of revenue produced in 1999 — than other major U.S. industries. (The picture is basically the same for Canadian railroads compared to other Canadian industries.)

Because major U.S. freight railroads receive no appreciable government funding, they must earn enough year after year to cover these massive spending requirements. However, the industry’s internal cash flow is not enough to sustain the capital investment railroads require. In fact, U.S. railroads must access the outside capital markets every year to fund their investment needs. From 1981 to 1999, of the cumulative \$81.9 billion in capital expenditures by U.S. Class I railroads, approximately 64 percent was provided from internally-generated funds and 36 percent from external capital providers.

⁹ Staggers Rail Act of 1980, H.R. Rep. No. 96-1430, 1980, p. 95.

**Ratio of Assets to Revenues
of Fortune 500 Firms for Selected Industry Groups: 1999**

Industry	Number of Firms	Total Revenues (\$ billions)	Total Assets (\$ billions)	Ratio of Assets to Revenues
Chemicals	15	\$114.4	\$162.1	1.42
Food	22	178.6	116.2	0.65
Forest & Paper Products	11	106.3	134.0	1.26
Industrial & Farm Equipment	11	81.2	88.3	1.09
Metals	8	44.2	54.6	1.24
Mining, Crude Oil Production	3	17.0	24.6	1.45
Motor Vehicles & Parts	14	452.8	634.6	1.40
Railroads	4	36.4	93.6	2.57
Trucking	2	8.8	4.4	0.50
Gas & Electric Utilities	37	266.3	594.8	2.23
Total	127	\$1,306.0	\$1,907.2	1.46

Source: *Fortune*, April 17, 2000 pp. F-1–F-20.

The Dangers of Reregulation

It is worth repeating the essential point that artificial and unrealistic restrictions that impede a railroad’s opportunity to generate sufficient returns will severely compromise a railroad’s ability to retain and attract the capital it needs to sustain its investment and operations over the long term.

Access to capital is more important than ever to the rail industry for two reasons. First, only through increased productivity have Canadian and U.S. railroads been able to increase their profitability in recent years in the face of strong competition from trucks and declining rail rates. Those productivity gains, however, were achieved through measures that have largely been exhausted or through one-time events — as some have put it, by picking the “low-hanging fruit.” Future productivity gains will likely need to be “purchased” with additional, large-scale strategic infrastructure investments.

Second, new investment is also needed to meet increasing shipper demand for transportation service. In the United States, rail traffic as measured by revenue ton-miles has increased by 57 percent since 1980, including 39 percent in the 1990s. In Canada, revenue ton-miles have increased by 29 percent in the 1990s. Part of this growth has been fueled by the increasing globalization of commerce and the resulting increase in demand for high-volume, long-haul transportation that is well suited to railroads.

This globalization is vividly reflected in North American trade statistics. According to U.S. and Canadian government data, for example, both Canadian exports to the United States and Canadian imports from the United States have more than doubled in the past ten years alone, totaling more than \$360 billion in 1999. Over the past five years, the United States has accounted for some 67 percent of all Canadian imports and 83 percent of Canadian exports. Canada is by far the largest U.S. trading partner, larger

even than the entire European Union, and commerce between Mexico, Canada and the United States is increasing the global competitiveness of North America. Roughly one-fifth of the freight flow, as measured by value, travels by rail. Thus, laws and regulations that impair the cost-effectiveness of railroads likewise threaten the efficient flow of trade between the two countries. Indeed, given the success of the North American Free Trade Agreement in enhancing trade between Canada, the United States and Mexico, actions that harm railroads could potentially disrupt trade throughout North America.

In short, railroads must be able to offer investors returns comparable to what the investors could expect if they invested their funds elsewhere at comparable risk. As one investment banker recently put it, “Capital flows to the areas of highest return. If ... new regulations change the rules of the game and ensure poor returns, then the Street will disinvest, (or further disinvest) causing managements to begin to reallocate cash and begin “harvesting” the business. They will have no choice.”¹⁰

I submit to you that it is hardly in the interest of your nation or mine to set in motion the “harvesting” of our rail networks.

It is hard to see any alternatives, though, given the amount of revenue railroads could be expected to lose through various regulatory changes. The Grimm/Winston study noted earlier, for example, which focused on a limited set of shippers, found that artificially manufactured rail competition would result in a drain to the railroads of \$1.3 billion annually.¹¹ The study also concluded that this huge loss of revenue to the railroads would provide no benefit to the economy, since it would merely be a transfer from railroads to rail customers.

