Nursing the Railroads Back to Health

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THE SORRY STATE of the U.S. railroad industry is well illustrated by a recent press release from its trade group, the Association of American Railroads. The release proudly proclaimed that the industry's return on investment had climbed to 4.3 percent in 1980—the highest level in twenty-five years. Such a return, which would have been barely acceptable back in 1955, is frighteningly depressed in today's inflationary conditions. Yet the AAR correctly observed that it was much better than the 2.9 percent return earned in 1979. Clearly, our once mighty railroads are now the poor relations of American industry. And the main causes of their decline are obvious enough, too: heavy-handed, irrational regulation and intense competition from other modes of transport.

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The basic patterns of railroad regulation, established almost a century ago in wholly different market conditions, are simply obsolete. Their premise is that railroads have a collective monopoly, or near-monopoly, in land transport and therefore, unless restrained by regulation, can earn "monopoly" (or "excessive") profits. That condition disappeared long ago, if indeed it ever existed. Nearly every sphere of rail freight service now faces intense competition, often from modes that evolved well after the regulatory system was conceived; and passenger service, once a major source of rail revenues, has lost out to airlines, buses, and automobiles. Despite all this, the Interstate Commerce Commission (ICC) still treats the railroads as monopolies, hobbling them so effectively that their very survival is in question.

We offer here a proposal for nursing the industry back to health and for testing the need for continued regulation. Our scheme allows for the reimposition of a regulatory system, though a more rational one, in the unlikely event that should prove necessary.

Legislative Efforts to Ease the Railroads' Plight

In the past decade Congress spent an inordinate amount of time on the plight of the railroad industry. Its efforts yielded several lengthy and often murky pieces of legislation designed to improve railroad profitability—the 3R Act of 1973, the 4R Act of 1976, and the Staggers Rail Act of 1980. The simple fact of sustained and grossly subnormal rail profits should have led Congress, in the course of these prolonged deliberations, to ask whether the monopoly rationale for regulation was still valid. Although the Department of Transportation attempted to force this issue by drafting a broad-ranging deregulation bill in 1978, political pressures quickly stymied its effort.

Nevertheless, the recent legislation has solved some serious problems. The railroads' freedom to adjust prices without interference was significantly enlarged by a provision that limits regulatory scrutiny to rates in the upper third of the rate structure. Indexing of existing rates to keep pace with inflation is now automatic. Railroads can now promptly stem their losses on money-losing, little-used branch lines, either by taking advantage of accelerated abandonment procedures or by imposing rate surcharges with minimal regulatory interference. Contracts between shippers and railroads are permitted for the first time and are virtually free of regulation.

Perhaps most important of all, the legislation directs the ICC to allow the railroads sufficient rate freedom to earn "adequate revenues" under "honest, economical and efficient management." Inclusion of such a fundamental requirement hardly seems significant or even necessary and, in fact, would appear to be constitutionally required. Its importance becomes apparent only when it is recognized that for twenty-five years the ICC persistently slashed rate increases, even though the railroad industry failed to earn normal profits in any one of those years.

While Congress's "revenue adequacy" directive is a major milestone in the history of railroad regulation, its practical effect may be in doubt. In the 1980 act, Congress left to the ICC the difficult job of defining precisely what level of rail revenues is "adequate" and of formulating specific maximum-rate policies to achieve this somewhat vague objective. Given the ICC's record in rate regulation, this was a risky decision. Congress should have learned its lesson in 1976 when the objectives of the 4R Act were scuttled by a commission determined to perpetuate the status quo.

The Failure of ICC Regulation

It is astounding, yet true, that in its almost 100-year existence the ICC has failed to develop any coherent theory of rate regulation, let alone one based on the principal rationale for economic regulation—restraint of monopolistic or excessively high rates of return. Other regulatory agencies—the Federal Communications Commission, Civil Aeronautics Board, Federal Energy Regulatory Commission, and the state public utility commissions—and even the ICC itself in the motor carrier area have pursued rate of return regulation as the most logical approach to rate regulation. But in the case of railroads, the ICC has avoided any such approach. It is not that the commission has formulated some alternative theory of rate regulation for the industry; rather, its rate policies have simply been arbitrary and capricious. A typical commission decision consists of a summary of the facts, a string of legal citations, an almost religious incantation of various statutory terms and other code words that mean wildly different things to different people (including different ICC commissioners), a calculation of variable and fully allocated costs through the use of an antiquated costing system that everybody (including the ICC) recognizes as inaccurate, and finally the ordering paragraph. Even seasoned observers do no better than fifty-fifty at predicting how ICC cases will come out.

