RAILROAD DEREGULATION

The Track Record

Christopher C. Barnekov

OVER THE SIX DECADE period 1920 to 1980, the U.S. railroad industry was in a state of decline. By the late 1970s, rail rates were rising faster than inflation. Service quality, already poor, was deteriorating. Several major railroads were in bankruptcy, and several more were on the brink of collapse. Accidents caused by poorly maintained track were increasing at an alarming rate. There was serious talk of nationalizing the rail system. Despite federal subsidies of many billions of dollars, the future of the industry was bleak.

Since the passage of the Staggers Rail Act in 1980, which largely deregulated the railroads, there has been a dramatic reversal of trends. Operating expenses as well as federal subsidies are down sharply. (Subsidies to freight railroads fell from over a half billion dollars in 1980 to $66 million in 1985.) Rate increases have slowed and service quality has improved. Although some carriers are still struggling, the industry as a whole is much stronger today. The deterioration of the railroad industry appears to have been arrested.

Deregulation has resulted in substantial benefits for railroads as well as for most shippers, consumers, and taxpayers. These benefits derive principally from the increased commercial freedom of railroads to operate more like other businesses. At the same time, railroads have become subject to greater competition for most of their traffic. Whether the railroad industry becomes vigorous again or resumes its long-term decline will be largely determined by whether it continues to enjoy increasing commercial freedom.

In 1986, Congress came within a hair of reimposing many of the restrictive rules which had caused the railroads' long-term decline. Key members of Congress have announced their intention to push for reregulation in 1987. It is critical, therefore, to assess the impact of the first five years of railroad deregulation.

Benefits for Shippers and Consumers

Most shippers and consumers have benefited substantially from railroad deregulation. Rail rates are significantly lower than they would have been in the absence of deregulation, and service quality appears to have improved.

One indication of the improvement in both rates and service quality is that shippers are no longer abandoning rail service for other transport modes. Measured in ton-miles (a ton-mile is one ton moved one mile), rail traffic share fell from 75 percent in the 1920s to 36 percent in the late 1970s. By 1985, rail traffic share had stabilized at about 37 percent. This is impressive in light of the more intense competition from

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trucks in recent years. Motor carrier deregulation, which was also enacted in 1980, has resulted in a sharp increase in the number of competing motor carriers and a significant decline in motor carrier rates, particularly for large shipments which can move by rail. Motor carrier service has become faster, more flexible, and more reliable. Evidently, the railroads have withstood a strong challenge since 1980.

Rate Increases Slowed. It is not easy to summarize how deregulation has affected rail rates. There are thousands of individual rates to consider, and the nature of rail service is changing profoundly. The two basic approaches are to use an index based on a sample of individual shipments or to use a broad, aggregate measure such as average revenue per ton or per ton-mile. Neither approach is entirely satisfactory in a period such as this when fundamental changes are being made in the way the industry does business.

Consider the way traffic is moved, and the effect this can have on costs and rates. A railroad that has 1,000 carloads of a commodity to be moved 1,000 miles will find that its costs are much lower if this freight can be moved in 40- or 60-car shipments than if each carload must be shipped separately. Costs will be lower if the railroad knows well in advance how much traffic to expect and when to expect it; equipment can be put in place and personnel made available. And costs will be even lower if there are efficient loading and unloading facilities available.

Before 1980, it was almost impossible for cost differences such as these to be reflected fully in rates. A railroad had to be able to prove before the Interstate Commerce Commission (ICC), according to court-like rules of evidence, that each rate difference was justified by cost differences. This was extremely difficult and involved a lengthy and costly process. Even when differences in economic costs were very real, they did not necessarily show up in regulatory accounting systems. Under the Staggers Act, railroads have been permitted, for the first time in decades, to base their rates on actual economic costs of individual movements. Shippers can now receive rate reductions in exchange for moving their traffic in a less costly manner.

Contracting between railroads and individual shippers, generally unlawful before 1980, is another important change in the way railroads are doing business. Rather than having to ignore differences among shippers, railroads can now tailor service and rates to the needs and circumstances of individual shippers. Contracting also makes feasible investments in efficient loading and unloading facilities. Before 1980, neither shippers nor the railroads were eager to make investments in such facilities, even though doing so could substantially reduce costs. If the railroad made the investment, it had no assurance that the shipper would continue to use its services. If the shipper made the investment, there was no assurance that the railroad would not raise rates once his capital costs were "sunk." Regulatory remedies were costly, slow, awkward, and uncertain. Today, a long-term agreement can be negotiated to protect the interests of both parties.

