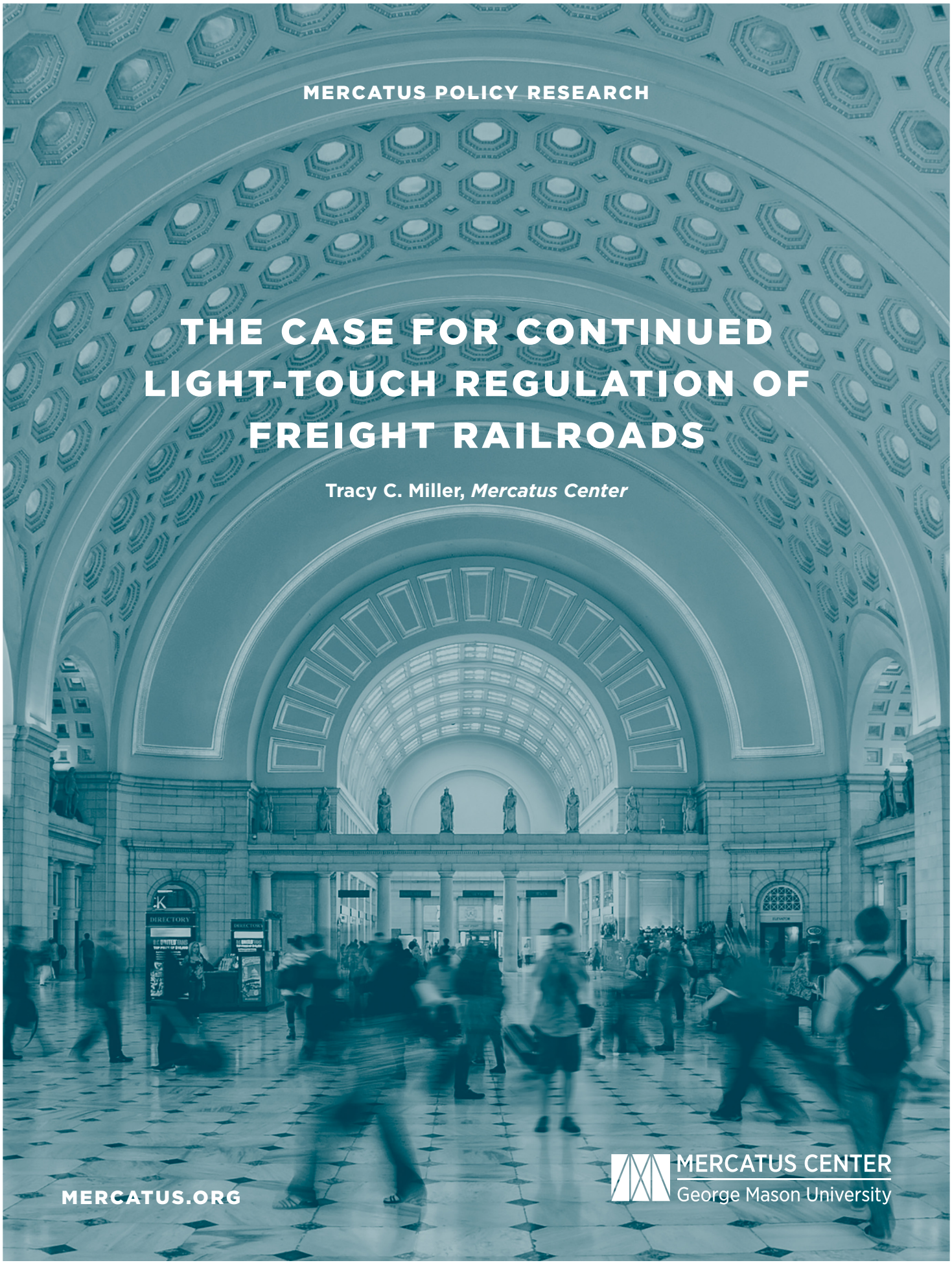

MERCATUS POLICY RESEARCH

THE CASE FOR CONTINUED LIGHT-TOUCH REGULATION OF FREIGHT RAILROADS

Tracy C. Miller, *Mercatus Center*

MERCATUS.ORG

MERCATUS CENTER
George Mason University

Tracy C. Miller, "The Case for Continued Light-Touch Regulation of Freight Railroads," Mercatus Policy Research, Mercatus Center at George Mason University, Arlington, VA, December 2022.

ABSTRACT

In response to concerns about the lack of competition and the resulting high rail rates, the Biden administration has proposed mandating reciprocal switching, which provides shippers access to competing railroads. The administration also has advocated for final offer rate review as an affordable way for small shippers to challenge rates they perceive to be too high. This paper explores these and related proposals for improving the way the Surface Transportation Board protects shippers from being charged unreasonable freight rates.

For railroads to have the capacity to compete with other transportation modes, particularly trucking, and have the incentives to invest and provide a cost effective and environmentally friendly alternative to shipping goods, they must earn adequate profits. Therefore, it is important that regulatory reform continue the light touch of existing rate regulation. Mandated reciprocal switching could raise costs and create uncertainty that might reduce railroad profitability, which discourages investment. However, other changes to regulatory policy, such as final offer arbitration or final offer rate review for a trial period, would likely have little adverse effect on railroad profitability while giving more protection to small shippers from excessive rates than the current rate regulation.

JEL codes: D4, L1, L92, L98

Keywords: common costs, competition, contestable market, economies of density, elasticity of demand, opportunity cost of capital, Ramsey pricing, regulation, rent-seeking, sunk cost

In a July 2021 executive order aimed at increasing competition in the US economy, the Biden administration directed its attention to competition in the freight rail industry. An important driver of this executive order is that among freight railroads, as is the case in other sectors of the economy, a small number of large companies control more of the market than they did in the past.[1] The executive order encourages the Surface Transportation Board (STB), which regulates freight rail, to consider mandating reciprocal switching[2] to increase competition on select rail corridors where shippers lack other options. It also advocates other changes, such as implementing Final Offer Rate Review (FORR),[3] to make it easier for small shippers to challenge rates the railroads charge them.

After a long period of decline and rising bankruptcies in response to growing competition from the trucking industry, railroads were partially deregulated beginning in the 1970s and the railroad rates fell. Later, the share of freight shipped by rail rose and railroads increased investment in routes connecting major markets. From 2004 to 2019, rail rates have risen faster than costs,[4] and

1. Jeff Berman, "White House Executive Order 'Encourages' Freight Rail and Ocean Sectors to Make Changes," Logistics Management, July 9, 2021, https://www.logisticsmgmt.com/article/white_house_executive_order_encourages_freight_rail_and_ocean_sectors_to_ma.

2. Reciprocal switching is when a shipper has access to one freight railroad but wants access to a nearby competing railroad. A shipper can get that access for a fee. See Frank N. Wilner, "A Primer on Reciprocal Switching," Railway Age, March 14, 2022, https://www.railwayage.com/news/a-primer-on-reciprocal-switching/.

3. Final Offer Rate Review (FORR) occurs when a shipper challenges a rate charged by a rail carrier. If the carrier has market dominance and the rate it charged the shipper is unreasonable, then the STB would impose the rate that applies for the shipment from the final offers submitted by the carrier and the shipper. See Surface Transportation Board, "Final Offer Rate Review," Docket No. EP 755, November 15, 2021.