Recently, however, responding to the new revenue adequacy directive, the ICC has attempted to bring some measure of rationality to its policies. In *Ex Parte* No. 393, *Determination of Railroad Revenue Adequacy* (1981), the commission set 11.7 percent as an "adequate" rate of return on the original investment base. Since none of the major railroads did in fact enjoy that high a return, all of them were declared to be "revenue inadequate" and thus entitled to an added measure of rate freedom. Most important, the ICC's decision recognized

that railroads, in order to survive in the long run without governmental assistance, must earn a rate of return high enough to compete effectively in the capital markets. While such a holding might seem elementary to an outside observer, one railroad executive has called it "the industry's *Brown* v. *Board of Education.*"

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Translated into dollars, the ICC's decision means that in 1981, the railroads must net at least $2 billion more than their 1980 earnings of $1.3 billion if they are to achieve "revenue adequacy." While this is no small increase, the amount needed for any real adequacy will be substantially larger, because the 11.7 percent figure does not reflect the much higher interest rates of 1980 and 1981. A reasonable estimate is that rail revenues are, in the aggregate, 10 percent or $3 billion too low—in other words, that much below the level that will ensure continued service in the long run without government subsidy.

It might seem that a straightforward 10 percent increase in all rail rates would solve the problem. But, if it were so simple, even the ICC might have remedied matters by now. In fact, there is so much competition for so many rail shipments that a 10 percent across-the-board hike would actually reduce railroad traffic and revenues. Moreover, traffic would decline somewhat even for those shipments where a rate hike would increase net revenues. In short, to earn the needed additional revenue, rate hikes must be selective and must substantially exceed 10 percent in real terms for many shipments.

The ICC's decision in *Ex Parte* No. 393 was a crucial first step toward developing a coherent rate policy. But what the commission gives with one hand, it frequently takes away with the other. In subsequent coal rate cases and in *Ex Parte* No. 347, *Nationwide Standards for Coal Rates* (1981), it has reverted to regulating rates one at a time, with no consistent standards. Specifically, it has reasserted its view that rates can be deemed "unreasonable" if they exceed specified percentages of fully allocated cost, or variable cost, or some other accounting convention, without reference to the level of rates charged on other commodities.*

The current ICC rate policy, insofar as any consistency can be found, appears to be that rates are "reasonable" if they do not exceed the fully allocated cost of the transportation, with fixed costs allocated by the "ton/ton mile" formula—that is, according to the weight of the shipment and the distance it travels. This is a departure from the previously used "ratio" method, where fixed cost is a function of the variable cost of a particular service. Under that method, the commission looked at newly filed coal rates and found them reasonable if they did not exceed 107 percent of fully allocated costs—the much ridiculed "7 percent solution," concocted as a political compromise and not as a result of any economic analysis. It did not, however, police existing rates on other traffic, leaving them to range all over the map, from under variable cost to four and five times variable cost. These almost randomly regulated rates applied then, and still apply, to the vast majority of all rail traffic—a reflection of decades of crazy-quilt regulation.

Elasticity Pricing

The switch from the 7 percent solution to the ton/ton mile solution has the effect of allocating a higher share of fixed costs to commodities such as coal which, because of their high

*Some definitions may be useful. "Variable costs" are those costs that vary in the long run with the level of service provided, according to ICC costing formulas. The ICC has determined that 78 percent of total rail costs are "variable" and 22 percent are "fixed." "Fixed costs" must also be recovered even though they cannot be associated with the provision of any particular transportation service. The sum of the variable costs of a transportation service and the allocated fixed costs equals "fully allocated cost." Fully allocated cost has in recent times included the current cost of capital.

"Incremental cost" is an economic term, not an accounting term. It is the additional cost a railroad incurs in providing an additional unit of service. "Long run incremental cost" should approximate "variable cost" assuming the commission's costing methodology produces reliable results, which it does not. Similarly, a more technically correct economic term for fixed costs is "common costs" or "unattributable costs."

density (because they weigh more per unit of cubic capacity than most other goods), frequently do not have alternatives to rail transport. Framers of the ton/ton mile proposal hoped that the switch would accomplish two things: (1) bring rate relationships more into line with the relative demand elasticities of the shippers and (2) bring railroad revenue up to adequate levels by allocating a larger share of fixed costs to price-inelastic shippers. Elasticity in this context is a shipper's willingness to substitute alternatives for the services of a particular railroad that has raised its price relative to the price of alternatives. Shippers who will shift when a price increase is small are relatively price-elastic; shippers who will find substitutes only when price changes are large are relatively price-inelastic.