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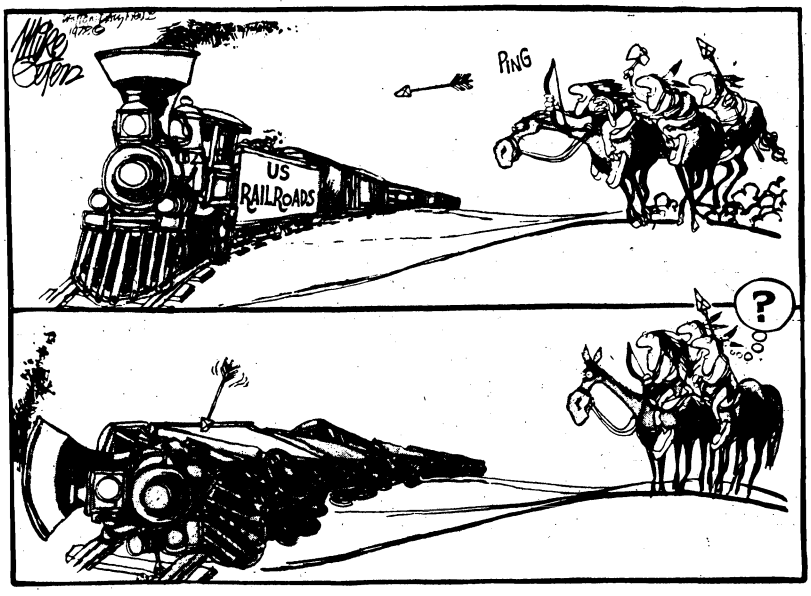
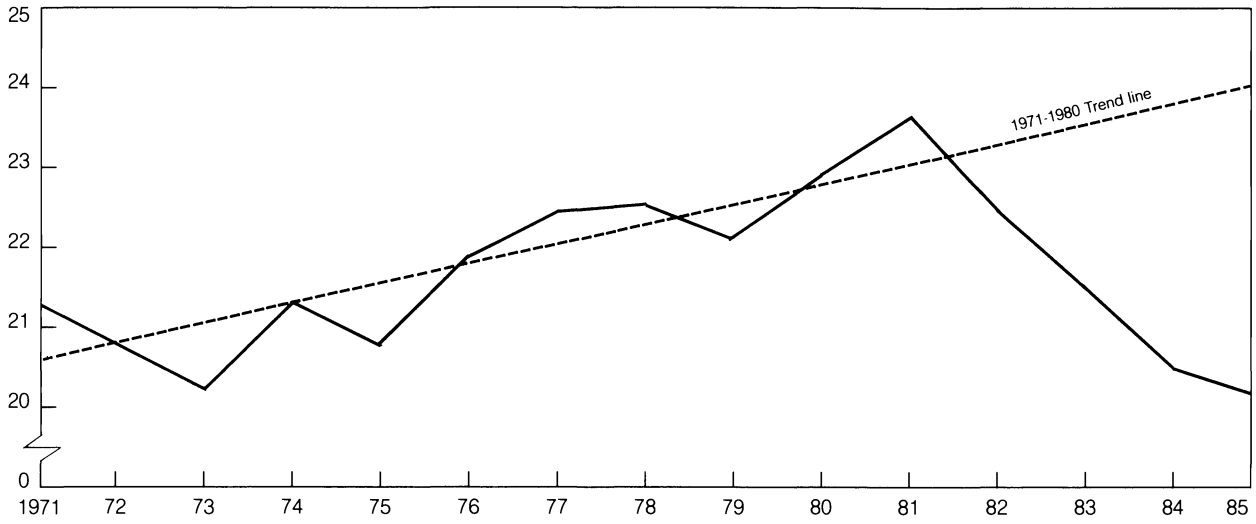


In this less regulated environment, shippers and railroads are working together to reduce shipping costs in ways not permitted before 1980. As a result, rail traffic (the composition of which has changed only slightly since 1980) is often being moved in a different and more efficient manner. This suggests that traditional measures of rail rates must be interpreted with great care.