4. Using data from the Association of American Railroads, it is estimated that, between 2004 and 2019, real rail rates increased by 43 percent while real costs increased by only 8.1 percent. See Escalation Consultants, Inc., *Economic Analysis: Consolidation and Increasing Freight Rail Rates*, June 2021, https://www.freightrailreform.com/wp-content/uploads/2021/07/Economic-Analysis-Consolidation-and-Increasing-Freight-Rail-Rates.pdf.

shippers in some markets have raised concerns that railroads lack sufficient competition and are overcharging them. Since deregulation, the number of Class I freight railroads has declined to seven, with many markets served by only one railroad. What, if any, changes in government policy toward railroads could be most effective in promoting more competitive rates and service in markets where rail carriers face little competition without interfering with railroads' ability to earn adequate profits?

Railroads compete with each other as well as with trucks and ships. For some commodities, the cost of shipping long distances by truck is substantially higher than by rail. Though water transportation is cost competitive in some locations, it is not a viable option in many parts of the United States. For shippers of some commodities—particularly coal, chemicals, and some agricultural products—price and service quality may depend on whether they have a choice of rail carriers.

There are no more than two competing railroads connecting most markets in the United States. The railroad industry is characterized by high fixed costs, which are commonly shared by various users of a railroad's capital stock. Railroads benefit from economies of density. And substantial share of railroad infrastructure cannot be used for other purposes, so the costs are sunk, which discourages other carriers from entering existing markets to compete with incumbent carriers.

This paper explores alternative proposals for protecting shippers from unreasonable prices or inadequate service quality in markets where rail carriers face little competition. The paper begins with the historical background in terms of how railroads were regulated in the past, the consequences of deregulation, and recent trends in prices and service quality. Next, it discusses existing regulation and subsequent consequences. Following that is a discussion of proposals for reform and analysis of options that are being considered.

Although actual and potential competition is sufficient in most markets, and stricter regulation could do more harm than good, some moderate changes in the way rail rates are regulated would be an improvement over the status quo. Final offer arbitration is the best way to give captive small shippers an opportunity to negotiate better prices. But any price regulation is likely to reduce profits. So it is important that any reform of rate regulation continues the light touch of existing regulation and does not much reduce railroads' profitability. Too much government interference with railroads' freedom to set prices and maximize profits, as happened under Interstate Commerce Commission (ICC) regulation for most of the twentieth century, would adversely affect railroads' incentives to

invest and maintain or increase their contribution to an innovative and efficient transportation system.

HISTORICAL BACKGROUND

Railroads were regulated under the Interstate Commerce Act beginning in 1887. That regulation established a framework for uniform prices and emphasized "barring 'unreasonable discrimination' in rates and service."[5] Discrimination was understood as "differential treatment of apparently similarly situated customers."[6] Similar regulation was extended to ships, trucking companies, and airlines during the first half of the twentieth century. Then, beginning in the 1970s, transportation deregulation ended the ban on discrimination.

Railroads were regulated by the ICC and the rates were set collectively in rate bureaus.[7] General rate increases by groups of carriers for a large number of rates were considered by the ICC in "prolonged cases and proceedings," with rates often justified on the "basis of revenue necessary to cover the costs of the weakest carriers or the highest cost routes."[8]

During the twentieth century, freight railroads faced growing competition from trucks. Regulation made it difficult for railroads to enter or exit markets or to adjust their prices in response to changing market conditions. This enabled trucking companies to attract many shipments that could have been profitably shipped by rail. By the 1970s, many railroads were not profitable, resulting in multiple bankruptcies and the major eastern railroads "effectively nationalized in 1976."[9]

After that, Congress passed the Railroad Revitalization and Regulatory Reform Act (4R Act), which deregulated rates that carriers could charge in markets that were competitive. This act also required the ICC to develop standards for assessing revenue adequacy since the survival and future economic contribution of railroads depended on their profitability.[10]

5. Marc Levinson, "Two Cheers for Discrimination: Deregulation and Efficiency in the Reform of US Freight Transportation, 1976–1998," *Enterprise & Society* 10, no. 1 (March 2009): 178–215.
6. Levinson, "Two Cheers for Discrimination," 1n.
7. Jeffrey T. Macher, John W. Mayo, and Lee F. Pinkowitz, "The Law and Economics of Revenue Adequacy," in *US Freight Rail Economics and Policy: Are We on the Right Track?*, ed. Jeffrey T. Macher and John W. Mayo (New York: Routledge, 2019), 213–44.
8. Macher, Mayo, and Pinkowitz, "Law and Economics of Revenue Adequacy," 215.
9. Macher, Mayo, and Pinkowitz, "Law and Economics of Revenue Adequacy," 215–16.
10. Macher, Mayo, and Pinkowitz, "Law and Economics of Revenue Adequacy," 215–16.

Full deregulation came with the Staggers Rail Act of 1980, which enabled railroads to freely negotiate rates and to enter into long-term contracts with shippers. It reduced restrictions that prevented or discouraged railroads from entering or exiting specific markets and divesting unprofitable assets. But it also left in place provisions to protect shippers against unreasonably high rates on routes where competition was not present.[11]

As a result of the Staggers Rail Act, broad classes of freight where railroads faced intermodal competition were exempted from regulation and confidential contracts were no longer subject to regulatory oversight. Railroads were given greater operating freedom, and they were allowed to set their own rates, with a regulatory review process for shipments that were not exempt or under contract (called common carrier rates).

Following deregulation, railroads divested themselves of unprofitable routes and merged with other railroads to take advantage of economies of density and economies of scope. Railroad rates fell substantially and profits rose. As railroads became more profitable, investment increased (tracks and equipment were upgraded) and, as a result, service quality improved. Partly in response to deregulation of railroads and other transportation modes, between 1981 and 2001, logistics costs fell in the United States from more than 16 percent to less than 10 percent of GDP.[12] Although real (inflation adjusted) railroad rates have risen since 2004, they are on average about 33 percent lower now than they were in 1980.[13]

Overall, evidence shows that shippers benefited from railroad deregulation. But there were also distributional effects: some businesses that had been protected from high rates were paying more; the changes benefited some communities and sectors while harming others; rates fell for large shippers relative to those paid by smaller ones; and the lower relative costs contributed to higher market shares for large retailers.[14]

Over the years, the STB has commissioned studies to assess competition in the freight rail industry. A report by Christensen Associates, published in 2009, found that because railroad pricing was generating earnings at or slightly above the level required to ensure financial viability, "there is little room to provide

11. Richard L. Schmalensee and Wesley W. Wilson, "Modernizing US Freight Rail Regulation," *Review of Industrial Organization* 49, no. 2 (September 2016): 141.
12. Levinson, "Two Cheers for Discrimination."
13. Bureau of Transportation Statistics, Average Freight Revenue per Ton-Mile (dataset), accessed October 27, 2022, https://www.bts.gov/content/average-freight-revenue-ton-mile.
14. Levinson, "Two Cheers for Discrimination," 180.

significant 'rate relief' to certain groups of shippers without requiring increases in rates for other shippers."[15]

UNDERSTANDING SURFACE TRANSPORTATION BOARD RAILROAD REGULATION

In 1996, the ICC was replaced with the STB. One goal of the STB is to protect shippers from excessive rates when carriers possess monopoly power. But the STB is also expected to support the overarching goals of the Staggers Rail Act, including the objective that railroads must earn "adequate revenues."[16] The fact that revenues were generally less than adequate until after the turn of the century may partly explain the STB's reluctance to regulate rates.

Since deregulation, common carrier rates are viewed as reasonable unless challenged by a shipper. Shippers using common carrier rates are referred to as "captive shippers" because they lack access to alternative transport modes or alternative rail carriers and cannot easily move to a different location with better transport options. They can file a challenge with the STB if they believe the rate they are being charged is unreasonable. "By law, any common carrier rate is considered reasonable if it is less than 180% of 'variable cost.'"[17] For a rate to be considered unreasonable, the STB must determine that

- it is at least 180 percent of variable cost, and
- the railroad does not face effective competition between the markets served.