For reasons of economic efficiency, fixed costs should be allocated on the basis of relative demand elasticities. Shippers with relatively inelastic demand should pay a higher share of fixed costs than price-elastic shippers. The logic of this is fairly simple: shippers with greater elasticity of demand by definition have more transport alternatives than shippers with lesser elasticity of demand and will choose those alternatives if the rate charged by the rail carrier is higher than that charged by the competition. As long as the rail rate charged to the price-elastic shipper is higher than the incremental cost of the service, the rate is contributing to rail overhead (fixed costs). Thus all shippers benefit when price-elastic shippers elect to ship by rail. This is true because the pool of fixed costs by definition is constant in size; to the extent that price-elastic shippers pick up any of the burden, the remaining burden will be lower, and thus price-inelastic shippers can be charged lower rates. Consequently, so-called differential pricing, tied to demand factors, benefits all shippers, even though it seems unfair that some shippers should have to pay rates representing higher multiples of cost than other shippers.

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Ramsey Pricing

The particular formula for elasticity pricing that theoretically maximizes economic efficiency is called Ramsey pricing. This approach to rate regulation was first expounded in a classic paper by a British mathematician and economist, Frank Ramsey. Now, in *Ex Parte* No. 347, the railroads have urged the ICC to adopt Ramsey pricing principles in adjudicating the reasonableness of rate levels; the ICC has yet to rule on the issue.

Under Ramsey pricing, each shipper is charged a rate equal to the incremental cost of the service it receives, plus a share of the railroad's fixed costs inversely proportional to the shipper's elasticity of demand for service (calculated according to a complicated statistical formula). Hence coal shippers who could easily use water transportation would pay a lower rate than coal shippers whose only choice is rail transport.

In competitive industries, the profit-maximizing price is the same as the economically efficient price. If transportation markets are competitive and railroads can earn no more than a market rate of return under unrestricted pricing, then the rate schedule they adopt voluntarily will be a Ramsey scheme. Because increases above these rates would cause traffic to decline enough to lower overall profit, a railroad will limit its rates to those levels voluntarily. If a carrier is capable of earning excess profits in the absence of regulation, however, Ramsey pricing regulation would hold all rates below the profit-maximizing level in proportion to the shipper's price elasticity.

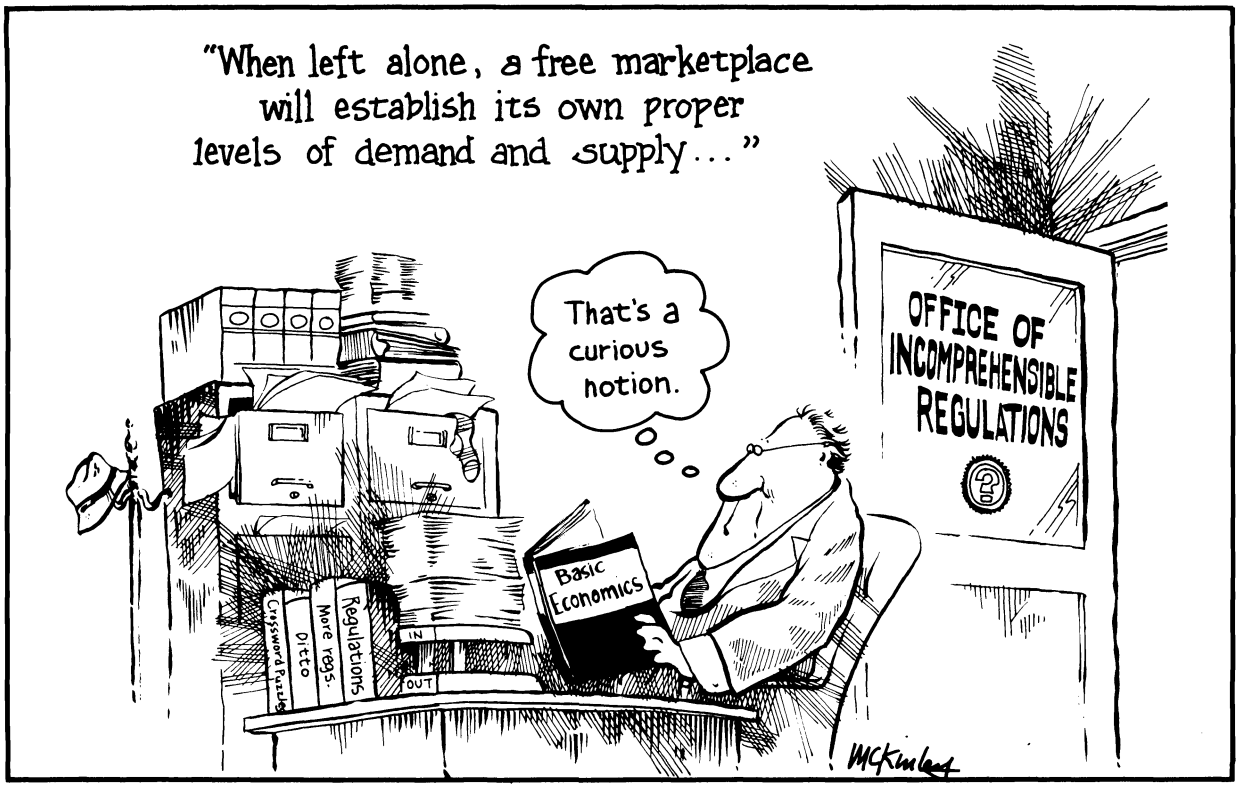
In calculating incremental costs and the pool of fixed costs under a Ramsey pricing system, only a competitive rate of return on capital is permitted. Further, should a carrier charge less than the Ramsey price for the service either by mistake or by design, the resulting shortfall cannot be recovered by charging other shippers more than the Ramsey price. These two important features of Ramsey pricing allow the carrier a return equal at most to the cost of capital, and prevent cross-subsidization.