According to the Bureau of Labor Statistics (BLS), which publishes the best known rail rate index, nominal rail rates

FIGURE 1
Revenue Per Ton In Constant 1985 Dollars



Source: Data derived from annual editions of *Railroad Facts*, Association of American Railroads

rose 31.6 percent between 1980 and 1985, or just about the same as the overall price level (30.4 percent, as measured by the GNP deflator). While this may seem impressive—rail rates substantially outpaced the rate of inflation during most of the 1970s—the actual increase in rates was much lower. If the "typical" rate had risen this much, freight revenues would have been about $32 billion in 1985. In fact, they were less than $27 billion.

The problem is that the BLS index is based on a fixed sample of freight movements which is no longer representative. For example, by 1985, 63 percent of coal and 57 percent of grain shipments were moving under contracts, most of which had been negotiated since the BLS sample was last updated. Moreover, if a particular movement disappears because it has been replaced with a more efficient movement at a lower rate, the BLS index does not capture the initial rate reduction; the index only picks up subsequent reductions in the new rate. This BLS methodology is appropriate for the index's purpose (measuring inflation). It is not very helpful, however, for measuring the effects of a policy change which was intended to allow railroads to make their operations more efficient, in large part by changing the manner in which they handled freight movements. In fact, the BLS methodology is specifically designed to exclude the effects of such changes.

Studies of grain rates tend to confirm that the BLS index now overstates rail rates. Whereas the BLS index shows rail rates for grain rose 31 percent between 1980 and 1985, a study commissioned by the Association of American Railroads concludes that these rates actually *fell* 26 percent. In another study, pertaining to Kansas wheat shipments, tariff rates to Gulf ports were found to have declined 34 percent, and contract rates (which now account for nearly 90 percent of these movements) were found to have declined an additional 10 to 15 percent. Although this study focused on Kansas wheat, the results are probably representative of other midwestern grains as well. With the volume transported roughly the same, and shipments moving from the same origins to the same destinations, evidently grain is moving much more efficiently.

In a changing business environment such as characterizes the railroad industry today, it is more reliable to measure changes in rail rates using aggregate data. Figure 1 shows average revenues per ton of freight in 1985 dollars (adjusted by the GNP deflator) for the period 1971 to 1985. Notice the steady upward trend throughout the 1970s, the peak in 1981, and the sharp decline after 1981. Part of the sharp drop in 1982 and 1983 reflects the recession and the accompanying decline in demand for rail transportation. Nevertheless, as revealed in the figure, real average revenues declined throughout the recovery.

not quite clear

The decline in average revenues per ton cannot be explained by changes in the length of haul. Average length of haul rose slightly, and this should have put upward pressure on revenues per ton. Nor does it reflect simply a shift in commodity composition of rail traffic. Average rates declined for individual commodities. For coal, average revenues per ton peaked in 1981 at $13.63 (in 1985 dollars) and declined to $12.18 per ton by 1985. For farm products, the peak occurred in 1980 at $23.41 per ton (in 1985 dollars) and by 1985 average revenues per ton had fallen to $15.57. The pattern is similar for other major commodity groups.

Service Quality Improved. From a shipper's viewpoint, the quality of transportation services is reflected in overall logistics costs: rail rates, or transportation costs, plus the costs associated with loading and unloading, warehousing, maintaining inventories, and the like. Slow or unreliable service raises logistics costs by forcing the shipper or receiver to maintain larger inventories. Non-transportation costs are significant, amounting to roughly 40 percent of total U.S. logistics costs.

The railroads' greater flexibility to negotiate rate and service agreements has promoted better service and, in so doing, has resulted in lower overall logistics costs for individual shippers. Under the old system, railroads were required to treat all shippers alike, despite often important differences in the shippers' circumstances and requirements. Shippers could not implement "just in time" or similar low inventory strategies because delivery times were not reliable. They often complained of railroad managements' "take-it-or-leave-it" attitude in refusing to customize service. This attitude was a natural result of regulatory restrictions on offering one shipper different, and perhaps better, service than another. The ICC's Office of Compliance and Consumer Protection actively prosecuted railroads and shippers suspected of "tariff defeats"—providing extra services or failing to collect full charges. (Extra services were sometimes regarded as a form of price-cutting below approved tariffs.)

Today, with contracting freedom and much greater rate flexibility, railroads can, and do, negotiate both rates and service with individual shippers. A railroad is free to negotiate a contract which provides for guaranteed on-time delivery, or for incentives for timely service, or for other ancillary services. In other words, a railroad is in approximately the same position as any other business in making agreements with its customers. Largely as a result of greater flexibility and reliability in rail service, shippers have been able to reduce inventory and warehousing costs. Overall logistics costs fell from 14.2 percent of GNP in 1980 to only 11.3 percent in 1985, a difference amounting to just over $100 billion annually. While roughly one-third of these savings can be attributed to lower interest rates (which lowered the cost of holding inventories), the balance is due, in about equal measure, to lower shipping costs and smaller inventories.

