Railroads: The Vital Link to North America's Economic Future

Differential Pricing in the Rail Industry

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Summary

Differential pricing — charging relatively higher rates to customers who have fewer competitive options than to customers with more competitive options — is the most economically-efficient way for railroads to cover their costs. It allows railroads to balance the desires of each customer to pay the lowest possible rate with the requirement that the overall network earn enough to pay for all the things needed to keep it functioning now and into the future. Railroads' use of differential pricing, with reasonable regulatory protections against excessive rates, is essential if we are to have a viable national freight rail system.

What is Differential Pricing?

Most firms have two kinds of costs: fixed and variable. Fixed costs don't change with the level of output. Rent, for example, has to be paid even if output is zero. Variable costs do vary with a firm's output. Labor and raw materials, for example, usually are variable costs — the higher the output, the greater these costs. If they want to stay in business, all firms must earn enough revenue to cover fixed costs and variable costs.

In order to cover their fixed and variable costs, railroads use "differential pricing." Under differential pricing, railroads charge customers different prices based on the varying market conditions involved. In other words, railroads price their services to cover variable costs and realize different contributions to fixed costs from various customers.

Differential pricing is used by businesses throughout the economy, from car rentals (rates for the same car can vary dramatically from city to city and by the time of the year) and airlines (a business traveler who buys a ticket at the last minute pays more than a vacationer who buys a ticket in advance) to movie theaters (matinees are cheaper than evening shows) and utilities (large factories typically pay lower rates than homeowners).

Why Do Railroads Use Differential Pricing?

Railroads use differential pricing because, in a world in which customers differ widely in their willingness to pay for rail service, it is the most efficient way for railroads to earn the revenue they need to cover the full costs of providing safe, reliable service across their systems. Differential pricing benefits all shippers because lower prices to some shippers generate revenue which otherwise would have to be raised from those with the highest demand for rail service.

To see why this is to, imagine a railroad that has total fixed costs of $200 and serves three shippers: a package company, a grain elevator, and a coal-fired power plant. For simplicity, assume the railroad's variable costs to serve each shipper is $100.

The package company will pay no more than $130 for rail service — any more and it will switch to truck. The grain elevator will pay no more than $170 — at a higher rate it will lose its sales to grain grown elsewhere. The power plant has no realistic alternative to rail for coal delivery, so it is willing to pay more — $200 — for rail service. The railroad engages in differential pricing by charging the package company and the grain elevator less than the power plant (see Table 1). The railroad covers its total costs, but each shipper makes a different contribution to the railroad's fixed costs.

Table 1

Shipper	Differential Rail Rate	Variable Costs	Contribution to Fixed Costs
Package company	$130	$100	$30
Grain elevator	$170	$100	$70
Power plant	$200	$100	$100
Total	$500	$300	$200

Railroad covers fixed and variable costs of $500.

Now, suppose a new law prohibits the railroad from charging a customer more than 180 percent of variable costs. The rates for the package company and grain elevator are not affected, but the rate for the power plant can't exceed $180, which is 180 percent of variable costs. At this new rate, the power plant saves $20. The package company and grain elevator pay the same as before. At this new rate, though, the railroad's revenue is only $480 — $20 less than the railroad's total costs of $500 (see Table 2).

Table 2

Shipper	New Rail Rate	Variable Costs	Contribution to Fixed Costs	Change From Differ. Rate
Package company	$130	$100	$30	$0
Grain elevator	$170	$100	$70	$0
Power plant	$180	$100	$80	-$20
Total	$480	$300	$180	-$20

Railroad <u>does not</u> cover fixed and variable costs of $500.

The new law creates an artificial rate ceiling for the power plant, while the railroad loses revenue and no longer covers its total costs. Since firms must cover their costs to stay in business, the railroad must either raise revenue or reduce its costs. But raising revenue is impossible. If the railroad raised its rates for the package company and the grain elevator, it would lose their business entirely, and their contribution to fixed costs would have to be made up by the remaining shippers.