If unrestrained railroads are in fact capable of earning excessive profits, all shippers would receive a lower rate under Ramsey pricing than they would under complete deregulation; if not, shippers would be charged what the market will bear.

Ramsey pricing would present no administrative problem at all in the latter case, since complete deregulation would be appropriate. But in the former case, Ramsey pricing would require calculating relative elasticities for every relevant shipper or group of shippers that uses a railroad, once that railroad had achieved adequate revenues. That is all but impossible to do with any degree of accuracy.

The ton/ton mile solution was intended to be a proxy for these exceedingly difficult calculations. Unfortunately, the solution is seriously flawed in this regard: In the West it would allocate a higher share of fixed costs to relatively inelastic coal shippers who use rail service, thereby raising some newly filed western coal rates. But in the East and South, it would actually call for lower rates, primarily because capricious rate regulation had resulted in high allocations of fixed costs there. The railroads claim, with substantial evidence, that consistent application of the ton/ton mile solution to all rates would reduce their total revenues by over $1 billion from current levels. Thus the ICC proposal runs counter to its framers' intended goal and, if implemented, would actually exacerbate the railroads' revenue problem. That the 7 percent solution applied to the entire rate structure would cause even greater devastation is little solace.

We must conclude from the commission's unfortunate experiment with the ton/ton mile solution that there is no formula based on accounting conventions that will efficiently produce adequate revenue levels when applied to all rates. This is true because there is no systematic correlation between demand considerations and any cost accounting convention. The reasonableness of individual rates can be judged only by reference to all of the other rates charged by a carrier and the effect that the resulting rate structure has on the carrier's bottom line. No matter how high an individual rate may climb as a multiple of variable cost, a railroad simply will not be able to raise the capital it needs in the long run unless its net rate of return is competitive. Consequently, there is no magic in "fully allocated cost" or "variable cost" percentages no matter how they are calculated. All that such percentages reveal is that



certain rates contribute more to fixed costs than other rates.

A Modest Proposal

To overcome these difficulties, we offer the following modest proposal: hold all pending and future rate cases against a carrier in abeyance until that carrier's earnings exceed the revenue adequacy level, except for cases where the carrier seeks an increase in any one year of more than 6 percent (after adjustment for inflation). In our view, this is the best course now available to the commission that (1) is consistent with sound economic principles, (2) treats shippers fairly, (3) allows railroads the chance to earn adequate revenues, (4) is legally sustainable, and (5) is administratively possible.

Let us examine the reasoning for this proposal, beginning with its insistence on gradual rate increases. Given that railroad industry earnings are so depressed, why should carriers not be permitted to raise their rates as fast as possible to achieve revenue adequacy? The main reason is that shippers are more likely to tolerate gradual than abrupt change and that a degree of shipper toleration is needed to keep political pressures directed against the program from becoming irresistible.

