

Will New Regulation Derail the Railroads?

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Introduction

Despite the success of railroad deregulation, some shippers and shipper groups have called in recent years for new regulation of the railroad industry. Two principal types of regulatory proposals are before Congress: “open access” and “bottleneck rate” legislation. These attempts to expand railroad regulation threaten a return to the discredited era before deregulation when wide-ranging regulatory controls deterred investment and caused much of the rail industry to collapse.

Those groups who call for new regulation seem to want better service but to pay lower prices. This outcome will not occur. Service improvements require significant investment in track, freight cars, locomotives, information technology, and other assets. The new proposed regulations would reduce incentives for investment in railroad assets, cause railroads to lose business to competing modes of transportation, and threaten the already weak financial health of the railroads. If Congress discourages railroads from investing in track capacity, or other assets, service will deteriorate rather than improve, and the private railroad industry will not survive.

Pending open access and bottleneck rate legislation would discourage future investment in the following ways:

- Open access and bottleneck rate regulation would drive down railroad revenues towards variable costs. But this outcome fails to cover the very large fixed and common costs incurred by railroads, such as laying track or digging tunnels. No railroad will make these investments unless it can expect to recover its investment.
- Open access will discourage railroads from making investments in their own networks if they are forced to permit competing railroads to free-ride on those investments. Similarly, the proposed legislation would discourage railroads from expanding into new markets so long as they can obtain forced access to a competitor’s tracks.
- Cost-based price caps will not permit the railroads to achieve a market return on investments. Both open access and bottleneck rate regulations will require the federal government to impose caps on access fees and bottleneck rates. Assuming the use of the current cost-based approach, the government will cap the prices too low because the cost-based approach ignores the asymmetric return on railroad investments created by the sunk costs and irreversible nature of those investments.

This paper analyzes the consequences of the proposed new regulations of the railroad industry from the perspective of consumer welfare. I believe consumer welfare — the costs paid and benefits enjoyed by consumers — is the appropriate standard against which to address the current regulatory proposals. It is equivalent to a “public interest” standard.¹

¹ In the context of telecommunications regulation I have explained how consumer welfare is equivalent to the public interest. See, e.g., J. Hausman, “Taxation By Telecommunications Regulation,” *Tax Policy and the Economy*, 1998: 12; J. Hausman and H. Shelanski, “Economic Welfare and Telecommunications Welfare: The E-Rate Policy for Universal Service Subsidies,” *Yale Journal on Regulation*, 1999: 16; and J. Hausman and G. Sidak, “A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks,” *Yale Law Journal*, 1999: 109.

A Brief History of Rail Regulation

The American railroad industry was one of the first industries in the country to be regulated. The Interstate Commerce Act of 1887 created the Interstate Commerce Commission (ICC) and imposed various types of regulations on railroads, including maximum and minimum rail rates. The industry struggled for almost 100 years under ICC regulation. A significant problem with the regulatory regime was the ICC's failure to adjust maximum rates for inflation. In the early 1900s, the railroads' costs rose but the ICC refused to authorize higher rates. As a result, railroads reduced track maintenance and capital expenditures, and service deteriorated.² At the onset of World War I, President Wilson temporarily seized the railroads, which were struggling due to the regulatory straitjacket imposed by the ICC.

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The railroads' financial health never recovered. The Great Depression wreaked havoc on the railroad industry. Growing truck competition and the construction of the national highway system reduced rail revenues in the 1950s and 1960s, and ICC regulations continued to burden the railroads. For example, in 1965, Southern Railway introduced new, more efficient grain cars and proposed to pass significant savings back to its customers in the form of lower rates. The ICC refused to permit Southern Railway to lower its rates. Instead, it protected Southern Railway's competitors by concluding that the rates would constitute illegal price discrimination. By 1978, the U.S. Department of Transportation noted that "[t]he current system of railroad regulation ... is a hodge-podge 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." In 1968, Penn Central Transportation (the largest Eastern railroad) provided Congress with an unwelcome wakeup call by declaring bankruptcy, and several other smaller Eastern and Midwestern railroads followed it into reorganization.

Congress recognized that the railroad industry was failing and passed the Staggers Act of 1980 to resurrect it. The Act unleashed the industry from the regulatory restraints that had nearly destroyed it. The Staggers Act streamlined procedures for abandoning under-used tracks, permitting railroads to realize dormant economies of scope and improve productivity. The Staggers Act also permitted the railroad industry to charge different rates to individual shippers to reflect individual customer demands, and permitted railroads to enter into confidential contracts with shippers that would not require regulatory approval.