Therefore, the railroad would have no choice but to reduce its costs. Perhaps it would shed employees, reduce the frequency of service, postpone buying equipment, or take some other action. This disinvestment would lead to less timely, less reliable rail service. Eventually, rail service could be lost entirely. These outcomes are completely at odds with the needs of all the shippers, including the power plant that the new law was supposed to help.

Railroads Need a Mix of High-Demand, High-Margin and Low-Demand, Low-Margin Traffic

The purpose of differential pricing for railroads becomes more clear in the context of "revenue to variable cost" (R/VC) ratios. An R/VC ratio of 100 percent implies that the rate (revenue) for a given rail shipment covers all of a railroad's variable costs for that shipment, but contributes nothing to the railroad's fixed costs; an R/VC ratio of 120 percent means the rate covers all variable costs and an additional 20 percent is available to help pay for fixed costs; and so on.

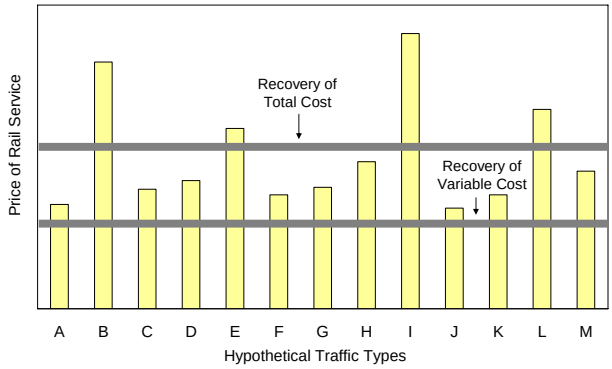
For the most competitive traffic, a railroad would price itself out of the market if it charged much more than the variable costs it incurred in moving that traffic. In these cases, the R/VC ratio might be only marginally higher than 100 percent. For traffic with fewer competitive options, the R/VC ratio might be much higher.

According to Surface Transportation Board (STB) data, in order for railroads to cover all of their variable and fixed costs on a system-wide basis, rail traffic must move at rates that, on average, generate an R/VC ratio of approximately 137 percent. In other words, if all rail traffic moved at that level, railroads would break even, with revenue sufficient to maintain the infrastructure and equipment in place today. (Capacity expansion and betterment, though, would require additional revenue.)

However, if railroads tried to charge their highly-competitive traffic rates that generated an R/VC ratio of 137 percent, that traffic would divert from rail. Today, a substantial majority of total rail carloads are carried at rates yielding an R/VC ratio of less than 180 percent, according to STB data, and the average R/VC ratio of all traffic with an R/VC ratio under 180 percent is only around 114 percent.

While highly-competitive traffic helps cover some portion of railroads' fixed costs (and is therefore worth transporting), a much greater portion of coverage of those costs must come from less competitive traffic. As shown in Figure 1, various traffic types contribute various amounts to railroads' costs. Railroads must cover total costs, as illustrated by the top horizontal line. But because much rail traffic moves at rates that do not reach that level, railroads rely on traffic with rates above that level to, in essence, make up the difference.

Figure 1: Policy Necessity - Differential Pricing for Railroad Cost Recovery



Absent government subsidies, there is no other way for railroads to cover the full costs of their systems.

Legislation to Reregulate Railroads is an Attack on Differential Pricing

Unfortunately, legislation that would reregulate railroads — such as S. 953 and H.R. 2125 (the so-called "Railroad Competition and Service Improvement Act of 2007") in the 110th Congress — would severely limit railroads' use of differential pricing.

If these bills passed, there would no longer be a sufficient mix of high demand-high margin and low demand-low margin traffic to cover the costs railroads would incur to maintain and improve their infrastructure and provide the rail service our nation requires. In response to this revenue shortfall, railroads would have to cut costs. A shrunken rail network, reduced rail service, and more traffic on our already-gridlocked highways would be inevitable.