Economic principles also counsel gradualness. Coal and chemical shippers honestly fear that they will have to pay the whole tab if the railroads are given unlimited freedom to raise rates until revenues reach an adequate level. That is, they assume that rail managers will take the easy road and simply pile all of the increases needed to achieve a competitive rate of return on a few types of price-inelastic shippers. Our proposal is designed to allay that fear. Given the current rates of return of most major carriers, real rate increases of 6 percent imposed only on coal and chemical shipments would be insufficient, by a wide margin, to yield adequate revenues for several years, if ever. By limiting rate increases to 6 percent a year, our program would create strong incentives for carriers to adjust all of their rates in order to maximize return as well as to reduce costs wherever possible. Both of these courses would improve the bottom line during the transition period.

The choice of 6 percent as opposed to some other percentage is certainly arbitrary, but it has an advantage legally: Congress has sanctioned it. The Staggers Rail Act created a 6 percent zone within which rate adjustments may not be challenged until the rate is in effect, and even then the challenger must demonstrate that the rate is unreasonable. While a court would most likely strike down a 6 percent zone if the commission picked the number out of the air, Congress is free to be arbitrary. Here then is a tool the commission may use to bring rationality to the rate structure.

Another important legal feature of the proposal is that the enormous backlog of rate complaints currently pending at the commission would be held in abeyance rather than simply dismissed. The Staggers Rail Act stripped the commission of jurisdiction over all existing rates (the base rate plus adjustments for inflation) except for those challenged in complaints filed by April 1, 1981. Faced with this speak-now-or-forever-hold-your-peace provision, shippers of every conceivable stripe naturally filed complaints—more than 800 of them. Should these complaints now be dismissed, the challenged rates would be freed from regulation as well. While it is extremely unlikely, in our view, that any of those rates would be reduced under a rational system of rate regulation based on elasticity principles, this assertion cannot be proved until a rate structure evolves that is capable of producing revenue adequacy. As long as any question remains, the door should be kept open, so that the shipper whose case is held in abeyance has the right to demonstrate unreasonableness and win a prospective rate reduction later.

It is important to emphasize that the shipper would be permitted such reductions only if the carrier were earning more than "adequate" revenues. Because no carrier has yet reached that level, there is no economically rational basis for finding any existing rate unreasonable today. If railroads earn inadequate revenues because regulation has forced some rates below the "correct" level, the remaining shippers on the railroad should be charged more than the correct level to make up the shortfall. This is necessary if the railroad is to survive. Assuming regulation is the cause of the railroads' plight, we have the worst of all possible worlds today: some rates are held below correct levels, while others are not permitted to rise sufficiently above those levels to make

up the shortfall. While it cannot be rationally determined which existing rates (if any) are too high today, such an argument can be made if and when railroad earnings rise above revenue adequacy. At that time prospective decreases in those rates that are today above the correct level should be ordered.

The Competitive Environment

In our view, the most attractive feature of our proposal is that it would inevitably lead the ICC to question the rationale for its very existence. And the ICC, to its surprise, would probably find that, with competition preventing railroads from earning excess profits, rate regulation is not needed.

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Railroads clearly face intense competition for nearly all of the services they provide—from trucks, pipelines, barges, ocean and lake carriers, as well as from other railroads capable of moving commodities between the same two points. With the abolition of antitrust immunity for collective ratemaking (legalized price-fixing) currently scheduled for 1982, rate competition among the railroads is certain to intensify. Source competition further limits a rail carrier's ability to charge excessive rates: purchasers can often obtain a product from several origins served by different carriers and modes, while many producers can ship by different carriers and modes to a variety of destinations.

None of this is to deny that, in many instances, railroads have market power—that is, they can charge rates that exceed the incremental cost of service. Not only do they have such power but its exercise, at least to a degree, is absolutely essential if they are to survive. Railroads have substantial fixed costs common to a variety of activities and some economies of density. This means that their incremental cost of service is less than their average cost of service. Consequently, if all their services were priced purely competitively—at incremental cost—the railroads would be unable to cover their total costs and would, after cannibalizing their assets, cease to exist. Each of the services provided by a railroad must be priced with an eye on the competition, but in the aggregate they must be priced sufficiently above incremental cost to recover total costs (including a return on investment equal to the cost of capital).