Another important change is that regulatory barriers to coordination between railroads and other carriers have been gradually removed. Artificial boundaries, intended largely to limit competition, made rail-truck interchange and coordination awkward and inefficient. As a result of deregulation, it is becoming more feasible for intermodal carriers to draw on the railroads' advantage in long-distance linehaul movements and the trucks' greater flexibility for local pickup and delivery. The result is an integrated transportation service which is cheaper, faster, and more reliable.

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Enhanced Competition. Deregulation has intensified competition among railroads and shippers, with benefits accruing to producers and consumers alike. One of the features of the previous regulatory system was that it tended to equalize the rates paid by various shippers. Because of (congressionally inspired) ICC policy and the regulatory accounting system, which relied on cost allocations derived from broad averaging techniques, shippers often paid the same rates even when the cost of serving them differed significantly. The result was inadequate incentives to move traffic in the most efficient way.

The two most important applications of this equalization policy involved movements through

ocean ports and movements of grain. In order to limit competition among ports, railroads were often required to charge the same rate for a shipment regardless of which ports it was being moved to or from. Obviously, this did not encourage the selection of efficient routes. The higher costs were borne by producers and consumers of the goods involved.

The lower transport costs, which benefit farmers and grain consumers, are made possible by the increased rate flexibility permitted under deregulation.

A similar situation prevailed with respect to grain movements. Grain is typically collected by grain elevators, which purchase grain from farmers, store it, and then move it to market by rail or truck. Some grain elevators are large, modern, efficient facilities. Railroads can serve these facilities at very low cost because entire trains can be loaded quickly. Other grain elevators are smaller, older facilities which can handle only one or a few railcars at a time, which is very costly for railroads. Until recently, railroads were permitted to offer somewhat lower rates for multi-car movements from the larger elevators, but these rates did not fully reflect the lower costs of such movements. The excess transportation costs were absorbed by farmers and grain purchasers.

Today, railroads are being permitted to negotiate rates with individual grain elevators. Consequently, rates for the more efficient elevators reflect the lower cost of serving them. These elevators, in turn, are able to offer better prices to farmers. Increasingly, grain is bypassing the small, local elevators and being taken directly to the newer, larger facilities. More efficient grain movements account for much of the substantial decline in the cost of shipping grain noted above. The lower transport costs, which benefit farmers and grain consumers, are made possible by the increased rate flexibility permitted under deregulation.

Contract rates and terms, it should be noted, are confidential, and this sharpens rate competition among railroads. Under the old system, each railroad knew its competitors' published rates, and knew that no discounts were permitted. Each railroad also knew that its competitors would have advance knowledge of any proposed rate reductions. This inhibited rate competition. Today, with contract terms kept confidential, railroads have more incentive to seek out efficient methods of moving traffic in the hope of under-pricing the competition and capturing more traffic.

Competition among grain merchants and ports has also been intensified by the system of confidential contracts. Parties all along the distribution chain no longer have to reveal their transport costs to their competitors, and more efficient firms no longer have to pay rates held up to protect less efficient competitors. The result is a more competitive and more efficient grain marketing system. As evidence of this, the spread between destination-market prices for grain and prices paid to farmers has fallen sharply since 1980.

Although grain producers and consumers have benefited greatly from these developments, some of the older, less efficient grain elevator operators clearly have been harmed. Without the protection of the rate equalization policy, they have lost business to the more efficient elevators. Not surprisingly, political pressure is coming to bear from local grain elevators—a strong political force in the farm states—to restore rate equalization. In 1986, Congress required the ICC to restrict contract confidentiality for farm products. Port interests adversely affected by the increased competition can also be expected to exert pressure if the opportunity arises.

Impact on Railroads

Despite prior expectations that deregulation would increase rail rates and revenues, quite the opposite happened. The sharp increase in competition among railroads and between railroads and trucks, brought a decline in railroad revenues by just over 25 percent in real terms between 1980 and 1985. Fortunately for the railroads, expenses fell somewhat more. Railroad operating expenses (in 1985 dollars) fell from $34.2 billion in 1980 to $25.2 billion in 1985, just over 26 percent in real terms, while traffic volume remained roughly constant. Profits actually rose slightly.