Meanwhile, rail industry analysis of specific reregulation proposals reveals that \$3.3 billion or more in railroad revenue could be lost annually. Because the revenue loss would not be accompanied by compensating reductions in expenses, most or all of the industry’s net income would disappear.

Ultimately, the only realistic alternative to disinvestment is for the government to step in and provide subsidies to railroads to make up for the lost revenue. The United States and Canada are two of the very few countries in the world that offer first-level freight rail service and do so without massive government subsidies. Whether inserting the government in a caretaker role is appropriate for either of our countries is ultimately a public policy question to be determined by each country. However, neither country should be under the illusion that denying railroads the opportunity of earning adequate revenues means something other than disinvestment or increased government subsidies.

Excessive railroad regulation that leads to disinvestment is also antithetical to

¹⁰ Anthony B. Hatch, independent railroad analyst, in speech before the American Short Line and Regional Railroad Association, September 14, 1999.

¹¹ Grimm and Winston, p. 45.

sound national transportation policy that should recognize freight railroad advantages in energy efficiency and pollution abatement. On average, railroads are around three times more fuel efficient than trucks, and railroad fuel efficiency is improving all the time. In 1990, for example, U.S. railroads moved a ton of freight an average of 332 miles per gallon of fuel consumed. In 1999, the comparable figure was 386 miles, a 16 percent increase. In Canada, fuel efficiency rose 18 percent over the same period.

Further, the U.S. Environmental Protection Agency (EPA) estimates that for every ton-mile, a typical truck emits roughly three times more nitrogen oxides and particulates than a locomotive.¹² Other studies suggest that trucks emit six to 12 times more pollutants per ton-mile than do railroads, depending upon the pollutant measured. And railroads have a decided advantage in terms of greenhouse gas emissions. In Canada, diesel trucks generate nearly six times more greenhouse gas emissions than railroads per ton mile of freight transported. Railroads account for just four percent of transportation-related greenhouse gas emissions in Canada.¹³

Reregulation Will Not Enhance Efficiency or Reduce Costs

Proponents of railroad reregulation in the United States claim that the introduction of forced rail-to-rail competition wherever it does not now exist would cause railroads to enhance their attractiveness to shippers, leading railroads to increase their investment in plant and equipment in an effort to win the business away from the new competitors.

Proponents of railroad reregulation claim that the added competition for rail traffic would reduce rates, but reduced rates would increase volume. Cost reductions and innovations would purportedly produce benefits that improve efficiency and productivity, and restore the margins and profitability needed to support infrastructure investment. Thus, they say, no rail disinvestment need occur and rail profitability need not suffer.

The claim that additional forced rail-to-rail competition will lead to reduced railroad costs, increased innovation and enhanced efficiency in the United States (or Canada, for that matter) rests on the pivotal assumption that today's railroads have "grown fat" due to the excessive market power they allegedly possess. Yet there is no evidence that this is true. In fact, the empirical evidence points squarely to the opposite conclusion:

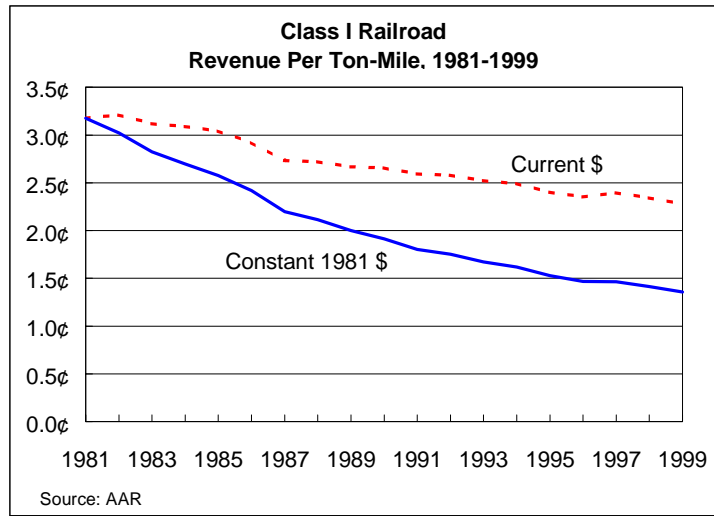
- *Productivity:* If railroads had excessive market power and had "grown fat," incentives to reduce costs and use productive inputs efficiently would be suppressed. Yet according to the U.S. Bureau of Labor Statistics, railroad productivity has exceeded that of nearly every other U.S. industry over the past decade, and rail costs per unit of traffic have plunged. There are many common

¹² U.S. Environmental Protection Agency, "Emission Standards for Locomotives and Locomotive Engines: Proposed Rule," *Federal Register*, February 11, 1997, p. 6368.