Given the competitive conditions, it is by no means clear that the ICC need continue regulating rail rates indefinitely. Its only legitimate regulatory mission is to restrain excessive railroad profits over the long run—and market competition may already provide this restraint. Our scheme should be viewed as a controlled experiment designed to determine whether the market will in fact do that job, and thus whether regulation should be ended. Equally important, it keeps open the option of imposing rational restraints, should that prove necessary. As things stand now, any economic benefit that accrues to society from current ICC regulation is purely fortuitous.

A Rough Surrogate

Our proposal is really a rough surrogate for Ramsey pricing, one that would make its application administratively possible, should the carriers' earnings begin to exceed the adequacy level. The rate structure that would result from implementing the proposal would closely resemble a Ramsey structure that had been accurately measured with the requisite mathematical precision. Shippers with more inelastic demand, as measured by railroad pricing officers, would systematically be subject to greater increases and hence would pay a higher share of fixed costs, cross-subsidization would be minimized, and carriers would increase their net revenues at a relatively quick pace.

With the adoption of the proposal, railroad pricing officers would aggressively seek to increase rates for price-inelastic shippers by the full 6 percent, while being more cautious in their pricing where shippers had alternative transport or faced strong competition in the sale of their product. Furthermore, they would have every incentive to ensure that all rates

were above incremental cost. Each year railroads would take the full 6 percent increase on fewer and fewer rates—as profit incentives led them to limit their increases in recognition of the increasing attractiveness of alternatives to shippers. Our scheme thus offers the commission a means for relying on the profit incentive, which governs most of our economy, to establish a rate structure that permits adequate revenues and is reasonably efficient.

Such a structure, in addition, should provide extremely useful data for figuring Ramsey elasticities in the event that regulation of the rate structure proved to be necessary in the long term. Should rail revenues exceed adequate levels, experience under our scheme would allow the regulator to determine quickly which parts of the rate structure were above Ramsey levels and which were below. This is true because the proposal contains a systematic bias: imposing the permitted rate increases over several years should permit railroads to achieve a profit-maximizing rate for "lower-rated," more competitive traffic, thereby yielding rates tilted in favor of "high-rated," price-inelastic traffic. In other words, rates on price-elastic shipments would be above the Ramsey level, while rates on price-inelastic shipments —although higher as a percentage of cost than the former—would be below the Ramsey level. This bias is politically convenient in that it favors captive shippers, the loudest complainers about rail rates.

Prospects for Reform

Whether the ICC can be persuaded to adopt a plan of this sort is unclear. It seems likely, though, that the various U.S. courts of appeals —which in an abrupt change of course have consistently ruled against commission decisions in recent months—will force the commission to reconcile its maximum-rate policies with its revenue adequacy principles.

The ICC may also be forced to move toward consistency by the extraordinary size of its pending caseload. The agency is especially ill-prepared to cope with an 800-case backlog at this time. All of its recent attempts to formulate a rate policy based on 7 percent and ton/ton mile formulas have been overturned by the courts. Moreover, its staff has been dramatically reduced in size, its newly developed system for computing variable costs is a shambles, and a majority of its commissioners are brand new to the job.

A final point should be stressed. Central to our proposal is the assumption that railroads can be expected to maximize their profits and that this conduct will lead to socially beneficial results. However, if the railroads are in fact poorly managed and inefficient, as is so widely alleged, the beneficial results will not follow.

Considering the alternatives, we prefer to rely on railroad managers whatever their foibles may be. To permit the ICC or some other governmental body to . . . tell the railroads how to run their businesses would be absurd.

But then, efficiency is a relative concept. Considering the alternatives, we prefer to rely on railroad managers whatever their foibles may be. To permit the ICC or some other governmental body to intervene and tell the railroads how to run their businesses would be absurd. Nor would government ownership of the railroads be likely to increase efficiency, if experience with Conrail is any indicator. Yet another approach would be to keep rail profits abnormally low in order to force the railroads to improve their operations. But that is what the ICC has been doing for twenty-five years—albeit unwittingly, and clearly without beneficial effect. We can only conclude that it is entirely reasonable to give railroad managements the freedom and opportunity to act in their own behalf.

Nearly a century of regulation cannot be reversed overnight. Under our scheme, carriers would have to tolerate a situation where they are legally incapable of achieving revenue adequacy immediately. Shippers would have to wait for their day in court. The commission would have to learn to minimize its interference, or end it altogether. But the pay-off would be worth the price. The country would have a system of economically efficient rates that allowed the railroads to earn the revenues necessary for providing the services shippers require. And we would have found out, at last, whether the achievement of that rate structure requires governmental interference. ■