How have the railroads been able to reduce expenses so sharply given their notable lack of success before 1980? A good way to understand

what has happened is to imagine a business that is prevented from adjusting its prices to changing market conditions and from negotiating with customers. Furthermore, imagine that the business is not permitted to decide how much of its principal inputs to purchase, how much it will pay for them or even how to use them, and it may not decide where it will operate. Worse yet, imagine that it faces strong competitors who are not encumbered by similar constraints. It would be surprising if such a business survived at all. This is only a slight exaggeration of the railroads' position before 1980.

Increased Rate Flexibility. Before 1980, any particular rail rate was largely the product of historical accident. Changes in relative rates had to be justified before the ICC, and the railroads were required to prove that any differences in rates were based on cost differences. The process was slow and costly, the burden of proof was difficult to meet, and the way in which costs were measured was seriously flawed.

Rates could not be adjusted to short-term market fluctuations because, except for general rate increases, rate cases typically required several years to resolve. This problem was unavoidable given that our regulatory system operates with guarantees of "due process of law" for all parties and relies on formal adjudication to resolve disputes. Procedural due process is necessarily slow, and necessarily ignores economically relevant information which cannot be demonstrated or evaluated formally. Railroads could not even offer short-term rate reductions during periods of slack demand because of the (well-founded) fear that they would not be able to raise them again when demand recovered. Rate-cutting railroads were also vulnerable to complaints from other shippers demanding similar rate concessions, even where market conditions differed. Informal discounts below list prices, common in other industries during slack periods, could bring prosecution of both the railroad and the shipper on felony charges.

In this regulatory environment, railroads typically resorted to across-the-board general rate increases when costs rose. As technology improved and traffic flows changed, rates naturally bore less and less resemblance to current cost patterns.

A more profound difficulty was that the costs used to justify rate changes were not actual economic costs but were costs derived by the ICC accounting system. This system was not necessarily inferior to other accounting systems which might have been used. Any such system must ignore many economically relevant factors which cannot be known to a central authority.

Railroads typically haul many commodities from many origins to many destinations; allocating costs to particular movements is not a straightforward task. The economic cost of a movement depends critically on the demand for other movements at the same time, and the output level of the rail plant involved in the particular movement. Neither of these factors can be captured in an accounting-based cost allocation system. Many other local or transitory factors also affect costs (such as track conditions, season, etc.) in ways that can not be recognized in an accounting-based system. The difficulty of cost allocation is widely recognized with respect to so-called "fully allocated costs." But even in the case of variable costs, accounting estimates need bear no close relationship to actual economic costs. From an economic perspective, rates based on accounting costs may as well be randomly set since they do not generate any systematic, accurate economic signals.

The railroads were in an impossible position: if rates were too high, they lost traffic to truckers; if rates were too low, they took a loss on their traffic.

The arbitrariness and inflexibility of rail rates placed the railroads at a real competitive disadvantage. While, in theory, motor carriers were bound by the same legal requirements as railroads, in practice, they were never regulated as strictly. The ICC was simply unable to review the hundreds of thousands of individual motor carrier tariffs filed annually. Motor carriers were also less likely to have rates or service challenged through the ICC complaint process since it was relatively easy for a dissatisfied shipper to switch motor carriers and more difficult to bring a complaint against one. In addition, some motor carriers had limited contract authority which permitted direct negotiations with individual shippers. As a result, motor carriers were frequently able to tailor their rates.

Under this system, railroads were merely the residual supplier of transportation. Truckers

were able to capture from the railroads any traffic for which ICC-estimated costs—and thus rail rates—were higher than actual economic costs (by truck). All they had to do was lower the rates. Railroads were left with only that traffic which could not be moved by truck or for which the ICC allocation process yielded rail rates at or below the economic cost of truck movement—rates at which there was no assurance that the railroads would earn a profit. The competitive advantage of trucks was bolstered by the construction of the interstate highway system, which greatly reduced trucking costs and made motor carrier service faster and more reliable.