¹³ Transportation Table, National Climate Change Process, *Transportation and Climate Change: Options for Action* (November 1999), pp. 19, 26.

ωαιψο το μεασυρε προδυχιωιτωψ, ανδ αλλ οφ τηεμ σηωω συβσταντιαλ ιμπροωεμεντ. Φορ εξαμπλε, ρεωενυε τον-μιλεσ περ εμπλοψεε φορ Υ.Σ. ραιλροαδσ ροσε 287 περχεντ φορομ 1980-1999, ινχλυδινη 69 περχεντ σινηε 1990. Ιν Χαναδα, τηε χομπαρable figure rose 97 percent from 1990-1999.

- Prices:* The exercise of market power rarely involves sharply lower prices, while a sharp reduction in prices usually signals powerful competitive constraints at work. Overall U.S. rail revenue per ton-mile has fallen substantially and continually — by 28 percent in nominal terms and 57 percent in inflation-adjusted terms — since 1980. These rate reductions have occurred across commodities lines, across mileage blocs, and for both railroad- and non-railroad-owned cars. These sharp rate reductions are a direct result of the pass-through to shippers of railroads’ massive productivity gains made possible by partial economic deregulation and made necessary by the intense competition railroads already face. Revenue per ton-mile has also fallen dramatically for Canadian railroads.



- Innovation:* If railroads had excessive market power, their incentives to invest in innovative products and processes would be reduced. But unit trains, double-stacking intermodal freight cars, grain car reservation systems, AC locomotives, modern dispatching centers, improved safety equipment, e-commerce initiatives, and a variety of other innovations attest to the railroads’ competitive incentives.
- Investment:* If railroads had “grown fat,” incentives for investment would be reduced. But in the 1990s alone major U.S. freight railroads have invested nearly \$140 billion to maintain and improve their infrastructure and equipment. Capital expenditures per mile of road owned were more than \$66,000 in 1999, almost 2 ½ times the comparable inflation-adjusted 1983 figure. These investments have occurred across the rail network and have benefited all rail sectors, not just the most highly-competitive markets.
- Market Share:* If railroads had excessive market power, they would not have steadily lost market share for decades. The ongoing struggle by railroads to retain the meager market share gains they have made over recent years is stark evidence of the intensity of the competition they face from other modes. For example, only about 15 percent of total U.S. electricity generation is accounted for by coal-fired

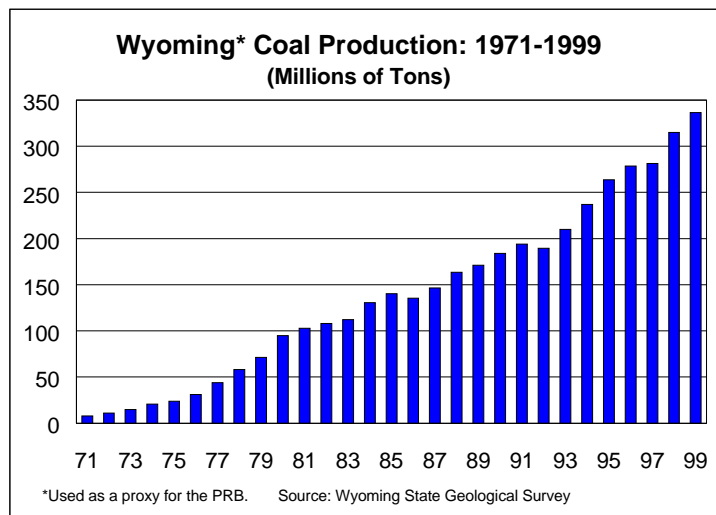
πλάντω σερωεδ φυστ βψ α σινγλε ραιλροαδ. Λικεωισε, Υ.Σ. Δεπαρτμεντ οφ Αγριχυλτυρε δατα ινδιχate that trucks have supplanted railroads as the primary transportation mode for grain. And the U.S. chemical industry’s own figures show that railroads account for just 20 percent of chemical transportation tonnage.