Variable cost includes the administrative costs, overhead costs, and costs of maintenance, service, repair, and inspection.

For the purposes of regulatory review, variable cost is calculated using the Uniform Railroad Costing System (URCS), where costs are measured by allocating aggregated expense items among different activities.[18] The URCS counts 100 percent of equipment costs and 50 percent of road property investment costs as variable.[19] Many of these costs are common costs, and thus they are not a good

15. Laurits R. Christensen Associates, Inc., *A Study of Competition in the US Freight Railroad Industry and Analysis of Proposals that Might Enhance Competition: Revised Final Report*, November 2009, ES-39, https://www.stb.gov/wp-content/uploads/files/docs/competitionStudy/Executive%20Summary.pdf.
16. Schmalensee and Wilson, "Modernizing US Freight Rail Regulation," 141.
17. Schmalensee and Wilson, "Modernizing US Freight Rail Regulation," 141.
18. Schmalensee and Wilson, "Modernizing US Freight Rail Regulation," 143.
19. William F. Huneke, "The Political Economy of Regulatory Costing: The Development of the Uniform Rail Costing System," *Journal of Transportation Law, Logistics and Policy* 84, no. 2 (2017): 196–223.

measure of the variable cost of a shipment. A substantial share of variable costs does not vary with the number or size of additional shipments. So it is rational for a railroad to accept a shipment as long as price covers incremental cost. As a result, it is not surprising that some shippers pay less than the variable cost, as calculated based on the URCS, even as others pay much more, since all costs must be covered if railroads are going to remain in business in the long run.

The STB determines whether a carrier faces effective competition or dominates a market by considering a shipper's proximity to other railroads and transportation modes.[20] Besides the competition carriers face from alternative transport providers over existing routes, they also face competition if a shipper can bypass the incumbent railway by "obtaining its product from a different source or shipping it to a different destination."[21] Although the STB did so prior to 1999, it no longer considers product and geographic competition as part of its assessment of whether a carrier is dominant in a particular market.

Once the STB has determined that a challenged rate exceeds 180 percent of URCS-defined variable costs and that the carrier is dominant, it then assesses the rate according to three criteria: excess railroad profits, railroad management inefficiency, and cross subsidization. "A captive shipper should not be required to pay more than is necessary for the carrier to earn adequate revenues" or "for efficient service," and it "should not bear the cost of any facilities or services from which it derives no benefit."[22]

A shipper can challenge a rate by asserting that it violates one or more of the three criteria. Regarding cross subsidization, in pricing commodities or services that share common costs, policymakers want the prices to be efficient and the share of common costs paid by each shipper to be fair. If the price paid by a shipper leads to prices paid by other shippers that are "[not] higher than they would pay by themselves, then the price structure is *subsidy-free*."[23]

Whether a price is subsidy-free can be measured by the Stand Alone Cost (SAC) test. The SAC is the estimated cost that an "efficient rail carrier would incur if it constructed a new rail network to deliver the shipment in

20. Schmalensee and Wilson, "Modernizing US Freight Rail Regulation," 144.
21. Surface Transportation Board, "Surface Transportation Board Reaffirms Its Decision to Exclude Consideration of Product & Geographic Competition in Market Dominance Determinations," press release no. 01-15, April 3, 2001, https://www.stb.gov/wp-content/uploads/archived-press-release/htmls/EFDBD0ACF0939F9F85256A2300509382.html.
22. Surface Transportation Board, Consumers Energy Company v. CSX Transportation, Inc., Docket No. NOR 42142, March 14, 2018.
23. Gerald R. Faulhaber, "Cross-Subsidization: Pricing in Public Enterprises," *American Economic Review* 65, no. 5 (1975): 966–77.

question."[24] The SAC sets an upper bound for what is considered a reasonable price. But since it cannot be directly observed, it is calculated as the estimated cost of a hypothetical railroad providing the single service in question.[25] If a railroad is charging more than the SAC, it is either earning excessive profit, cross subsidizing other shippers, or charging more to cover excessive costs because it is managed inefficiently. In practice, it is so costly for a shipper to prove that it is being charged a rate that is more than the SAC that only large shippers can bring rate cases to be adjudicated based on that standard.

Between 1996 and 2019, 43 cases were considered under the SAC standard: 30 involving coal, 11 involving chemicals, and one case each involving minerals and grain. In 30 of these cases, rates were found to be unreasonable or settlements were reached.[26] The problem with the SAC test as it has been applied over the years is that it has become very costly and time-consuming and has led to a great deal of rent-seeking.[27]

Concerns from shippers about procedures and vagueness of existing guidelines for challenging rates resulted in the board proposing and adopting a simpler alternative approach to calculating the SAC.[28] Instead of calculating the cost based on a hypothetical stand-alone railroad, the simplified SAC is calculated as the cost of "providing the current service with its current traffic on the actual railroad involved."[29] Even with the simplified SAC, the cost of bringing a case was considerably more than $1 million in 2012.[30] There were no simplified SAC cases since 2012, when changes were made that not only increased the litigation costs of bringing such cases but also removed the $5 million limit on rate relief that a shipper could obtain.[31]

---

24. John W. Mayo and David E. M. Sappington, "Regulation in a 'Deregulated' Industry: Railroads in the Post-Staggers Era," *Review of Industrial Organization* 49, no. 2 (2016), 209.
25. Schmalensee and Wilson, "Modernizing US Freight Rail Regulation."
26. Surface Transportation Board, "Rent Case List, November 19, 2019," accessed October 27, 2022, https://www.stb.gov/wp-content/uploads/Rate-Case-List-11-19-2019.pdf.
27. Rent seeking is when firms use means such as lobbying to support government policies that enable them to earn more profits. Russell Pittman, "Against the Stand-Alone Cost Test in US Freight Rail Regulation" (Economic Analysis Group Competition Advocacy Paper No. EAG 10-1 CA, US Department of Justice, Washington, DC, April 2010), https://www.justice.gov/atr/against-stand-alone-cost-test-us-freight-rail-regulation.
28. Rate Reform Task Force, *Report to the Surface Transportation Board*, April 25, 2019, https://www.stb.gov/wp-content/uploads/Rate-Reform-Task-Force-Report-April-2019.pdf.
29. Schmalensee and Wilson, "Modernizing US Freight Rail Regulation," 148.
30. In 2007, STB estimated that it would cost $1 million to litigate a simplified SAC case. In 2012, STB implemented reforms, including improving the accuracy of the Road Property Investment (RPI) component of the simplified SAC test, which was expected to further raise litigation costs. Surface Transportation Board, "Rate Regulation Reforms," Docket No. EP 715, July 25, 2012.
31. Surface Transportation Board, "Rate Regulation Reforms," 13.

Beginning in 1996, the STB completed the rulemaking for the three-benchmark method, which is a simpler and less costly method[32] for evaluating rate reasonableness in relatively small-rate cases.[33] It involves calculating three benchmarks based on all freight for which the railroad charges more than 180 percent of variable cost, assumed to encompass all captive traffic.[34] The first benchmark is the Revenue Shortfall Allocation Method (RSAM), the average markup above variable cost that the railroad would need to charge on a freight to cover all its fixed costs, which is equivalent to earning adequate revenue. The second benchmark measures the *actual* average markup on all freight priced above 180 percent of variable cost. The third benchmark is the average markup the railroad charges for all traffic that is comparable to the traffic in question, where comparable means similar enough for shippers to have comparable elasticities of demand for transport services.