Congress recognized that some shippers would lack rail competi-

² For a discussion of the adverse effects of early ICC regulation on the railroad industry at the turn of the century, see Albro Martin, "Enterprise Denied: Origins of the Decline of American Railroads, 1897-1917," 1971; Herbert Hovenkamp, "Regulatory Conflict in the Gilded Age: Federalism and The Railroad Problem," *Yale Law Journal*, 1998: 97; and Robert Harbeson, "Railroads and Regulation, 1877-1916: Conspiracy or Public Interest?," *Journal of Economic History*, 1967: 27.

tion. Therefore, although it was not given jurisdiction over contract rates, the ICC retained limited jurisdiction over rates (over a threshold level of 180 percent of variable cost) charged to captive shippers to make certain the rates were “reasonable.” To calculate the reasonableness of rates, the ICC decided to simulate the competitive price that would exist in a “contestable” market, one with no barriers to entry or exit.

To implement this approach, the successor to the ICC, the Surface Transportation Board (STB), estimates the “stand-alone cost” of a hypothetical railroad over a 20-year period that would carry the traffic of the captive shipper and other non-captive traffic. The stand-alone cost is the cost of running the hypothetical railroad. If the stand-alone cost of the hypothetical railroad is lower than the revenues of the traffic on the actual railroad, the STB decides that current rates are too high and can order them lowered.³ Otherwise, the current rates of the actual railroad are determined not to be excessive and therefore not subject to regulatory control. Thus, the Staggers Act freed the railroads to adapt and respond to their “evolving markets,” relying on competitive market forces to encourage railroads to find new and more efficient methods of serving their customers, yet it protected captive shippers from the exercise of excessive market power.

The effect of the Staggers Act was profound. In the past 20 years, railroad productivity improved tremendously and shippers benefited from falling rates. Real (inflation-adjusted) railroad rates decreased by more than 50 percent since the railroads were deregulated.⁴ For instance, a recent GAO report states that real railroad rates have decreased since the early 1980s.⁵ More recently, the STB released a rate study confirming the declining rates.⁶ The study found that since 1984, real rates had fallen by 45 percent. Of course, not all rates declined at the same pace, but rates decreased in varying degrees for almost all categories of shipments.

In normally functioning markets, economists expect the interaction of demand factors, cost factors, and competitive factors, including both intramodal and intermodal competition, to lead to different competitive outcomes. It is therefore striking that almost every group of shippers has benefited from the effects of deregulation of the railroad industry over the

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³ Rates cannot be lowered below 180 percent of variable cost by regulation.

⁴ For academic articles that discuss the improvement in service, see, e.g., M. Burton, “Railroad Deregulation, Carrier Behavior, and Shipper Response,” *Journal of Regulatory Economics*, 1993: 5; C. Barnekov and A. Kleit, “The Efficiency Effects of Railroad Deregulation in the U.S.,” *International Journal of Transport Economics*, 1990: 17; and J. MacDonald and L. Cavalluzzo, “Railroad Deregulation: Pricing Reforms, Shipper Responses, and the Effects on Labor,” *Industrial and Labor Relations Review*, 1996: 50. From 1980 to 1998 real railroad rates fell by 52% while train accidents fell by 66% (source: *Federal Railroad Administration*) and volume shipped grew by 50%. For a study of cost reduction see, e.g., W. Wilson, “Cost Savings and Productivity in the Railroad Industry,” *Journal of Regulatory Economics*, 1997: 11.

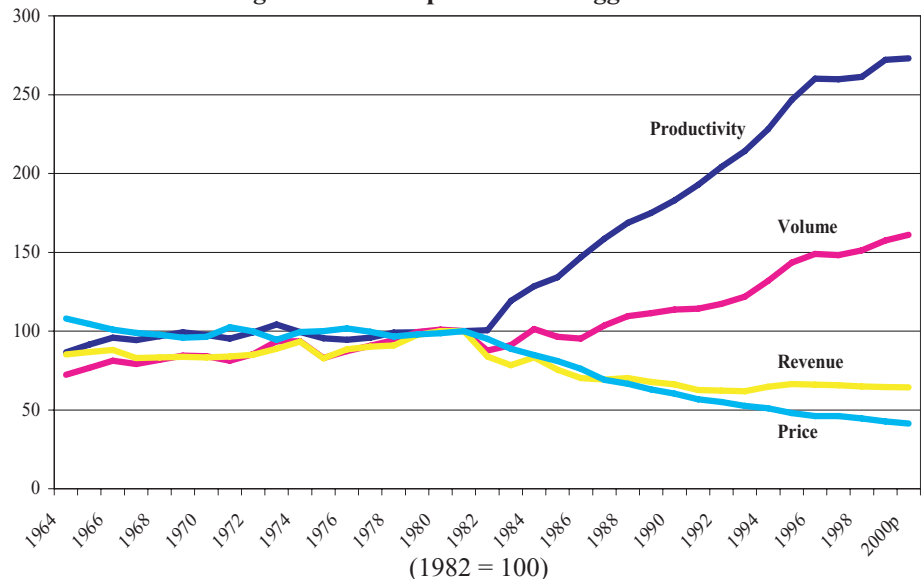
⁵ U.S. Government Accounting Office (GAO), “Railroad Regulation: Changes in Railroad Rates and Service Quality Since 1990,” April 1999: 47.