- *Profits:* If railroads had excessive market power, they would be able to earn more than a competitive rate of return. But no one can seriously argue that railroad profits in either Canada or the United States are excessive. In the United States, railroads consistently fail to earn their cost of capital and rail profitability has for many years consistently ranked in the bottom quartile among all U.S. industries.

The Powder River Basin Example

When pressed for specifics to buttress their claim that manufactured rail-to-rail competition will lead to efficiency, lower costs, and higher investment, proponents of railroad reregulation often cite the supposed example of the Powder River Basin (PRB) in Wyoming and southern Montana. According to their version of the PRB tale, the introduction of increased rail competition into the PRB in the form of the Chicago and North Western (now part of Union Pacific) in the mid-1980s forced the incumbent PRB carrier at the time, Burlington Northern (BN), to increase investment and raise productivity. Today, the story goes, both carriers are better off because of competition for Powder River Basin traffic.

This version of the PRB story badly confuses cause and effect. In fact, the PRB example lends no support to the claim that mandated rail-to-rail competition would not harm railroad profitability or investment. The CNW/UP entry in the PRB was spurred by the enormous potential market for PRB coal, a market that has certainly come to pass (see chart). Thus, CNW/UP’s investment in the PRB was, and still is, prompted by the opportunity for adequate returns. For BN, that opportunity would have been there without the introduction of additional railroad competition.



It so happens that the PRB can sustain two railroads. But claiming that every market can sustain two railroads just because the PRB can is like saying that every city can support two major league baseball teams just because New York can. This same point was made by Alfred Kahn, the prominent economist, who said in reference to air service in Ithaca, New York, where he lives, “We can’t all have two or three airlines vying for service to Ithaca. The Ithaca market won’t support a lot of competition. If you

want the benefit of choice, you might have to go 50 miles away.”¹⁴

Thus, the central lesson of the PRB is not that added competition yields profits anywhere, without regard to demand and cost considerations. Rather, the central lesson is that rail-to-rail competition develops where the capital markets have found that returns justify it. Stated another way, it is not economically feasible for there to be two railroads serving every shipper, because that level of competition is not sustainable. Trying to mandate it, through regulation, is bound to be self-defeating.

Forced Access

As noted earlier, a number of different proposals have been offered in both the United States and Canada that would modify the structure of economic regulation of railroads. One such proposal is the imposition of so-called “open access.” This proposal, which is more accurately labeled “forced access,” would allow any railroad to run its cars over virtually any track, regardless of who built, paid for or maintained that track. Forced access has been mentioned in the United States, but is not at the forefront of reregulation proposals; that is not necessarily the case in Canada, where a number of groups (including, for example, the Canadian Wheat Board) view forced access as a legitimate and workable alternative to the existing system of economic regulation.

Like other reregulation proposals, forced access is an attempt by a segment of shippers to gain lower rail rates at the expense of other rail shippers, rail employees, rail investors and the public at large. This would be accomplished by unreasonably modifying existing regulations that already protect shippers against unreasonable rates and anticompetitive rail practices. Thus, forced access spawns more regulation, not more competition. Given that rail deregulation has been an unqualified success in both the United States and Canada, this makes no sense.

The present level of rail competition reflects real world decisions as to which markets will sustain multiple railroads and which will not. Trying to artificially create more competition than the marketplace will support would reduce railroads’ ability to compete against each other and against other modes, because it would prevent them from earning enough to cover the full cost of providing infrastructure, equipment, and safe rail service across their entire system.

Under forced access, the setting of rates and priorities for use of the track, as well as establishing other operating conditions, service levels, interchange conditions, yard usage and other elements necessary to provide safe and effective rail service would move from the private sector rail owner to the government or a manager empowered by the government to regulate the system. Forced access would make it more difficult to operate safely, efficiently and profitably, due to governmental interference, transaction complexity and lack of coordination between railroad owners and operators. Complex, lengthy and costly disputes over terms of use would be inevitable. Indeed, at times it can

¹⁴ Quoted in *National Journal*, April 10, 1999, p. 953.

be difficult enough for a vertically integrated firm with control over all aspects of rail operations to oversee their coordination. To inject additional layers and complexities would make the task immeasurably more difficult and costly. In both Canada and the United States, control by integrated railroads of all the elements of rail transportation has resulted in huge productivity gains and huge cost savings, but forced access would negate these gains.