After calculating the three benchmarks, the STB estimates the ratio of the markup on traffic comparable to the traffic in question to the average markup charged by the carrier on all its captive traffic, and then multiplies the result by the average markup needed to be revenue adequate. Put differently, the STB determines the ratio of the third benchmark to the second and multiplies that ratio by the RSAM, then compares this value with the actual markup of the shipment in question. If the actual markup is higher than the calculated value, then the rate is deemed to be too high, and the shipper is eligible for rate relief. Because the calculation of the markup on comparable traffic uses data from the rail industry Waybill Sample, the upper limit for what is considered a reasonable rate is the upper bound of a confidence interval around the calculated markup.[35]

Thus the maximum rate the railroad is permitted to charge is based on the elasticity of demand of a particular shipment as well as a measure of the railroad's revenue adequacy. By calculating the ratio of the markup on comparable

32. Mayo and Sappington, "Regulation in a 'Deregulated' Industry."
33. Small-rate cases are those cases that involve small shipments, such that the benefits from being awarded a lower rate might not be enough to cover the cost of bringing a case. See Mark Burton and Paul Hitchcock, "The Evolution of the Post-Staggers Rail Industry and Rail Policy," in *US Freight Rail Economics and Policy*, ed. Jeffrey T. Macher and John W. Mayo (New York: Routledge, 2019), 1–29.
34. For a detailed explanation of the three-benchmark method for assessing rate reasonableness, see InterVISTAS Consulting, Inc., *Surface Transportation Board: An Examination of the STB's Approach to Freight Rail Rate Regulation and Options for Simplification*, September 14, 2016, https://www.stb.gov/wp-content/uploads/STB-Rate-Regulation-Final-Report.pdf.
35. A Waybill is a document prepared by the carrier containing details of the goods being shipped, route, and charges. The STB collects a stratified sample of Waybills from all railroads terminating 4,500 or more revenue earning carloads per year. Burton and Hitchcock, "The Evolution of the Post-Staggers Rail Industry and Rail Policy," 16–17.

freight to the average markup on all of the railroads captive traffic, the three-benchmark formula attempts to adjust for differences in elasticity of demand, so that the railroad is permitted to charge a higher rate for shipments with less elastic demand (larger values of demand elasticity). There is an implicit assumption that the rate charged by the railroad is positively associated with the demand elasticity of each shipment.

This approach has important weaknesses and limitations, partly because it is based on the URCS estimate of variable cost, but also because it arbitrarily draws a line at 180 percent of variable costs, with traffic charged less than that assumed to be paying a competitive rate and more than that assumed to be captive. It does not count any revenue from firms that pay less than 180 percent of variable cost as calculated by the URCS, and only counts payments in excess of 180 percent of variable costs in determining whether the railroad is earning enough to cover its fixed costs.

Only a few three-benchmark cases have been brought to the STB, and no complaint has been litigated to completion under the simplified SAC methodology.[36] Instead, shippers and carriers have negotiated settlements for most of these cases.

Besides focusing on rates, the STB has the option of inducing competition between rail carriers by means of reciprocal switching, which involves the government mandating a carrier to allow a shipment to be transferred to a competing carrier at an interchange point. The competing carrier pays a switching fee to the incumbent carrier "for bringing or taking the cars from the shipper's facility to the interchange point or vice versa."[37] This enables a competing carrier whose lines do not reach a shipper's facility or the shipment destination to compete with the incumbent carrier that serves both facilities. Since the passage of the Staggers Act, the STB (and its predecessor, the ICC) has had the authority "to enter into reciprocal switching agreements *where it finds such agreements to be practicable and in the public interest, or where such agreements are necessary to provide competitive rail service*" (emphasis added).[38]

Neither the ICC nor the STB have granted the request of any shipper for reciprocal switching, although it was requested in several cases that were decided since 1980. In 1985, the ICC decided to use its regulatory power only to

36. Surface Transportation Board, "Final Offer Rate Review."
37. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules; Reciprocal Switching," Docket No. EP 711, July 27, 2016.
38. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules."

correct abuses that result from insufficient competition.[39] The STB has followed these same regulations.

The Role of Revenue Adequacy in Rate Regulation

Like firms in any industry, the willingness of railroads to invest in their capacity depends on whether they earn a high enough rate of return to cover the opportunity cost of their capital. Because of inadequate investment in the past, regulators have been monitoring revenue adequacy, which has improved considerably in recent years.

The STB has calculated revenue adequacy as the return on investment of a given railroad divided by the industry cost of capital.[40] If the ratio exceeds one, the firm is viewed as having adequate revenue.

An important question is whether the "underlying statutes encourage" or "authorize the use of revenue adequacy as a component of regulatory standards."[41] According to the ICC's order in the 1985 Coal Rate Guidelines, ". . . captive shippers should not be required to pay differentially higher rates than other shippers when some or all of that differential is no longer necessary to ensure a financially sound carrier capable of meeting its current and future service needs."[42] This implies that if the carrier would earn adequate revenue without charging a rate differential to captive shippers or charging a smaller rate differential, then its rates should be viewed as unreasonable. In its complaint against CSX Transportation, Consumers Energy Company asserted that the rate charged was unreasonable because CSX Transportation was earning adequate revenue.[43] This part of the complaint would have been grounds for finding the rate unreasonable had the STB concluded that CSX Transportation was revenue adequate. But it did not.

Problems exist with how revenue adequacy is officially measured.[44] First, since the cost of capital varies between firms, a railroad with revenue estimated as adequate might not be earning enough if its cost of capital is higher than the industry average. Also, the estimated return on assets may be an inaccurate

39. This approach was affirmed by the DC Circuit in *Midtec paper Corp V. U.S.* 857 F.2d 1487 (D.C. Cir. 1988).
40. Macher, Mayo, and Pinkowitz, "Law and Economics of Revenue Adequacy."
41. Burton and Hitchcock, "The Evolution of the Post-Staggers Rail Industry and Rail Policy," 22.
42. Surface Transportation Board, "Coal Rate Guidelines," 1 ICC2d at 535–36, cited in InterVISTAS, Inc., *Surface Transportation Board*.
43. Surface Transportation Board, "Consumers Energy Company v. CSX Transportation, Inc."
44. Macher, Mayo, and Pinkowitz, "Law and Economics of Revenue Adequacy."

measure of a firm's rate of profit, if the accounting measure of depreciation differs from economic depreciation. The STB estimates rates of return in terms of the historical cost of assets, which is often much lower than the replacement cost. Railroads own many assets that have fully or almost fully depreciated using accounting rules, even though those assets have considerable economic value.[45]

Each approach used for rate regulation has potential problems. The first problem is one of measurement and comparing the measured value with an appropriate benchmark. The more effort involved in accurately estimating whether a rate is reasonable, the more costly will be the rate review process. This contributes to substantial "inequality in shipper access to the law's maximum rate protections."[46] Rate regulation may also reduce incentives to invest, innovate, or provide high-quality service. Understanding how existing approaches to rate regulation and any proposed reforms affect incentives requires an analysis of the underlying economics.

Economic Analysis of Railroads and Rate Regulation

Railroads bear enormous costs to maintain their networks of rails, switching yards, and rolling stock. Many of the costs are fixed, and others are common to more than one activity. Because of their high fixed costs, they can only survive if their prices are higher than their marginal costs. To maximize profits, railroads will vary their prices based on the elasticity of demand of a particular shipment. The more elastic a shipper's demand, the closer will be the profit-maximizing price to the carrier's marginal cost for that shipment.