⁶ STB OEEAA, “Rail Rates Continue Multi-Year Decline,” December 2000.

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past 20 years. According to rate information from the World Bank, the American shipping community enjoys lower per-ton mile rates than shippers in almost any other country.⁷ As Figure 1 illustrates, simultaneous with the reduction in most railroad rates, railroad productivity increased significantly as railroads discovered more efficient methods to transport traffic.⁸

Figure 1: The Impact of the Staggers Act



As I will discuss later, the railroads have yet to achieve a return on capital equal to their cost of capital. Even during our recent long economic expansion, the railroads remained revenue inadequate. Yet the Staggers Act achieved its principal goal. It transformed the American railroad system from an ailing industry, with numerous railroads in or near bankruptcy, into an industry where the threat of total financial collapse is no longer looming.

Proposed Legislation

Despite the success of the Staggers Act, some shipper groups seek legislation that would impose new regulation on the industry. This legislation threatens to put the railroads at risk of another financial collapse. I will discuss the two principal types of proposals: “open access” and “bottleneck rate” proposals.

“Open Access”: The basic concept behind all open access propos-

⁷ See the World Bank’s Railway Database, <http://www.worldbank.org/html/fpd/transport/rail/rdb.htm>.

⁸ The source for Figure 1 is regulatory information provided by the railroads and collected by the Association of American Railroads (the AAR). “Revenue” is defined as constant dollar operating revenue; “Productivity” is defined as Revenue ton-miles per constant dollar operating expense; “Volume” is defined as Revenue ton-miles; and “Price” is defined as revenue per ton-mile. All variables are indexed so that 1981 equals 100.

als is to artificially increase competition for shippers now served by only one railroad. The proposals would force railroads to let competing railroads serve the captive customer. Open access can take many different forms, from forcing railroads to haul traffic for each other to permitting competing railroads to operate on each other's lines. Currently, the STB will authorize forced access only when the serving railroad is engaged in anticompetitive conduct.⁹ Thus, if a railroad takes advantage of its market power to act in an anticompetitive manner, the STB may remedy the situation by permitting a competing railroad to serve the captive shipper. Some proposals now pending in Congress would remove this prerequisite finding of anticompetitive conduct. For example, Senator John Rockefeller (D-WV) recently introduced S. 1103, the "Railroad Competition Act of 2001." That bill would amend federal law to specify that the STB "shall" (rather than may) require that terminal facilities, including mainline tracks, and be used by another rail carrier if practicable and in the public interest. The proposed regulation prohibits the STB from requiring a showing of anticompetitive conduct before evoking the "open access" provision. This proposal would force the railroads to permit competing railroads to use their tracks and terminal facilities (presumably for a regulated access fee) to reach customers on their networks.

"Bottleneck Rates": Shippers also seek to lower transportation rates by forcing railroads to offer "bottleneck rates." Under the proposed regulations, a railroad is required to offer rates for movements between any two points on the railroad's network where traffic originates, terminates, or may reasonably be interchanged. Under the current regime, the railroad might only offer a single rate for the entire movement, which would include both the bottleneck segment and the remainder of the movement that is served by multiple railroads. The proposed regulation would force a railroad to offer a rate for shipments from a captive shipper to the closest interchange point. The shipper could then challenge this "bottleneck rate" before the Board. Shippers unsuccessfully sought this "bottleneck rate" regulation (a form of network unbundling) from the STB in 1996, but several pending bills would require it. Currently, a railroad must offer a transportation rate between a terminal point and an interchange junction only if the shipper has a valid contract in place with another carrier for the remainder of the movement.

The pending legislation would further unbundle railroad transportation services. For example, the recently proposed H.R. 141, sponsored by Rep. James Oberstar (D-MN), contains a bottleneck rate provision that would, in effect, require railroads to quote rates for any shipments over the so-called "bottleneck" segment of track between the shipper or receiver that is exclusively served by the railroad and the nearest point of connection with a competing railroad. This rate would be subject to regulation under the stand-alone cost test or other forms of rate regulation.

⁹ See 49 U.S.C. § 11102; *MidTec Paper Corp. v. ICC*, 857 F.2d 1487 (D.C. Cir. 1988).

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The Danger of Open Access Regulation

For several reasons, “open access” regulation would create a disincentive for investment by the railroad that owns a given track. First, competition from competing railroads would drive rail rate prices down toward variable costs. The railroad that owned the infrastructure would be required to share it with its competitors and no capacity constraints would prevent the competitor from winning 100 percent of the traffic previously handled by the owner. Under conditions of competition where significant fixed and sunk costs exist, as in the railroad industry, entry of a new head-to-head competitor will drive the revenue to variable cost (R/VC) ratio downward toward 100 percent.

These decreased rates and net revenues would cut back investment incentives for the railroads. If the railroads recover only their variable costs but do not recover their fixed and common costs, they will not earn a market return on their investments. If they fail to earn a market return, the railroads will reduce investment. Furthermore, the expected regulatory battles over the correct way to set the cost-based rates would increase the uncertainty hanging over the railroad industry.¹⁰ This increased uncertainty would also reduce incentives for investment by the industry.

