

# Differential Pricing in the Rail Industry

ASSOCIATION OF AMERICAN RAILROADS

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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 desire 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 in the future. Railroads' use of differential pricing, with balanced regulatory protections against excessive rates, is essential if America is to have a viable, privately owned, and privately funded national freight rail system.

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## What is Differential Pricing?

- Most firms have two kinds of costs: fixed and variable. Fixed costs don't change with the level of output, at least in the short term. 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, **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 price their services so that they cover variable costs and realize different contributions to fixed costs from different customers.
- Shippers vary widely in their willingness to pay for rail service. When this is the case, **differential pricing is the most efficient way for railroads to cover the full costs of providing safe, reliable service across their networks.** Differential pricing benefits all shippers because lower prices to some shippers generate revenue that otherwise would have to be raised from those with the highest demand for rail service.
- **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).

## A Hypothetical Example Shows Why Railroads Use Differential Pricing

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. Assume 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 is willing to pay more — \$200 — for rail service.

The railroad prices differentially by charging the package company and the grain elevator less than the power plant (see Table 1). The railroad covers its total costs, and each shipper makes a different contribution to the railroad’s fixed costs.

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
<b>Total</b>	<b>\$500</b>	<b>\$300</b>	<b>\$200</b>

*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).

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
<b>Total</b>	<b>\$480</b>	<b>\$300</b>	<b>\$180</b>	<b>-\$20</b>

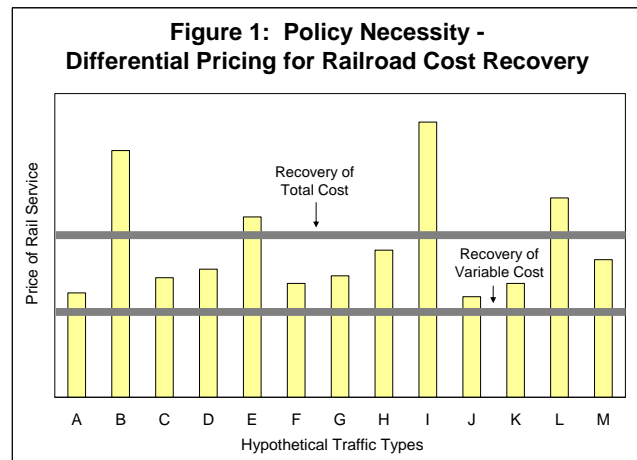
*Railroad does not cover fixed and variable costs of \$500.*

- 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 increase its revenues or reduce its costs. But raising revenue is impossible. If the railroad raised its rates for the package company or the grain elevator, it would lose their business entirely, and their contribution to fixed costs would have to be made up by the remaining shipper, the power plant.
- Therefore, the railroad would have to reduce its costs. Perhaps it would shed employees, reduce the frequency of service, or postpone buying equipment. This disinvestment would almost certainly lead to less timely, less reliable rail service. Eventually, rail service could be lost entirely. These outcomes are completely contrary to 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 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 slightly higher than 100 percent. For traffic with fewer competitive options, the R/VC ratio might be much higher.
- If railroads tried to charge their highly-competitive traffic rates that generated a high R/VC ratio, that traffic would divert from rail — like the package company in the earlier example. Today, a clear 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 124 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 in the example 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.
- Absent government subsidies, there is no other way for railroads to cover the full costs of their systems.



**Legislative Attacks on Differential Pricing Should Be Rejected**

Unfortunately, legislation is being considered that would return railroads to an era of excessive regulation and limit railroads' use of differential pricing.

- If the current systems of balanced regulation were overturned, there would no longer be a sufficient mix of high demand-high margin and low demand-low margin traffic for railroads to cover their costs. The resulting earnings shortfall would severely limit railroads' ability to fund the locomotives, freight cars, tracks, bridges, tunnels and other infrastructure and equipment they need to keep the U.S. freight rail network in world-best condition. As a consequence, **railroads' ability to provide the safe, affordable, and environmentally responsible service America needs would be severely compromised.**