Some of these issues were explored in a recent study that found that Class I railroads experience significant returns to density. The study found that if the effect of forced access requirements were to reduce densities, the unit cost of providing freight service would increase. The study also confirmed that the marginal costs of various freight rail operations are less than average variable costs, which implies that railroads should be allowed to charge differential prices in order to ensure continued rail investments. Finally, the study confirmed that there are significant cost relationships between railroad freight operations and infrastructure maintenance activities, suggesting that there would be significant coordination and congestion problems to resolve if forced access led to a separation of operating entities and infrastructure entities.¹⁵

In the short run, forced access might indeed lead to lower rates for a small group of favored shippers. In the long run, however, it would cause significant harm because it ignores the realities of rail economics. Because forced access is premised upon lower-than-market rates, it would prevent railroads from earning sufficient revenues to reinvest in their systems, with the inevitable result that the existing rail network would shrink — at a time when the growing North American economy needs efficient rail transportation more than ever. Private investors would commit far less money to such a rail system, because operators could appear at any time and reap the economic benefit of the investments made by the track's owner.

Access Pricing

Under forced access, a tenant railroad would pay a fee to the owning railroad for use of the owner's assets. Proposals that I have seen first look to voluntary negotiations between the owner and the tenant to set the access price. In most cases, however, these negotiations are not likely to be successful, because if the owner believed that allowing a tenant access was prudent, he would allow access *voluntarily* and would not need to be forced to do so.

Under existing U.S. railroad rate regulations, maximum rates for any one shipper can be no greater than what would be required by an efficient, hypothetical competitor. Capping rates in this manner is consistent with economically-efficient coverage of fixed costs. If the owning railroad is as or more efficient than a potential tenant, the tenant could not charge a lower rate and still pay for the investments necessary to serve the shipper. Under forced access, rates would fall *only* if the current rate reasonableness

¹⁵ Marc Ivaldi and Gerard J. McCullough, *Density and Integration Effects on Class I U.S. Freight Railroads* (Paper prepared for the Association of American Railroads, April 1999.)

standards were changed, allowing a tenant to provide service *without* paying the appropriate rental for all the investments necessary to serve the shipper.

If, after taking into account all relevant factors — including the increased operational complexity of multiple operators — the potential tenant is more efficient than the owning railroad, there could be a lowering of rates even after an appropriate rental is paid. Where that condition exists, it is already in the owner's interest to grant the rights *voluntarily*. Indeed, when the market deems it economically efficient to do so, railroads commonly contract among themselves to share resources.

For example, railroads have entered into numerous trackage rights and haulage agreements, jointly operate and use terminals and dispatching facilities, jointly market and perform innovative services, share the ownership of switching and terminal railroads, perform reciprocal switching for each other, and pool freight cars. Such inter-corporate alliances are common not only among railroads, but also between railroads and motor carriers, freight consolidators, steamship interests and others. Unlike the forced sharing of assets contemplated by various compulsory access proposals, these arrangements represent a voluntary sharing of facilities which are deemed by the participants to be mutually beneficial.

It is worth noting that the U.S. government has a woeful record in setting appropriate access charges. For example, the fees (in the form of various taxes and user fees) paid by rail-competitive trucks in the United States fall far short of covering the damage to highways the trucks cause, and the fees paid by barges fall far short of the cost of inland waterway construction and maintenance.

Other Industries Are No Models

Proponents of railroad reregulation deny that they want to reregulate railroads. In fact, they claim that all they want is further deregulation of the railroads. They point to the deregulation of the electric utility, telecommunications, and natural gas industries as models of the alleged "deregulation" they want for railroads.

Of course, it is not at all clear at this point how well the "deregulation" has worked in these other industries, or even if "deregulation" is an appropriate term to use. In telecommunications, for example, various issues have been tied up in the courts for years, and will continue to be for years to come. In electricity, various states are trying various approaches, not all of which have gone smoothly, as electricity consumers in San Diego can attest.