Second, open access would force the STB to regulate the access rate charged by railroads. Presumably, the STB would adopt the same cost-based compensation approach used to calculate “reasonable” transportation rates. But cost-based compensation for “open access” would not allow railroads to obtain a market-based return on investments. This is true because the approach fails to account for how uncertainty of future economic conditions reduces the expected return on sunk investments.

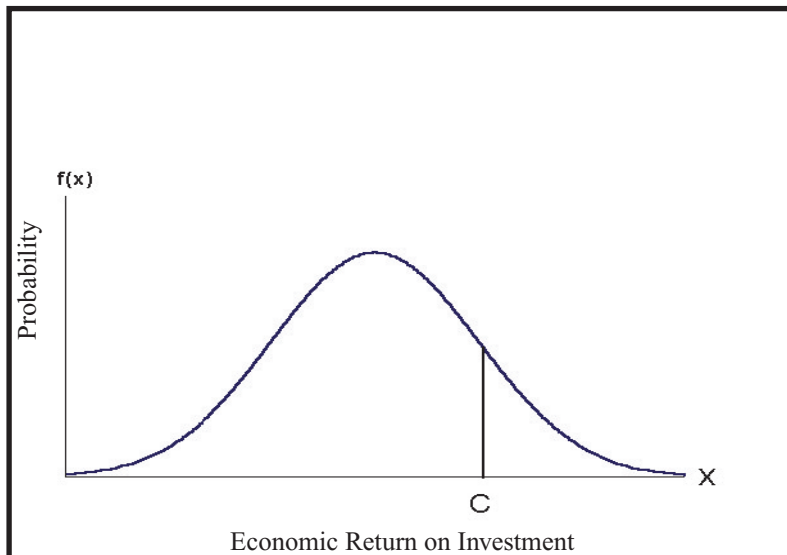
In an industry with significant sunk costs, cost-based pricing of the type used by the STB has an especially large adverse effect on investment because of uncertainty over future economic conditions. Much railroad investment is sunk and irreversible. If economic conditions take a turn for the worse — for example, an unexpected and significant decrease in demand for rail services — the sunk investments cannot be sold for use in another industry, nor can they be used elsewhere. But cost-based regulation, with sharing of railroad facilities, places an upside limit on economic returns to an investment. Thus, while there exists a limit on the upside of the (probability) distribution of potential economic returns due to the effect of regulation, no floor exists on downside outcomes due to the existence of sunk costs. The result is an asymmetric and truncated probability distribution of returns as shown in Figure 2, where C represents the limit on the potential upside in economic returns. Unless the access price accounts for this regulation-induced truncation effect, open access regulation will dimin-

¹⁰ The FCC’s method of setting cost-based rates for local exchange companies is still being litigated five years after the FCC’s initial decision in 1996.

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ish the railroads' incentives for further sunk investment, such as in new tracks, bridges, tunnels, and terminals, by failing to permit the railroads to achieve a market return on those investments.¹¹

Figure 2: Distribution of Returns for an Investment with Sunk Costs



This truncation effect will also retard the introduction of new technology in the railroad industry, because of the significant uncertainty related to the introduction of new technology. New information technology (IT) and communications systems have the potential for improving service and equipment utilization, and for changing the way shippers arrange for transportation (e.g., e-commerce). IT systems are largely software based and are almost all sunk costs, in that they are railroad industry specific, and the investment cannot be recovered by using the IT systems in another industry. Cost-based regulation is an especially large disincentive on this type of sunk investment.

Cost-based regulation with extended depreciation schedules also significantly discourages investment in new technologies by regulated companies. Regulators can use extended depreciation schedules as a method to hold down prices. The longer the period of capital recovery, the less severe the effect on current prices. But cost-based regulated firms are averse to investing in new technology because their old investments have not yet been recovered and the companies know they are unlikely to recover their new investments. The regulatory history of the telephone industry in the 1970s and 1980s demonstrates this point. Telephone companies did not invest initially in digital PBXs and digital switches because their older analog switches had very long regulatory depreciation lives (20 years). More

¹¹ This effect of regulation due to the presence of sunk and irreversible investment can be quite large as I have demonstrated in the context of telecommunications. See J. Hausman, "Valuation and the Effect of Regulation on New Services in Telecommunications," *Brookings Papers on Economic Activity: Microeconomics*, Kluwer Academic Publishers: 1997; "The Effect of Sunk Costs in Telecommunication Regulation," in J. Alleman and E. Noam, eds., *The New Investment Theory of Real Options and its Implications for Telecommunications Economics*, Kluwer Academic Publishers: 1999, and "Regulated Costs and Prices in Telecommunications," forthcoming in *International Handbook of Telecommunications*, 2001.