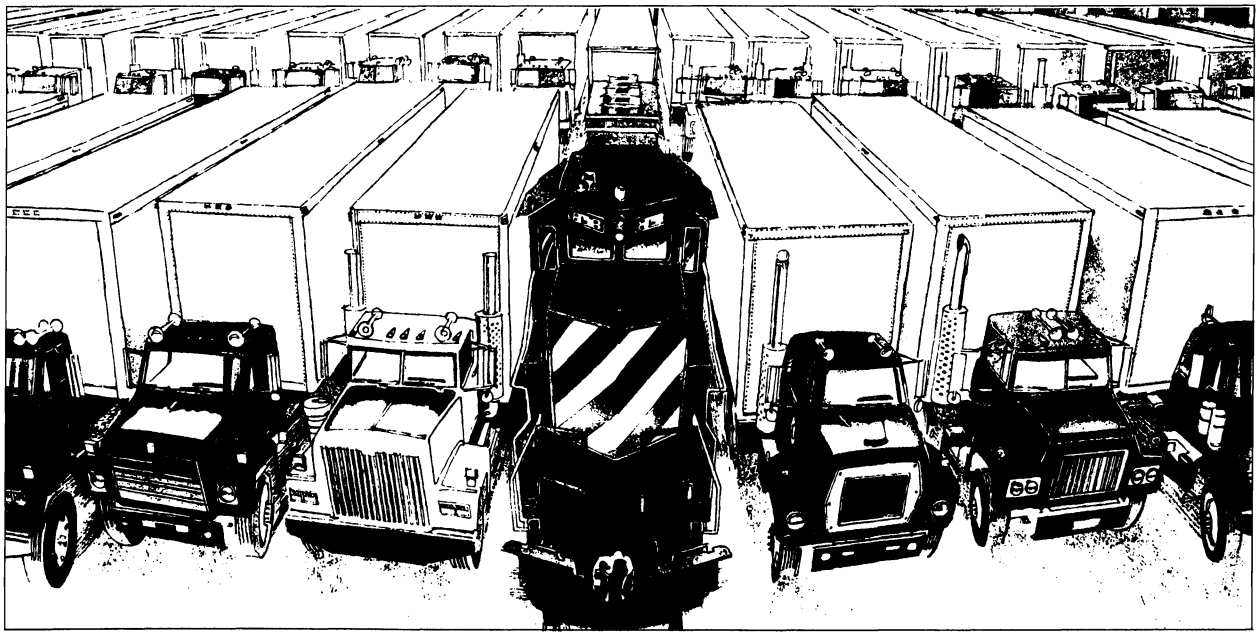
The railroads were in an impossible position: if rates were too high, they lost traffic to truckers; if rates were too low, they took a loss on their traffic. The resulting erosion of the rail traffic base worked through the regulatory cost mechanism to generate across-the-board rail rate increases, which permitted motor carriers to capture more and more traffic. This was a principal cause of the long-term decline in the share of traffic moved by railroads.

With the enactment of the Staggers Act, railroads gained a considerable degree of price flexibility for over 90 percent of their traffic. Less than 20 percent of rail traffic is subject to rate review today, and the majority of that is moving under contract rates (which are almost entirely exempt from regulatory review). As a result, during the recession of the early 1980s, railroads were able to lower rates to meet their competition and thereby retain traffic they otherwise would have lost. Neither rail traffic nor rail revenues fell as sharply as in earlier recessions.

Greater Managerial Control of Inputs. Under the old regulatory system, railroad management had little control over its three major inputs—labor, roadway, and equipment—in terms of the quantity used, the prices paid, or even the way in which they were used. These decisions were determined largely by regulatory mechanisms which had little or no relation to market forces. This produced significant distortions and inefficiencies in rail operations which raised costs and sometimes reduced service quality. Managerial control has been improved by deregulation, although not as much as it could be.

In the area of labor, the railroads were confronted in the late 1970s with an extremely high wage bill, a system of detailed work rules, and various types of "labor protection" provisions designed to insulate rail labor from the adverse effects of rail abandonments and mergers. The work rules were (and continue to be) a particular problem. Developed during the age of steam railways and modified little since then, these rules involve rigid craft separations and job definitions that inhibit efficient use of rail labor, delay freight movements, increase uncertainty of delivery time, and generally reduce service quality to shippers.

Labor was not directly affected by the Staggers Act, but the general decline in the political



and economic power of organized labor since 1980 has enabled railroads to win some concessions. Railroads were able to substantially reduce the size of their work force—some 40 percent between 1980 and the end of 1985. Union work rules were also relaxed slightly in order to meet competitive pressures, and Congress required some reduction of Conrail wages and work rules as part of the rehabilitation of Conrail. After accounting for increases in wages and benefits, total labor expenses fell 25 percent in real dollars from 1980 to 1985. This decline accounts for just under half of the total reduction in railroad operating expenses since 1980.