As a point of fact, the electricity, natural gas and telecommunications industries are not appropriate models for railroads. On the contrary, it is more accurate to say that railroads are models for them, in that railroads have already achieved many of the goals that proponents of deregulation in these other industries seek to achieve.

First, “open access” in other industries does not prevent these industries from recovering their total costs. U.S. electricity transmitters, for example, are still governed by traditional rate-of-return regulation and are essentially guaranteed to recover their full costs, including an adequate return on investment. By contrast, as explained elsewhere in this paper, under various access regimes being proposed for railroads, railroads would be unable to recover total costs.

Second, “open access” in the other industries means that transmitters become, in essence, common carriers. In the United States, for example, owners of electric transmission lines are now generally required to transmit electricity generated by any producer. Likewise, cable companies offering Internet access have come under pressure to offer their subscribers competing Internet service providers (ISPs). In both cases, the other industries are being asked to do what railroads have been doing for decades. The various electricity generators and the various ISPs are like competing coal companies on a railroad’s line. As a common carrier, by law a railroad cannot say that it will carry Coal Mine A’s traffic but not Coal Mine B’s. The railroad has to carry both, if both request it. A coal consumer — say, a coal-fired power plant — is free to burn Mine A’s or Mine B’s coal, and the railroad has to bring that coal to that plant. Thus, open access in the other industries takes them to where railroads already are.

Third, other industries were, by and large, inefficient monopolies with guaranteed customer bases and financial returns. Open access in those other industries holds the potential to promote efficiencies and lower costs, increase innovation and improve service. Railroads have faced intense competition for decades and have already achieved these goals, as discussed earlier.

Fourth, in the other industries, monopoly control over bottlenecks gave vertically-integrated firms the ability to favor their own products over competitors. For example, a vertically-integrated electric utility could use its ownership and control of transmission lines to favor electricity produced by its own generating plants, at the expense of electricity generated by others, even if the other electricity producers were more efficient. The situation is vastly different for railroads. Importantly, railroads do not produce or own what they are transporting. They are transportation providers only. Also, under existing regulation, end-to-end rail rates are limited to what an efficient competitor would charge, meaning there is no potential for monopoly railroad profits. Finally, railroads controlling a bottleneck, in contrast to firms controlling bottlenecks in the other industries, have no incentive for “self-dealing.”

Fifth, unlike utilities, railroads were built only where competitive capital markets supported building them. Sometimes this meant shippers were served by more than one railroad, sometimes not. In any case, competition has been determined by the market. That’s certainly not how many utilities were formed and developed.

Finally, other industries involve fungible products (*e.g.*, electric current for electric utilities, natural gas). By contrast, railroads must move specific commodities in

specific railcars to specific locations. The consequent distributional complexities for railroads are orders of magnitude higher than for these other network industries.

It is interesting to note that regulators and legislators are doing something for electric utilities that is certainly not being considered for railroads by proponents of railroad reregulation. If enhanced access in the electric utility industry results in assets becoming underutilized or unnecessary — “stranded” is the word being used to describe this phenomenon — the utility gets its investment back.

Given all this, perhaps the most appropriate question to ask when comparing railroads with these other networked industries is, when are they going to become more like railroads?

Lessons From Other Countries

Just as proponents of railroad reregulation wrongly point to the experience in other industries as models for railroad regulation, so too do they sometimes wrongly point to the experiences of rail systems in other countries as “proof” that their regulatory proposals have merit for Canada and the United States.

North American railroads are the undisputed world leaders in efficient, low-cost freight railroad operations. According to World Bank data, the Canadian and U.S. freight railroad industries lead the world (often by extremely large margins) or are near the top among all countries in terms of size, volume, productivity and affordability. Such leadership is no accident. It is directly a function of predominantly market-based operations, which provide incentives for continuous improvement in productivity and service levels.

In both the United States and Canada, the rail model is of “vertical integration,” in which a railroad company both owns the track and affiliated infrastructure and also controls the operation of trains moving over the track. In both the United States and Canada, vertical integration has resulted in huge post-deregulation productivity gains, massive reinvestment in infrastructure by the railroads themselves, and sharply lower rail rates that have saved shippers billions of dollars per year. The World Bank’s Lou Thompson notes that, “Because of a market-based approach involving minimal government intervention, today’s U.S. freight railroads add up to a network that, comparing the total cost to shippers and taxpayers, gives the world’s most cost-effective freight service.”¹⁶ Canadian railroads closely mirror the value provided by U.S. carriers.