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recently, the Federal Communication Commission (FCC) adopted this type of “open access” policy for local telephone companies, setting cost-based rates. The FCC’s approach neglects to account for the effect of sunk and irreversible investments and is currently suppressing investment in the telephone industry.¹² The same problem, ignoring the sunk nature of railroad investments, already exists with the current methodology used by the STB to simulate a contestable market rate, and “open access” regulation would compound the problem.

An additional problem arises because “open access” regulation decreases competitors’ incentive to invest.¹³ If a competitor faces a “make or buy” decision and a regulatory agency offers the use of an investment at a cost that does not account for the significant uncertainty regarding sunk investments, most companies will decide not to take the risk of investment. Instead, they will use their competitor’s network to provide the needed resources. This outcome is becoming apparent again in telecommunications. While competitors invest in equipment such as switches in the mobile telephone market, where no regulatory sharing takes place, they are not investing in similar equipment in the fixed line telephone market where “open access” is compelled.¹⁴ The FCC’s regulatory approach gives telecommunications competitors a “free option” that decreases their incentives to invest in their own networks. Similar regulatory grants of “free options” in the railroad industry would decrease railroads’ incentives to invest in their networks, deferring maintenance and capital improvement, which would deteriorate, not improve, service.

Consider how open access regulation might affect the situation of the eastern coal mines. Many pockets of coal mines in the East are served by a single railroad, in many instances either CSX or Norfolk Southern. Without open access regulation, both CSX and Norfolk Southern have powerful economic incentives to build into these captive regions if the economic conditions support the new investment. We are witnessing such a build-in by the Dakota, Minnesota & Eastern Railroad (DM&E) into the Powder River Basin coal region in Wyoming.¹⁵ If, however, the “open access” regulations currently before Congress are adopted, CSX and NS would have no incentive to make the substantial sunk investments in tracks, tunnels, ties, and other facilities to serve the Eastern coal mines. Instead, they would just demand access to the coal mines over their competitor’s tracks. “Open access,” while perhaps providing captive eastern coal mines with access to

¹² See R. Crandall and J. Hausman, “Competition in U.S. Telecommunications Services Three Years After the 1996 Act,” in S. Peltzman and C. Winston, *Deregulation in Network Industries*, AEI-Brookings Joint Center on Regulatory Studies, Washington, D.C.: 2000.

¹³ For a discussion see Hausman and Sidak, *op. cit.*

¹⁴ See R. Crandall and J. Hausman, “Competition in U.S. Telecommunications Services Three Years After the 1996 Act,” *op. cit.*

¹⁵ See STB Docket No. 33407, Dakota, Minnesota & E. R.R. Corp. Construction into the Powder River Basin; decision served 10 December 1998 (approving build-in subject to environmental impact review process); see also Frank N. Wilner, “DM&E Chugs Forward, (Dakota, Minnesota, and Eastern Railroad plans to expand into Wyoming for coal),” *Traffic World* (28 May 2001).

a second railroad, would deny the mines the new investment that would accompany a build-in by CSX or NS. The mines would lose the extra capacity to handle future increased demands without risk of congestion.

The Danger of Bottleneck Legislation

Establishment of “bottleneck” rates using an approach similar to the STB’s “stand-alone” cost test would decrease railroad incentive to invest. The STB’s stand-alone test relies on the “contestability” model of economics. (The contestability model assumes that “hit and run” entry is possible so that a new competitor can costlessly enter a market when prices are high and costlessly exit the market if prices decrease.) This economic model, however, is inapplicable where significant sunk and irreversible investment takes place in an environment of uncertainty. Economic research over the past 15 years has demonstrated that uncertain outcomes have a significant effect on investment incentives when assets are sunk. But the contestability approach assumes that investments are fixed, not sunk.¹⁶ The STB’s regulatory approach does not, therefore, properly account for the effect of a lack of barriers to entry and exit when sunk costs are present. Economists now realize that the common contestability approach is incorrect in the presence of sunk and irreversible investment.¹⁷ As a result, the simulated price is too low when the sunk nature of rail assets is ignored.

But even if the STB’s stand-alone cost approach were correct, establishment of bottleneck rates would have the effect of decreasing rates significantly, depriving the railroads of funds essential for investment. I would expect revenue to variable cost (R/VC) ratios to decrease to far below 180 percent for “bottleneck traffic” on the non-bottleneck segments. (The 180 percent level is the statutory limit under which railroads can set rates without regulatory review.) Indeed, I would expect R/VC ratios to be much nearer to 100 percent. Economic analysis demonstrates that when two or more firms are selling a homogeneous product without capacity constraints, price tends to be driven down toward variable cost by competition. The competitors have the economic incentive to continue to lower price as long as it covers its out-of-pocket costs.¹⁸ The railroads estimated a few years ago that bottleneck regulations would reduce their net revenues by \$2.4 billion annually, cutting investment and curtailing service.