The second resource over which rail management has lacked effective control is roadways. Unprofitable branch lines absorbed substantial resources for maintenance and operation and yet were extremely difficult to abandon. The Railroad Regulatory Reform and Revitalization Act of 1976, passed in response to widespread bankruptcies in the early 1970s, eased the abandonment procedures. In the following four years, over 20,000 miles of rail lines (about 12 percent of the 1976 total) were abandoned.

The Staggers Act made abandonment even easier, and it also allowed the ICC to simplify the process of selling lines to new, small railroads. These newer railroads, usually exempt from ICC regulation and often not unionized, have much lower costs, and can survive on lines where larger railroads have suffered substantial losses. The ICC now exempts these buyers from the labor protection provisions that apply to large railroads. Since the sale of lines to small railroads has been facilitated, the rate of abandonment has slowed considerably. Shippers on these lines are still receiving rail service, many railroad jobs have been saved, and the larger railroads are retaining feeder traffic which otherwise would have been lost. It should be noted, however, that a provision to reimpose labor protection on these sales passed the U.S. House of Representatives near the close of the 1986 session. While this provision died in conference, it is likely to be pushed again in this session of Congress.

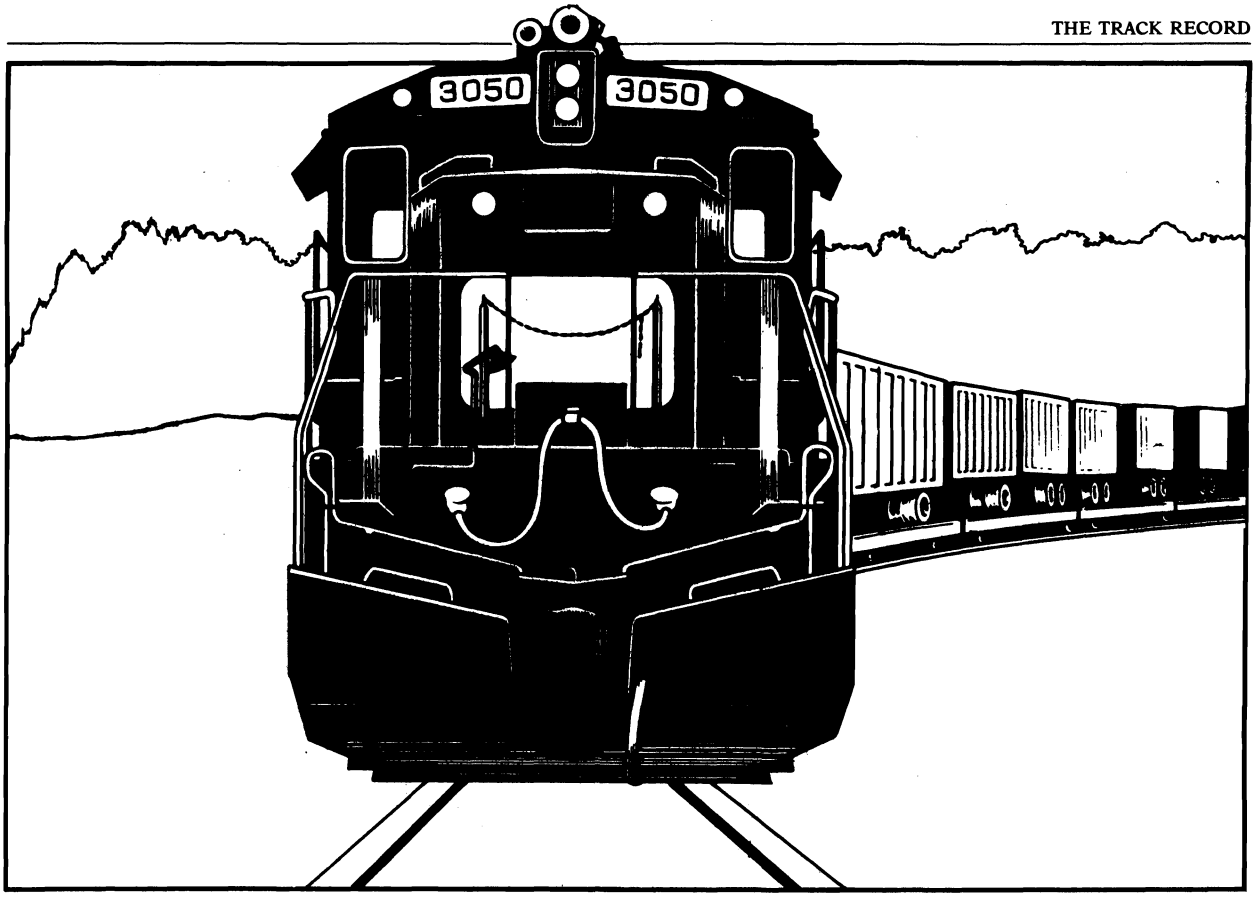
The benefits of rail deregulation have been distributed broadly, but thinly, and therefore have failed to generate strong political support.