The ICC endorsed Ramsey pricing, which is consistent with profit-maximization.[47] The Ramsey price is defined as the percent markup that will result in maximizing total surplus and is proportional to the inverse of the elasticity of demand.[48] Railroads will also vary their prices in response to the way that costs vary over time. Marginal costs are higher along popular routes or

45. Surface Transportation Board, "Hearing on Railroad Revenue Adequacy," December 13, 2019, 54, https://www.stb.gov/wp-content/uploads/Transcript-2019-12-13.pdf.
46. National Academies of Sciences, Engineering, and Medicine, *Special Report 318: Modernizing Freight Rail Regulation* (Washington, DC: Transportation Research Board, 2015), 6, http://nap.edu/21759.
47. By allowing differential pricing so railroads could achieve revenue adequacy, the Staggers Rail Act implicitly endorsed Ramsey pricing. The ICC stated the "the constraints and incentives CMP [constrained market pricing] contains should lead to rates approximating Ramsey prices." See Surface Transportation Board, "Coal Rate Guidelines," 1 ICC2d at 527, cited in InterVISTAS, Inc., *Surface Transportation Board*.
48. InterVISTAS, Inc., *Surface Transportation Board*, 21–22.

during periods when facilities are congested, so it makes sense to raise prices in those cases.

Railroads can be expected to charge higher prices to captive shippers, but regulation seeks to keep these prices from being unreasonably high. The question is how to determine when prices are unreasonably high. Proponents of regulation argue that prices should be *fair*. One definition of fairness is based on economic incentives; that is, prices are fair if they provide the right incentives to shippers while preserving adequate incentives for carriers to stay in business and invest in their capital stock.

It is important that railroad rates are not so high that they discourage shippers from transporting their goods to market. But this depends on elasticity of demand. With Ramsey pricing, prices are higher the less elastic the demand. So rates will be highest to those shippers that are willing to pay the most and are the least deterred by the high prices of shipping their products. It is in the interest of carriers to use Ramsey pricing, because it will enable them to maximize their profits.

By opening the door for the ICC to formulate and accept constrained market pricing (CMP), the Staggers Act encouraged Ramsey pricing, which is perhaps the most efficient way for a railroad to cover its fixed costs. "CMP embraces individualistic contracting between shippers and rail carriers," which leads to differential pricing across customers.[49] In such an environment, Ramsey-like prices should "emerge organically in the market as a consequence of private market negotiations."[50] Rate regulation, as applied via the SAC test, serves as a recourse for a shipper that is captive to a dominant carrier and is charged a high rate. The SAC test does not impose uniformity across shippers and only focuses on upper limits.

The SAC test is based on the premise that rates should be no higher than they would be if transport markets satisfied the hypothetical ideal of a contestable market.[51] A contestable market is where there are no sunk costs, so new firms have sufficient incentives to enter the market if prices are high enough that they could earn economic profits. The new entrant would suffer "no disadvantage relative to the incumbent."[52] This threat of entry would motivate incumbent

49. John W. Mayo and Robert D. Willig, "Economic Foundations for 21st Century Freight Rail Rate Regulation," in *US Freight Rail Economics and Policy: Are We on the Right Track?*, ed. Jeffrey T. Macher and John W. Mayo (New York: Routledge, 2019), 46.
50. Mayo and Willig, "Economic Foundations for 21st Century Freight Rail Rate Regulation," 40.
51. Surface Transportation Board, "Simplified Standards for Rail Rate Cases," Docket No. Ex Parte 646 (Sub-No. 1), September 5, 2007.
52. Jerry Hausman and Steward Myers, "Regulating the United States Railroads: The Effects of Sunk Costs and Asymmetric Risk," *Journal of Regulatory Economics* 22 (2002): 287–310.

firms to charge prices only as high as necessary to cover all opportunity costs, including a rate of return on investment similar to what they could earn if their capital were invested in another comparable industry.

Since railroads have high sunk costs, the market is not contestable. This means that if there is sufficient demand for its services, a railroad can charge prices that will enable it to earn an economic profit that is more than what is necessary to incentivize continued investment and innovation. Based on concerns about fairness, regulators face pressure to limit prices carriers are permitted to charge to captive shippers. The problem with this approach is that in a world of uncertainty, any policy that limits economic profit will also discourage risk taking. Firms are willing to undertake risky investments for which there is a significant probability of loss only if that probability of loss is offset with a sufficiently significant chance of economic gain.

Assuming contestable markets results in a calculated SAC that is likely too low.[53] A standalone railroad (SARR) deciding whether to enter the market would face comparable upside and downside risks since there would be no barriers to entry or exit. Its profit would be limited by the potential entry of new competitors if demand is higher than expected; but if demand is lower than expected, the firm would be able to exit and recoup all its fixed costs. However, the market is not contestable. If an actual SARR were to enter the market, many of its costs would be sunk and thus could not be recouped. Its downside risk would be substantial and equal to the value of specialized capital it invests that does not have alternative uses. On the upside, it would face some potential competition if demand is higher than expected, and thereby be limited in the profits it could earn. The SAC calculations do not account for this asymmetry and thus underestimate the price an entrant would need to be able to charge to justify entering the market.

The STB states that "use of SAC introduces the competitive standard of contestability into a non-competitive market."[54] This sounds reasonable, but it does not explain "why such an exercise is in any sense welfare-, efficiency-, or fairness-enhancing."[55]

Despite its limitations, the SAC has important advantages over alternative approaches to assessing the reasonableness of rates. Because the SAC is based on the cost of a hypothetical rail carrier, it does not depend on how well the railroad manages its existing operations, and thus it will not reduce incentives to operate

53. Hausman and Myers, "Regulating the United States Railroads."
54. Surface Transportation Board, "Coal Rate Guidelines," 1 ICC2d at 9, cited in InterVISTAS, Inc., *Surface Transportation Board*.
55. Pittman, "Against the Stand-Alone Cost Test in US Freight Rail Regulation," 321.

efficiently or to innovate. Unlike measures of revenue adequacy that focus on the rate of return to capital, the SAC does not penalize a carrier for finding ways to keep costs down.

Every existing approach to rate regulation the STB uses relies on URCS-calculated variable costs. Assigning variable costs to specific shipments and calculating the ratio of rates to variable costs is not a sensible way to determine whether a firm has market power.[56] As noted earlier, because URCS-derived variable costs include fixed costs and common costs, they are arbitrary measures of cost that are not useful as a benchmark for determining whether a market is competitive. Although the three-benchmark approach saves shippers litigation costs and streamlines the rate review process, using it results in the STB becoming "more dependent on the arbitrary cost allocations made by the URCS," which lacks any basis in economic theory.[57]

In evaluating existing regulation, two important considerations should be kept in mind. First, because of the light touch of existing rate regulation, US freight railroads have been doing well, with most earning adequate revenue in recent years.[58] This depends on carriers' freedom to charge high enough prices to earn adequate revenue and to vary prices to compete effectively. Second, existing rate regulation discriminates against small shippers because only large shippers can afford to bring a rate case using the SAC method or the three-benchmark approach.

REFORM PROPOSALS

Two recent studies have considered how to reform economic regulation of the freight railroad industry. The US Department of Transportation (DOT) sponsored a study on "the US freight railroad industry's economic regulation" by the Transportation Research Board (TRB), which was completed in 2015.[59] A somewhat more narrowly focused study on how to reform rate regulation was conducted by a Rate Reform Task Force (RRTF) established by the STB in January

56. The Transportation Research Board recognized this problem and suggested repealing the use of the 180 percent revenue to variable cost ratio as part of the process for determining whether a rate is reasonable. See National Academies of Sciences, Engineering, and Medicine, *Modernizing Freight Rail Regulation*, 4–5.
57. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 212.
58. Surface Transportation Board, "Railroad Revenue Adequacy," Docket No. Ex Parte 552, January 27, 2022, https://www.stb.gov/wp-content/uploads/Revenue-Adequacy-chart-2020-2.pdf.
59. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 1.