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¹⁶See e.g. A. Dixit and R. Pindyck, “Investment Under Uncertainty,” Princeton University Press, 1994, for numerous references to the literature. See also J. Hausman, “The Effect of Sunk Costs in Telecommunication Regulation,” in J. Alleman and E. Noam, eds, *The New Investment Theory of Real Options and its Implications for Telecommunications Economics*, Kluwer Academic Publishing: 1999.

¹⁷See footnote 11 where I discuss my previous research. Prof. Baumol has also realized the importance of sunk costs and uncertainty in these situations contrary to his previous recommendations of using “total service long run incremental cost.” See W. Baumol, “Option Value Analysis and Telephone Access Charges,” in J. Alleman and E. Noam, eds, *The New Investment Theory of Real Options and its Implications for Telecommunications Economics*, Kluwer Academic Publishing: 1999.

¹⁸Overall, railroad movements are very heterogeneous depending on the type of shipment. However, for a given shipment, two or more railroads would be competing over the same (or similar) shipments, which would be competition for a homogeneous shipment.

Note that in non-regulated markets competitors realize that they have to cover their fixed and sunk costs, so they do not decrease prices down to variable cost in most circumstances. However, given the proposed regulations the new entrant who uses the “bottleneck facilities” will not have fixed and sunk costs to cover since only the incumbent railroad would have made an investment in the bottleneck facilities. Thus, the new entrant will have the economic incentive to lower prices to variable costs.

UK Experience: A Regulatory Disaster in the Making

The current situation in Britain illustrates the danger of deterring investment when regulators force railroads to un-bundle railroad services.

The current situation in Britain illustrates the danger of deterring investment when regulators force railroads to un-bundle railroad services. In 1996, the British government privatized the government-run British Rail. British Rail was a passenger-based railroad with significant amounts of freight traffic that required significant government subsidies. The move to privatize likely improved British Rail’s previous performance. I will not compare the pre and post-privatization performance. Instead, what I will concentrate on is the form of privatization and subsequent regulation.

The British government vertically dis-integrated British Rail. Rail-track, a regulated monopoly provider of trackage service, was formed, as were a number of separate passenger and freight operator companies that would buy access service from Railtrack. This form of privatization differs significantly from that of other British industries, such as the telecommunications industry, where British Telecom (BT) was privatized and regulated but was allowed to continue to provide a full range of services as a vertically integrated company. Indeed, the transition to greater competition in telecommunications has retained vertical integration in all countries, although some countries have required network unbundling at regulated rates, e.g., the United States.¹⁹ Here I focus on whether the framework of vertical dis-integration and formation of Railtrack has proven to be a good idea.

The answer to date is no. A regulatory authority has established cost-based prices for Railtrack in the usual regulatory manner. The approach is a mixture of traditional rate of return (ROR) regulation used in the U.S. for many decades and more modern incentive-based regulation. The major problem with the vertically disintegrated structure, however, is that Rail-track provides no service to the final customer. Its financial performance is only indirectly affected by the quality of its service through regulation. Thus, Railtrack has the economic incentive to minimize its costs subject to a minimum quality constraint. The downstream operators, of course, want the best quality performance at the lowest price, while the British regulators can only exhort Railtrack to improve its quality of service.

¹⁹ I have done significant academic research in this area. For a review see J. Hausman, “Regulated Costs and Prices in Telecommunications,” op. cit.

Railtrack is presently unable to raise the necessary funds to maintain and modernize its network. Up until early 2001, its stock had traded in a range of £10-£12, well above its initial post-privatization price of £3.90. Indeed, many politicians claimed that Railtrack had been given too good a deal with its stock price significantly above the initial market price. This year, however, the stock price has decreased to about £3.10, with a current market capitalization of approximately £2.2 billion. Railtrack has been dropped from the FTSE 100 and is suffering severe financial problems.

The head of Britain's Office of the Rail Regulator, called "the Regulator," has recognized the absence of economic incentives for Railtrack to invest and has stated that "[e]veryone accepts that the railway industry has been starved of long-term investment."²⁰ But with a stock price-to-book value ratio ("Tobin's q") of about 0.8, new investment would seem highly questionable, since average q is less than one.²¹ Railtrack is currently worth (including debt) about £2.2 billion while it needs to raise approximately £4.3 billion to meet its investment costs. Railtrack seems unable to raise the required investment funds such that the government may need to intercede to provide them. The Labor government has rejected calls for partial or complete re-nationalization, at least for now. Bankruptcy as a possible outcome has received increasing attention in the financial press over the past few months.

The consequences of this lack of investment have been clear and tragic. Five years after the privatization of British Rail, the Office of the Rail Regulator identified two specific concerns about track quality: a downward trend in the quality of track, and a significant increase in the incidence of broken rails over the previous two years.²²

A number of serious and fatal accidents soon followed. In October of 2000, a broken rail caused a crash in Hatfield that killed four people. Afterwards, Railtrack imposed more than a thousand slow orders as it carefully checked its tracks for other similar deficiencies. Passengers and freight trains experienced frustrating delays, until the Association of Train Operating Companies filed a complaint with the Rail Regulator alleging a breach of Railtrack's network license agreements.