Finally, rail management has lacked effective control over freight cars. Railroads have been required to interchange freight cars at rental ("car-hire") rates which are determined by formula; that is, the rates a railroad pays to use another railroad's cars, or which it receives when its own cars are on another railroad's lines, have not been determined by market forces. As a result, investment signals and freight car allocations have been severely distorted.

The history of freight-car regulation has been characterized by nearly a century of severe shortages of cars followed by massive gluts. Under the formula for setting car-hire rates, a surplus of freight cars produces an *increase* in rates. This, of course, is precisely the opposite of what would happen in a competitive market. This increase brings more investment, larger surpluses, and further rates increases. In a similar fashion, if car-hire rates ever get too low, shortages result and they are automatically intensified rather than eliminated.

These rules contributed to the development of massive car surpluses during the late 1970s. For boxcars alone, the surplus was 80,000 cars (as of 1981), consisting entirely of cars bought *after* surpluses materialized. (The cost of these surplus cars was some $3 billion.) Car-hire rates rose so high that many of these cars were purchased to be dumped onto other railroads in order to collect car-hire payments. Under the car-hire rules, the receiving railroad may not refuse loaded cars and must pay the high prescribed rate. A massive "hot potato" tournament developed as railroads scrambled to move cars off their own lines as quickly as possible, with empty boxcars passing each other in opposite directions. The same problems exist with respect to other car types, but are less severe because exploitive interchange is more difficult.

Even during periods of car surpluses, it is not unusual for shortages of certain car types to develop in particular localities. The higher the car-hire rate, the more reluctant the originating railroad is to load other railroads' cars. There is no mechanism for directing cars to where they are most needed, or even for discerning where they are most needed. Periodic crises lead the ICC to issue orders directing car movements, but this is an unwieldy and inefficient process which sometimes worsens the problem and cannot solve smaller problems.



Regulated car-hire rates do not respond to local or seasonal peaks in demand and generate substantial empty movements and idle time. It should come as no surprise that freight-car productivity in the United States is much lower than in some other countries, including Canada, West Germany, Japan, and Sweden. The Swedish rail system, for example, moves about three times as many tons of freight per ton of freight-car capacity. U.S. freight cars spend only about 8 percent of their time in loaded movement.

Deregulation has not yet reached the freight car market, except that in 1985 the ICC froze car hire rates. The rate structure remains high and distorted, but at least the self-reinforcing escalation of rates has been suspended.

Future Prospects

Since the passage of the Staggers Rail Act in 1980, railroads have enjoyed almost complete pricing flexibility for all but a small percentage of their freight. They also have enjoyed some increased control over the employment and allocation of inputs. As a result, they have been able to cut operating expenses and rates quite substantially. But the future of the railroad industry is by no means assured. Railroads have only barely kept up with the competition from motor carriers, which have also enjoyed significantly lower costs under deregulation.

With further deregulation of inputs, particularly labor and freight cars, railroads could reduce their costs—and rates—by another substantial margin. The long-term result could well be a railroad industry that is a vigorous competitor and intermodal partner in much of the nation's logistics system.

Unfortunately, the political prospects for further deregulation appear dim. The benefits of rail deregulation have been distributed broadly, but thinly, and therefore have failed to generate strong political support. Meanwhile, several interests which enjoyed favored treatment under regulation—shelter from competition, job protection, or rates below railroads' economics costs—have been mobilizing. There are proposals before Congress to limit pricing flexibility and contracting, tighten labor protections, and perhaps even return to public-utility style pricing. If these policies are reimposed, most of the gains achieved thus far will be lost. The long-term result could be a rail system shrunk to a few skeleton lines hauling only bulk materials. □