2018.[60] Both studies provide helpful insights on how to reform regulation to achieve a balance between reasonable rates for shippers and adequate incentives for carriers.

The TRB study included the following recommendations:

- "Prepare to repeal the 180 percent revenue to variable cost formula by directing DOT to develop, test, and refine competitive rate benchmarking methods that can replace URCS in screening rates for eligibility to be challenged."
- "Replace STB rate reasonableness hearings with arbitration procedures that compel faster resolutions of disputes involving rates deemed eligible for challenge because they substantially exceed their competitive rate benchmarks."
- "Allow reciprocal switching as a remedy for unreasonable rates," with the possibility of arbitrators imposing reciprocal switching arrangements in response to offers made by the parties involved in a rate dispute.
- "End annual revenue adequacy determinations and require periodic assessments of industrywide economic and competitive conditions."[61]

The authors of the TRB study recommend that the STB replace the "revenue-to-variable cost formula" with a procedure that compares the rate in question to a benchmark rate calculated using statistical methods and data on market-based rates in order "to predict what the shipment's tariff rate would be in a market having effective competition."[62] This improved approach to determining the reasonableness of rates could then be used—along with any other relevant evidence, including evidence about product and geographic competition—to determine whether a carrier dominates a particular market.[63]

The TRB study supports the STB's historic approach of making entitlement to rate relief contingent on a finding of market dominance. But they also argue for replacing STB rate reasonableness hearings with an arbitration procedure.[64] The proposed arbitration procedure is modeled after the final-offer arbitration approach long used in Canada. The RRTF also argues for the arbitration approach similar to that used in Canada, but one involving the STB rather than a private arbitrator.

60. Rate Reform Task Force, *Report to the Surface Transportation Board*.
61. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 5–9.
62. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 4–5.
63. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 206.
64. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 206.

The TRB proposes allowing reciprocal switching as a remedy for unreasonable rates, but in a way that would be less harmful than the STB mandating reciprocal switching and setting fee schedules or distance limits as a matter of general practice.[65] In particular, they recommend reciprocal switching be used only if it is included in the final offer of one party and accepted by an arbitrator.

A recent paper by two authors of the TRB study analyzes an alternative approach for determining whether a price is reasonable,[66] which could be implemented as part of a final offer arbitration process. The approach involves a rule that works like statistical hypothesis testing and requires overwhelming statistical evidence against a price being reasonable for it to be deemed unreasonable. It is based on estimates of "the conditional distribution of reasonable prices, given shipment characteristics on data simulated from markets in which the firm faces a reasonable level of competition."[67] In simulations, the authors find that the use of their price benchmark procedure "provides significant rate relief to a shipper facing prices that are determined by our price benchmark to be set by a dominant railroad."[68] Furthermore, the approach would result in rate relief for a small fraction of all shipments, and so it is unlikely to adversely affect a railroad's revenue adequacy.

Biden's Executive Order in Historical Context

The changes to freight railroad regulation proposed by the Biden administration, which included reciprocal switching and FORR, are consistent with recent STB rulemaking that pre-dates the 2020 election.

Although reciprocal switching has been part of the STB's authority since 1980, the STB has recently considered expanding its use. In 2011, the National Industrial Transportation League (NITL) filed a petition for rulemaking, urging regulatory change and arguing that reciprocal switching should be mandatory if certain conditions showing evidence of insufficient competition were present. In a 2016 decision, the STB granted the NITL's petition in part: the board proposed to impose reciprocal switching on a case-by-case basis rather than make

65. National Academies of Sciences, Engineering, and Medicine, *Special Report 318,* 214.
66. Wesley W. Wilson and Frank A. Wolak, "Price Benchmark Regulation of Multiproduct Firms: An Application to the Rail Industry," special issue in memory of Harold Demsetz, *Journal of Law and Economics* 65, no. S1 (February 2022): S155–S190.
67. Wilson and Wolak, "Price Benchmark Regulation of Multiproduct Firms," S158.
68. Wilson and Wolak, "Price Benchmark Regulation of Multiproduct Firms, S159.

it mandatory.[69] This new approach would promote further use and availability of reciprocal switching based on a two-pronged approach.

The first prong requires showing that reciprocal switching is practicable and in the public interest. This includes demonstrating that "the potential benefits from the proposed switching arrangement outweigh the potential detriments."[70] If either rail carrier can show that such switching arrangement is unsafe or that it will "unduly hamper the ability of that carrier to serve its shippers," then it is not practicable.[71]

The second prong requires showing that reciprocal switching is necessary to provide competitive rail service. Neither prong requires demonstrating anticompetitive conduct.[72] Nevertheless, for reciprocal switching to be imposed, shippers must initiate a proceeding with the STB and show that it is needed.

Part of the reason for proposing this new approach is that Class I railroads have experienced improved revenue adequacy. In its 2016 rulemaking, the STB quoted from a report of the Senate Committee on Commerce, Science, and Transportation, which noted that "railroads' financial viability has drastically improved."[73]

Because the STB is an independent agency, the statement about reciprocal switching in the Biden administration's executive order should not be viewed as a directive, but rather as an announcement that the administration would like the STB to use its authority to order reciprocal switching to enhance competition.[74] Even if the STB implements its 2016 decision in response to the executive order, it is not clear how often it will impose reciprocal switching. Regardless, before its 2016 decision can be implemented, it likely will be challenged in court,[75] and the resulting uncertainty could discourage capital investment by rail carriers.

Unlike other shippers, who support the proposed change in policy toward reciprocal switching, UPS came out in opposition to it, noting "that its experience

69. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules."
70. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules," 18.
71. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules," 18.
72. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules," 19.
73. Surface Transportation Board, "Petition for Rulemaking to Adopt Revised Competitive Switching Rules," 9.
74. Berman, "White House Executive Order."
75. Steven Kilger, "With Proposed Rail Rate Rules, Ag Shippers May Gain Leverage," *Feed & Grain*, April/May 2022, 35.

in other contexts led it to conclude the implementation of reciprocal switching will result in decreased network velocity, diminished capital investments by railroads, and deteriorating rail intermodal service levels."[76] Also, STB Chairman Ann Begeman, in her dissent, raised concerns that the rule would "create complexity and cost impacts" and introduce more unpredictability to the rail network.[77]

The Biden administration's proposal for FORR is consistent with a proposal presented by the STB's RRTF. In September 2019, the STB issued a notice of proposed rulemaking that built on a recommendation by the RRTF to "establish a new rate case procedure for smaller cases."[78] As part of FORR, the carrier and the shipper would be required to submit a final offer, and the STB would then choose between each offer. Carriers have argued that this is mandatory arbitration, which has not been authorized by Congress.[79] But FORR does not involve private arbitrators, and the STB does more than choose between final offers. The STB would choose between the two final offers only if it determines that the carrier has market dominance and the challenged rate is unreasonable for the shipment in question. Otherwise, the rate charged by the carrier would stand.

In response to carrier objections, the STB is also considering a final offer arbitration approach that is parallel to FORR. On July 21, 2020, five Class I carriers filed a petition for rulemaking to add a small-rate case arbitration program that would function alongside an existing arbitration program.[80] This new proposal is based on an agreement by the five carriers to opt-in for a period of five years to have all small-rate cases brought by shippers voluntarily arbitrated. Another Class I carrier later filed a letter in support of this effort to develop an arbitration program for small-rate cases and agreeing to participate in such a pilot program.[81] This is noteworthy because, in the past, although carriers and shippers had the option of pursuing voluntary arbitration, none had agreed to do so.