Unsatisfied with Railtrack's attempts to restore its network to satisfactory condition, the Office of the Rail Regulator was recently forced to

²⁰ Tom Windsor, "Creating an Investment-Friendly Environment," Office of the Rail Regulator, 11 July 2001, <http://www.rail-reg.gov.uk/speeches/speech11jul.pdf>. Mr. Windsor is the government regulator of Railtrack.

²¹ Marginal q could be greater than 1.0, but the market response would indicate otherwise. With q less than one, investment increases market value by less than the value of the investment. Thus, the company would be better off returning the investment amounts to its stockholders through a stock repurchase plan. Otherwise, new investment lowers the value of the company.

²² See Railtrack's *Stewardship of the Network*, § 4.1 (Track quality), 1999. The report stated that it "would appear to indicate that Railtrack's maintenance and renewal work is not keeping pace with the aging of the network and the growing volumes of traffic which have led to increased wear and tear."

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issue a provisional order that required Railtrack to provide a date certain when it would restore its network to normal operations. It further stated its intention to order Railtrack to establish and maintain a comprehensive and reliable register of its assets to avoid the disintegration of its network.²³

Railtrack has begun a number of new investment initiatives, such as a new West Coast high-speed line. Currently however, the future of these investments is in question. The Regulator has foregone the carrot approach of regulation and is now making heavy use of the stick with potential performance penalties of hundreds of million of pounds. It is unlikely that this approach will lead to the required investment.

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The decision to vertically dis-integrate British Rail is a major source of the current problem. While one can debate whether significant productive or transactional economies of scope exist, the failure of Railtrack to provide service to final customers creates an economic incentive problem that is difficult to solve through regulation. Congestion is an important factor that affects quality of service for railroads, and the interaction of the rail operators and Railtrack affects congestion. While a rail operator directly benefits from expenditures for improved quality of service, Railtrack receives, at best, an indirect benefit that regulation attempts to capture through ROR regulation. Further, it is often difficult to determine whether Railtrack or the rail operators are responsible for quality of service problems. Another layer of regulatory bureaucracy has been created to attempt to make such determinations.

But more regulation is unlikely to solve the problem. With severe and increasing service problems, and the inability and lack of economic incentives to finance new investment, Railtrack's problems are likely to grow worse. The British government's attempt to create a company to provide the "bottleneck" access service while regulating its return has not created an economic environment in which the private capital market is willing to finance the necessary investment to provide an acceptable level of service.

A Call for Congressional Caution

As the British example illustrates, ill-advised unbundling of railroad services can have serious and undesirable effects for the railroads, their customers, and the entire economy. If Congress is "asleep at the switch" and permits the proposed legislation to become law, it risks discarding the benefits of the Staggers Act. Railroads would likely follow the tracks of the Penn Central — a railroad the federal government rescued and restored to health, costing taxpayers billions of dollars, after regulation drove it into bankruptcy. While the financial health of the railroads has improved fol-

²³ Press Notice, Office of the Rail Regulator, "Regulator acts to improve Railtrack's weak network knowledge," 20 March 2001.

lowing the Staggers Act, the most recent financial performance of railroads and their very low stock prices demonstrates their financial position remains weak. It is unlikely they could survive in their current form without massive financial support from taxpayers should Congress act to unbundle railroad services through the proposed legislation.

Both the STB and investment analysts on Wall Street recognize that the railroads fail to earn a rate of return on investment equal to their cost of capital. Every year, the STB holds a proceeding where it closely examines the financial position of the Class I railroads to see if the railroads are “revenue adequate.” Historically, the STB has determined that most Class I railroads are revenue inadequate because they do not generate enough revenue to cover the industry’s cost of capital. For example, the STB’s 1998 Determination of Railroad Revenue Adequacy determined that the 1998 railroad industry’s costs of capital was 10.7%.²⁴ The STB found, however, that none of the four largest railroads’ return on investment exceeded the industry cost of capital. Indeed, the STB’s revenue adequacy determinations over the 11-year period from 1989 to 1999 have found that the two largest railroads’ return-on-investment matched or exceeded the industry cost of capital in only one year each. Over the 11-year period, the railroads have been below 75% of average revenue adequacy as determined by the STB.²⁵

The U.S. enjoyed a period of high economic prosperity in the 1990s, especially during the last five years. During this period, none of the major railroads has been revenue adequate in any individual year. The “revenue adequacy gap” also appeared to grow over this period, an especially disturbing development. The revenue adequacy goal of railroad regulation reform, as embodied in the Stagger Act and subsequent regulatory pronouncements, has not been satisfied.

Investors will not have an economic incentive to commit capital for replacement or new investment unless they expect to receive at least their (risk-adjusted) cost of capital. Today the railroads fail to meet that minimum expectation. Financial analysts on Wall Street uniformly agree that railroads are not recovering their cost of capital.²⁶ While railroad stocks have improved their performance since the very low prices reached in early 2000, their performance is still far below that of the S&P 500 over the past six years. Thus, using a variety of financial measures, railroads are not earning their cost of capital, and equity markets do not expect the railroads’ financial performance to improve significantly in the near term.