In recent years, countries in every corner of the globe have commercialized and restructured their freight rail systems, with a goal of minimizing (not augmenting) government involvement, significantly improving the competitiveness of rail freight systems, and slashing government subsidies. To do this, they have looked to North America for guidance. Indeed, as noted in the attached recent report by Mercer

¹⁶Louis S. Thompson, World Bank Railways Adviser. Quoted in the *Journal of Commerce*, July 29, 1998.

Management Consulting (one of the world's leading transportation consultancies, involved in around 90 percent of the global rail restructurings in recent years), the most successful restructurings have imitated the North American model, not diverged from it.

To be sure, a few countries have experimented with the forced access model, in which multiple railroads have operating rights over rail right-of-way that they do not own, on the theory that it would promote more rail-to-rail competition and achieve other restructuring goals. In each case, the track infrastructure is still a monopoly in the hands of a single owner. Further, where it has been implemented, including Australia, Sweden and the United Kingdom, intra-rail competition has been slow to develop. In the United Kingdom, for example, British Rail was sold as six separate freight concessions, but all but one have re-emerged as a single railroad. In Australia, the new entrants primarily have either been intermodal specialists, focusing on specific markets, or successors to the government-owned operations.

Further, open access has not achieved the goal of reducing subsidies in many cases. In Sweden, for example, the government unit that owns rail infrastructure will collect more than \$4 billion in public funds from 1998 to 2007, since the access fee for train operators is essentially zero. In the United Kingdom, government support still exceeds \$3 billion per year, even though subsidies were supposed to decline over time.

Many other countries have considered forced access and rejected it. In Argentina and Mexico, for example, an "open access" regime was initially considered and met with overwhelmingly negative responses from potential investors, who were not interested in committing funds to railroads where competitors could appear at any time and capture the economic benefits of those investments.

In testimony before the Surface Transportation Board¹⁷, Mercer compared the prices paid by buyers of vertically-integrated rail systems in the United States, New Zealand, and Mexico between 1988 and 1997 with the price paid by English, Welsh & Scottish Railway (EWS) consortium for the freight concession over the "open access" rail system in the United Kingdom.

In each vertical integration case, Mercer found that the buyer has paid a multiple of more than one times the system's annual revenues. For one of the Mexican concessions, the purchase price was 7.7 times revenues, even though the buyers knew that they would have to invest substantial additional sums to bring the infrastructure up to acceptable condition. In the case of the EWS, however, the price was only 0.4 times revenues — just 30 to 40 percent of average U.S. values and just five percent of the value commanded in Mexico.

What accounts for the significant difference in valuations? As Mercer explains, in vertically-integrated systems an owner can measure and capture the full economic value

¹⁷ Mercer Management Consulting, Inc., before the Surface Transportation Board, Review of Rail Access and Competition Issues, March 25, 1997.

of the business unit it is acquiring. It can match capital outlays with customer demand and capture the efficiencies which occur when operating decisions are coordinated with investment decisions. Moreover, without the threat of "cherry-picking" of high margin traffic by potential competitors, the owner can engage in differential pricing. Just the opposite occurs in an open access regime, where new entrants can seek to "cherry-pick" the most profitable business, leaving the owner with lower-margin customers, reduced profits, and lower capital investment.

This point was recently acknowledged by the chairman of the United Kingdom's Shadow Strategic Rail Authority (which is responsible for the strategic planning, coordination and supervision of the activities of the U.K. rail industry and the disbursement of appropriate public funds), who said, "We need to be very careful about [open access] because we can't expect investment from franchisees whose best routes are being cherry-picked by others. If the country's entire network were to become a cherry-pickers' party, who would run the low-returning regional lines – nobody!"¹⁸

The experience in these countries confirms that in a capital-intensive industry like railroading, forced access simply entails too much risk for private investment to supply the massive amounts of capital a functional and efficient rail system requires. Investors in countries that rejected forced access also recognized that forced access would make it more difficult to operate a railroad efficiently and profitably, due to government interference, transaction complexity and a lack of coordination between operational and infrastructure investments.