If the STB implements this new approach to final offer arbitration, it would most likely also implement FORR, which would apply to any carrier, even those

76. David Sparkman, "UPS Reciprocal Switching Comments to the STB Surprise Shippers," Material Handling & Logistics, November 4, 2016.
77. Dan Bosch, "Reciprocal Switching: Re-Regulation at the STB?," American Action Forum, April 10, 2018, https://www.americanactionforum.org/insight/reciprocal-switching-re-regulation-stb/.
78. Surface Transportation Board, "Final Offer Rate Review," 2.
79. Surface Transportation Board, "Final Offer Rate Review," 13.
80. Surface Transportation Board, "Joint Petition for Rulemaking to Establish a Voluntary Arbitration Program for Small Rate Disputes," Docket No. EP 765, November 12, 2021.
81. Surface Transportation Board, "Joint Petition for Rulemaking to Establish a Voluntary Arbitration Program for Small Rate Disputes," 6.

that do not opt-in. The FORR could also serve as a backstop for shippers to use if a carrier were to withdraw its consent to arbitrate. A carrier would be permitted to withdraw before the five years are up if the STB makes any changes in its rate reasonableness methodologies or adopts a material change in the proposed arbitration program.[82]

Now that a majority of Class I carriers are earning adequate revenue, the STB has included revenue adequacy as a criterion that may be considered for final offer arbitration. Before an arbitration program is implemented, the STB must decide how to respond to carriers' objections to permitting an arbitration panel to use revenue adequacy as a criteria. Carriers have stated that "they will not agree to arbitrate rate disputes where shippers are permitted to use revenue adequacy as a constraint."[83]

Analysis of Reform Proposals

Because of economies of scale and economies of density, it is likely that most markets will continue to be served by one or two rail carriers. Carriers' monopoly power is limited by competition from other transportation modes and by shippers' options to relocate the source or destination of their shipments. Relocation, however, may not be an option for most small agricultural shippers, some of whom face railroad freight rates that are especially high as a result.

Reciprocal Switching

Attempts to promote intramodal competition by requiring reciprocal switching are not very promising. In most cases, there is only one potential competitor, and it is unlikely that a firm would have sufficient incentive to initiate price competition if it could interconnect with the incumbent carrier. With only two competing firms, tacit collusion not to offer competitive prices could result when reciprocal switching is an option.[84]

An approach equivalent to reciprocal switching, known as competitive switching, has been used in Canada since 1904, and it is often applied in situations where railroads possess some market power over local shippers. For most

82. Surface Transportation Board, "Joint Petition for Rulemaking to Establish a Voluntary Arbitration Program for Small Rate Disputes," 15.
83. Surface Transportation Board, "Joint Petition for Rulemaking to Establish a Voluntary Arbitration Program for Small Rate Disputes," 39
84. US Department of Justice, "Comment on Reciprocal Switching," Docket No. EP 711, February 28, 2022.

of Canada's history, mandatory interswitching policy was constrained by the requirement that an interswitching point be within a 30 km radius of a shipment's origin or destination.[85] As a result, given the geographical distribution of Canadian railroads, interswitching was not used very often.[86] Beginning in 2014, the interswitching zone was temporarily extended to 160 km in Western Canada, but only for a three-year period. A number of shippers benefitted from this change.[87] But the policy was discontinued, apparently because the rates imposed on longer hauls, which were determined by the Canadian Transportation Agency, did not sufficiently compensate the switching railway.[88]

Reciprocal switching is a time-consuming process that ties up equipment and rails. It thus adds costs and may contribute to delays in transporting other traffic. According to Nimesh Modi, CEO of BookYourCargo, a drayage technology company, it could increase transit time from 15 days to 21 days to ship from New York to Los Angeles.[89] Any arrangement that requires a carrier to share its facilities with rivals is likely to make it harder for the carrier to manage and coordinate its operations, and "the consequences of poor freight rail system control are potentially catastrophic."[90] When carriers decide voluntarily to participate in reciprocal switching agreements, they do so in a way that does not interfere with their own traffic. But mandatory switching agreements do not allow such discretion and thus may contribute to congestion and reduced service quality.

The biggest danger with the STB changing its stance toward reciprocal switching in response to the Biden administration's recent executive order is that by raising carriers' costs and reducing prices they can charge, it might significantly reduce the profitability of rail carriers. Current light-touch regulation does not interfere with many carrier pricing decisions and has no effect on their operating costs. The result is that most carriers in recent years have earned enough revenue to cover their capital costs, and thus have an incentive to invest

85. James Nolan, Chi Su, Logan Pizzey, and Steven Peterson, "Parallel or Converging? A Comparative Analysis of the Grain and Rail Transportation Systems in Canada and the United States," AgEcon Search, November 2, 2020, https://ageconsearch.umn.edu/record/307243.
86. James Nolan and Steven Peterson, "Grain Handling and Transportation Policy in Canada: Implications for the United States," *Choices* 30, no. 3 (2015), https://www.osti.gov/biblio/1210159.
87. Nolan, Su, Pizzey, and Peterson, "Parallel or Converging?," 42.
88. Nolan, Su, Pizzey, and Peterson, "Parallel or Converging?," 43.
89. Joanna Marsh, "No Simple Swap: Ins and Outs of Reciprocal Switching on US Railroads," *Freight Waves*, October 1, 2021, https://www.freightwaves.com/news/no-simple-swap-ins-and-outs-of-reciprocal-switching-on-us-railroads.
90. T. Randolph Beard, Jeffrey Thomas Macher, and Chris Vickers, "This Time Is Different (?): Telecommunications Unbundling and Lessons for Railroad Regulation," *Review of Industrial Organization* 49, no. 2 (September 2016), 304.

in facilities and equipment. Given the competition that railroads face on many of their routes, they are able to cover their fixed costs and common costs by charging significantly higher prices for high-valued shipments between markets where there is less competition. Stricter regulation that reduces revenue or hampers the carriers' ability to manage their own assets risks taking an industry that has been performing relatively well back to inadequate profitability. Such regulation would reduce investment by freight railroads at a time when they are the better option compared to trucks.

Shipping by truck results in much higher external costs than shipping by rail. Trucks cause pavement damage, contribute to traffic congestion, and lead to more injuries, deaths, and property damage per ton mile than trains. Trucks also emit three to four times more particulate matter and nitrogen oxides than trains. The result is that the external cost per ton-mile net of taxes is between 2.62 and 5.86 cents for trucks and between 0.30 and 0.82 cents for rail carriers.[91] Adding in external costs would raise the cost of truck transport, which is already considerably higher than the cost of rail transport, by about 20 percent. Stricter regulation, whether by mandating reciprocal switching or other changes, could discourage investment in existing and new capacity by freight railroads, which would decrease the market share of railroads, despite their lower external costs.

Furthermore, potential introduction of autonomous trucks poses a significant competitive threat to freight railroads.[92] Autonomous trucks can substantially reduce labor costs, which would allow them to compete on routes where railroads have had a big cost advantage in the past. It is important that regulation does not interfere with the profitability of railroads so they can invest sufficiently to remain competitive.

Final Offer Arbitration

Although it is important to keep regulation from becoming too strict, some changes should be made in the STB regulation that would benefit small shippers. The FORR as advocated by the Biden administration or a final offer arbitration with all carriers participating could promote more competitive rates without having much of an impact on revenue adequacy.