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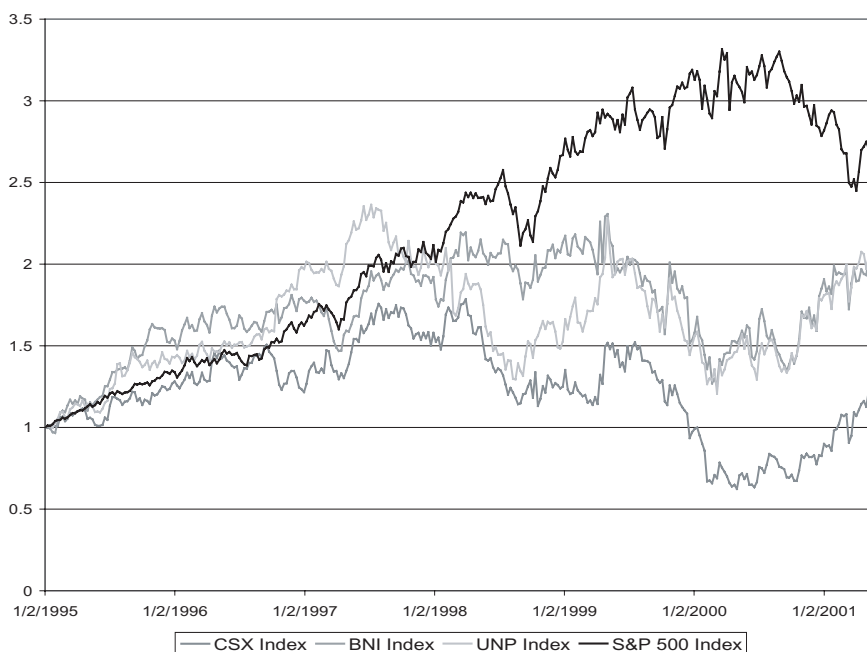
²⁴ STB Ex Parte No. 552 (Sub-No. 3), decided September 1, 1999.

²⁵ Revenue adequacy is defined to mean that a railroad earns the industry weighted average cost of capital for large railroads.

²⁶ See recent reports of Credit Suisse First Boston, Morgan Stanley, Brown Brothers Harriman, and others.

The current proposals for new regulations would inevitably lead to lower prices and lower returns on investment for the railroads, and ultimately poorer service.

Figure 3: Stock Price Performance
1/95-Present



The current proposals for new regulations would inevitably lead to lower prices and lower returns on investment for the railroads, and ultimately poorer service. Since there is widespread agreement that railroads are not currently earning their cost of capital, lower prices and lower returns on investment would decrease the economic incentive for further investment. Thus, the ability of the railroads to attract capital and reinvest in plants and improve levels of service would decrease. Indeed, the ability and incentive to maintain present levels of service to existing shippers may be placed in jeopardy because the economic benefits of replacement investment and investment to accommodate expected growth may not be forthcoming, given the low levels of expected returns.

Railroads will need significant replacement investment as well as new investment to serve expected growth. The railroads entered the period of deregulation with significant excess capacity. Growth over the past 20 years of over 50 percent in volume, as well as the rationalization of the railroad networks, has eliminated much of the excess capacity from the networks. Replacement investment is necessary to satisfy future growth. But the contemplated new regulations would lower rates and decrease the railroads' return on any new investments. As a recent GAO report on railroad regulation explicitly recognized, high quality rail service "involves trade-offs between investment and service."²⁷ Without adequate investment to respond to our growing economy, congestion will increase and service will suffer. This would be the legacy of the 107th Congress if it imposes "open access" regulation on the railroad industry.

²⁷ GAO, "Railroad Regulation: Changes in Railroad Rates and Service Quality Since 1990," April 1999: 73.

Conclusion

In the railroad industry, decades of regulation by the doctors at the ICC almost killed the patient. More recently, 20 years of deregulation led to decreasing real rates, increased output, increased productivity, and improved financial performance by the railroads. Railroads have not yet, however, achieved a level of financial health at which they can earn their cost of capital. Recent events have led to depressed stock prices for the major railroads.

Against this background, shippers propose new regulation they claim will improve service by artificially enhancing competition in the railroad industry. But the opposite will occur. “Open access” regulations would discourage investment by railroads, which would refuse to make sunk investments to improve tracks and terminals when competitors can free-ride on their investments, or when they can free-ride on the investment of others. Bottleneck rates will depress rates and reduce returns on investments that already fall below the industry cost of capital. Any attempt by Congress to unbundle railroad services will mean inadequate investment. Inadequate investment will lead to worse service (just look at Great Britain’s unfortunate experiences) than at present, which is precisely the opposite of what both the shippers and the railroads desire.

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