Conclusion

The regulatory scheme devised by the U.S. Congress and enacted through the passage of the Staggers Rail Act of 1980 relies on competition in the marketplace to govern the vast majority of rail rates and service. The experience since Staggers demonstrates that there is abundant competition in freight transportation markets which has allowed this congressional objective to be fulfilled.

For this reason, the AAR believes that the current regulatory regime — under which competition and market forces are the determining factors in setting rail rates and service standards in most cases, with maximum rate and other protections available to rail customers who truly need them — is, by and large, an appropriate one. It strikes a reasoned balance between providing railroads the freedom to compete effectively in the marketplace and providing shippers the means necessary to combat actual abuse of railroad market power and anti-competitive railroad behavior, where it may exist.

The railroad industry does not maintain that the existing mix of competition and regulation is necessarily perfect. Both U.S. and Canadian railroads are willing to engage in sincere participation in private sector and regulatory initiatives concerned with service, safety, and other areas of rail operations to identify particular elements of the current

¹⁸ Nick Pigott, "The Persuader (Interview of Alastair Morton)," *The Railway Magazine* (July 2000), p. 49.

regime that can potentially be improved. That said, the experiences and performance of the U.S. rail industry before and since the passage of the Staggers Act make it abundantly clear that a reliance on increased economic regulation of railroads, through the introduction of artificial competition or any other form, would be a colossal mistake.

Going forward, railroads in both Canada and the United States need the continued flexibility that deregulation has offered in order to efficiently handle the future transportation needs of our growing economies and sustain our nations' international competitiveness.

Why Differential Pricing Benefits All Rail Shippers

1. Suppose a railroad has fixed costs of \$180 and serves three shippers: a package delivery company, a grain elevator, and a coal-fired power plant. The railroad's variable cost to serve each shipper is \$100.

The package company will pay no more than \$130 for rail service. At any higher rate, it will switch to truck. The grain elevator will pay no more than \$160 for rail service -- at any higher rate it will switch to barge. The power plant has no real alternative to rail, so it is willing to pay more - \$190 - for rail service. The railroad engages in differential pricing to cover its fixed costs. It charges the package company and the grain

elevator less than the power plant. The railroad covers fixed and variable costs, although each shipper makes a different contribution to fixed costs.

Shipper	Differential Rail Rate	Variable Costs	Contribution to Fixed Costs
Package company	\$130	\$100	\$30
Grain elevator	\$160	\$100	\$60
Power plant	\$190	\$100	\$90
Total	\$480	\$300	\$180

2. Now, suppose the power plant persuades the government to prohibit differential rates.* The railroad now must charge each shipper the same markup over variable costs, or \$160. At the new rate, the power plant saves \$30; the grain elevator pays the same as before, and the package company pays \$30 more.

Shipper	New Rail Rate	Variable Costs	Contribution to Fixed Costs	Change From Diff. Rate
Package company	\$160	\$100	\$60	+\$30
Grain elevator	\$160	\$100	\$60	\$0
Power plant	\$160	\$100	\$60	-\$30
Total	\$480	\$300	\$180	\$0

3. But at a rate of \$160, the package company would drop rail service. When it did so, the railroad's \$180 in fixed costs would still need to be covered. So, the railroad must then charge the grain elevator and the power plant \$190 each in order to cover total costs.

Shipper	New Rail Rate	Variable Costs	Contribution to Fixed Costs	Change From Diff. Rate
Package company	\$160	\$100	\$60	+\$30
Grain elevator	\$190	\$100	\$90	+\$30
Power plant	\$190	\$100	\$90	\$0
Total	\$380	\$200	\$180	+\$30

4. But at a rate of \$190, the grain elevator too would drop rail service. When it does so, the power plant alone would have to cover variable costs (\$100) and all of the railroad's fixed costs (\$180). All else being equal, either the power plant pays \$280 or the railroad goes out of business. Each shipper is ultimately worse off than it was under standard differential pricing.

Shipper	New Rail Rate	Variable Costs	Contribution to Fixed Costs	Change From Diff. Rate
Package company	\$160	\$100	\$60	+\$30
Grain elevator	\$190	\$100	\$90	+\$30
Power plant	\$280	\$100	\$180	+\$90
Total	\$280	\$100	\$180	+\$90

* Association of American Railroads' action that arbitrarily forced the railroad to reduce its rate to ~~Rate of~~ plant would have the same effect.