The STB cannot mandate final offer arbitration without congressional approval, but it could be applied to carriers who voluntarily agree to use it. For

91. David Austin, "Pricing Freight Transport to Account for External Costs" (Working Paper 2015-03, Congressional Budget Office, Washington, DC, March 2015).
92. Marsh, "No Simple Swap."

carriers that do not agree, FORR could be required as a backup. Any process based on an independent third party choosing between final offers would reduce the cost of rate review for shippers. If the arbitrator or the STB considers only final offers, each side has an incentive to avoid extreme offers in order to convince the decision-making body that its offer is the most reasonable. Also, keeping the offers and process confidential eliminates the fear of making an offer that creates an unfavorable precedent.

Final offer arbitration is not a panacea, and it is guided by less objective criteria than the STB's decision about rate reasonableness, because it involves private arbitrators. Nevertheless, insofar as carriers and shippers are willing to agree to use it for a trial period, it may be a process that is less costly and fairer to small shippers than the existing STB rate review.

All but one Class I railroad has expressed a willingness to implement final offer arbitration. Therefore, allowing them to do so for a trial period seems like a good compromise, along with requiring FORR for those that do not voluntarily agree to participate. Final offer arbitration or FORR need only be applied for rate cases involving shippers that are too small to be able to afford bringing a rate case to the STB using the SAC test. But it lacks the transparent standards that guide the SAC and related approaches because the process would likely be confidential. This is why it is best applied only for small shippers in cases where it is too costly to use an existing method.[93]

Whether the STB implements FORR, a new voluntary arbitration program, or both to make it easier for small shippers to get rate relief, no approach should use revenue adequacy as a constraint on the rates that carriers may charge. In testimony before the STB, economists Kevin Murphy and Mark Zjimewski emphasized that measures of revenue adequacy, which are based on accounting returns, are not a good measure of economic returns.[94] In considering data comparing railroad revenue adequacy with that of other industries between 2006 and 2018, they note that railroads have averaged a return only about a half percent higher than their cost of capital while other industrial companies in the S&P 500 earned average returns 19 percent higher and industries that are railroads' customers earned average returns about 9 percent higher. Railroads' historical book values tend to understate the market value of their assets due to many of their assets (e.g., bridges, tunnels, and tracks) being fully depreciated. As a result, railroads' accounting rates of return likely exceed their economic rates of return.

93. Mayo and Willig, "Economic Foundations for 21st Century Freight Rail Rate Regulation," 52.
94. Surface Transportation Board, "Hearing on Railroad Revenue Adequacy."

It is doubtful that regulators have sufficient information to determine all the consequences of requiring carriers to charge lower prices. High profits are not necessarily a result of the carrier having market power. It may be because a carrier has found ways to reduce cost or improve the quality of service. Regulation that gets triggered based on the level of profits may discourage such efforts. What appears to be a higher than adequate rate of return also may be due to mismeasuring some costs, underestimating the value of assets, or a temporary increase in demand. Rate regulation based on mismeasurement or a temporary increase in demand may result in the expected rate of return being inadequate in the future, which would discourage investment. Thus, the STB should exercise great caution when allowing evidence of revenue adequacy and concluding that a rate is too high.

Better decisions about reforming regulation could be made if the STB performed regulatory impact analysis. The analysis could assess problems that reform tries to address, such as whether significant numbers of small shipments involve railroads that have market dominance and are being charged "rates that may not be just and reasonable."[95] It could also collect data to assess the cost of current rate complaint procedures, identify alternatives to the current rate complaint process, and assess "the benefits, costs, and transfers associated with each alternative compared to the 'no action' baseline."[96] The goal of regulatory impact analysis is to make sure that the STB's decisions are informed by analysis rather than just a response to political pressure. Ann Begeman identified the lack of analysis as a reason for her dissent of the STB's decision to oppose the 2016 rule on reciprocal switching.[97]

CONCLUSION

Regulators lack the information to prove that railroads are earning excessive profit. Railroads are much more profitable than they were prior to the passage of the Staggers Rail Act, but their profit is not necessarily higher than other comparable industries. Any strict regulation—whether reciprocal switching, final offer arbitration, or more liberal application of the SAC—that reduces profitability may discourage investment in railroads, a vital industry for maintaining

95. See Jerry Ellig, "The Surface Transportation Board's Proposed Rules, Market Dominance Streamlined Approach, Docket No. EP 756, Final Offer Rate Review Docket Nos. EP 755 and EP 665 (Sub-No. 2)" (Public Interest Comment, George Washington University, Washington, DC, November 6, 2019).
96. Ellig, "Surface Transportation Board's Proposed Rules," 15.
97. Bosch, "Reciprocal Switching," 6.

dependable supply chains. It may also prevent railroads from playing the role they are capable of: transporting goods in a cost effective and environmentally sustainable way.

Deregulation has reduced rail rates, even for captive shippers. Although some shippers have benefited much more than others, when compared with the reduction in rates paid by noncaptive shippers, the loss to captive shippers from elevated rates has been small. Between 1980 and 2004, the reduction in rates exceeded the amount that rates were elevated to captive shippers compared to noncaptive shippers.[98]

Complete deregulation is not politically feasible insofar as there is a perception that some captive shippers are (or would be) paying unfair rates without regulation. And reform should reduce the inequitable consequences of existing rate regulation that favors large over small shippers. Part of the Biden administration's executive order that calls for FORR could enhance the opportunity for captive small shippers to challenge the rates they are being charged and may contribute to those shippers being charged more competitive rates. But, as called for in the executive order, if the STB also implements mandated reciprocal switching, it would be a blunt approach toward helping small shippers that could impose significant costs and reduce service quality of the affected carriers. There are good reasons as to why the STB has not found it prudent to impose reciprocal switching in the past.

To enhance fairness, final offer arbitration may be a more viable option that would not significantly reduce the profitability of rail carriers. But without congressional action, final offer arbitration would need to be voluntary. This would necessitate a backup plan, such as FORR, for shippers using railroads that opt out of arbitration. It is important that any changes in rate regulation not put limits on the rates of return that a railroad can earn, lest they interfere with the carriers' incentives to invest, innovate, and reduce costs. Also, if a new approach is implemented, it should be for a trial period, and then the STB should perform a retrospective regulatory impact analysis to assess its benefits and costs.

98. Clifford Winston, *The Success of the Staggers Rail Act of 1980* (Washington, DC: AEI-Brookings Joint Center for Regulatory Studies, October 2005), https://www.brookings.edu/wp-content/uploads/2016/06/10_railact_winston.pdf.

ABOUT THE AUTHOR

Tracy C. Miller is a senior policy research editor at the Mercatus Center at George Mason University. Previously, he was an associate professor of economics and a fellow for the Center for Vision & Values at Grove City College. His research interests include antitrust policy, environmental policy, health economics, and transportation policy. He has published articles on agricultural policy, antitrust policy, environmental policy, international trade, and transportation policy. He received his PhD in economics from the University of Chicago. He also holds an MS in agricultural economics from Michigan State University and BS in forestry from Virginia Polytechnic Institute and State University.

ACKNOWLEDGMENTS

Thanks to Alden Abbott for encouraging me to research and write about the impact of Biden administration's executive order on freight rail regulation. Thanks also to two anonymous reviewers and Nita Ghei for providing helpful comments and suggestions.

ABOUT THE MERCATUS CENTER AT GEORGE MASON UNIVERSITY

The Mercatus Center at George Mason University is the world's premier university source for market-oriented ideas—bridging the gap between academic ideas and real-world problems.

A university-based research center, Mercatus advances knowledge about how markets work to improve people's lives by training graduate students, conducting research, and applying economics to offer solutions to society's most pressing problems.

Our mission is to generate knowledge and understanding of the institutions that affect the freedom to prosper and to find sustainable solutions that overcome the barriers preventing individuals from living free, prosperous, and peaceful lives.

Founded in 1980, the Mercatus Center is located on George Mason University's Arlington and Fairfax campuses.