



The Stagers Act at 35: Railroad Economics and Regulation

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Abstract This collection of papers includes authors who served on the National Academy of Science-Transportation Research Board (TRB) Committee for a Study of Freight Rail Transportation and Regulation (2014–15) and other authors who participated in the Economics and Regulation of the Freight Railroad Industry Research Colloquium at Georgetown University (June 2015). It covers topics from the TRB report and a wide range of other topics related to the freight railroad industry. These include: a synopsis of the research and findings of the TRB committee, the financial performance of railroads since deregulation, examination of price regulation, costing theory and methods, measuring revenue adequacy, consequences of providing network access, as well as railroad safety. The collection provides a comprehensive review of regulation, economics, and current issues confronting the freight railroad industry.

Keywords Railroad regulation · Railroad deregulation · Stagers rail act · Stand-alone pricing · Market dominance

The railroad industry has been a major source of growth and development of the US economy. It is a primary mode of transportation for many sectors, including agriculture, chemicals, coal, intermodal, paper and lumber, motor vehicles, ore, steel and a wide variety of other products. This industry has also had a major influence on the development of the field of economics. When railroads appeared, not long after the emergence of economics as a distinct field of study, their structure and behavior posed challenges for the competitive models that had been used by

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Smith, Ricardo, and other pioneers. Well into the twentieth century, leading economists—including A. C. Pigou, F. W. Taussig, and J. B. Clark—wrote on the economics of railroads (Waters (2007) provides a useful overview of and citations to this literature).

The railroad industry also played an important role in the evolution of regulatory policy in the US. Beginning around 1870, several states undertook to regulate railroad rates, and the industry has been regulated at the federal level since the Interstate Commerce Act of 1887 established the Interstate Commerce Commission as the first independent federal regulatory agency. The emergence of trucking and a series of product innovations, together with a regulatory process that was slow to adjust and impeded innovation, led to a series of rail bankruptcies in the 1970s, with many other railroads near financial collapse. In response, a series of federal laws were enacted, culminating with the passage of the Staggers Rail Act, which partially deregulated the industry, in 1980.

The regulatory reforms introduced major changes with respect to the regulation of prices, the size of the network, mergers, etc., with an eye towards placing a greater reliance on the marketplace to determine market outcomes. The effects on the industry have been dramatic: Prices and costs in the industry have fallen—and in many instances fallen dramatically; firms have consolidated and grown in size; the size of the network that is held by Class I railroads is now much lower, as these railroads have sold and/or abandoned unprofitable rail lines; productivity levels have skyrocketed; and the industry is largely financially viable.

While the effects of this experience of regulatory reform have largely been positive, there remain a number of concerns and issues that relate to regulatory design, regulatory practice, and regulatory outcomes. This special issue covers many of these topics. It contains work by participants in a National Academy of Science/Transportation Research Board study on freight rail regulation (TRB 2015) and by participants in the *Economics and Regulation of the Freight Rail Industry Research Colloquium* that was sponsored by Georgetown University's Center for Business and Public Policy and held in June 2015. There are a total of nine papers in this special issue. In order, they focus on comprehensive reviews of regulation and performance, regulatory rules and assessments, alternative policy instruments, and regulation of rail safety.

Schmalensee and Wilson summarize the National Academy of Science/Transportation Research Board study, *Modernizing Rail Freight Regulation* (TRB 2015). They provide a descriptive summary of regulatory reforms and relate them to long-term movements in prices, market structure, operating characteristics, and returns on investment. They then present and assess major regulatory provisions and rules that were established during rail regulatory reform. Generally, they find that regulatory reforms were passed at a time when the industry was in financial ruin, and much of the reform was directed improving the financial condition of the industry, while also providing some protection for captive shippers. They note that 35 years after the Staggers Act, the industry is in much better financial condition, and they argue that some of the provisions of that Act are now outdated and unnecessary, and the rate review procedures established under Staggers are conceptually flawed and unnecessarily cumbersome. They point to the possibility of

using rates that have been established under competitive conditions as benchmarks to evaluate the reasonability of rates that are charged to captive shippers. This approach was not feasible at the time of regulatory reform; it now offers a conceptually sound and procedurally efficient alternative to current procedures and standards.

A primary purpose of regulatory reform was to improve the profitability of the rail industry. Pinkowitz and Williamson provide a comprehensive examination of the financial performance over a 50-year period (1963–2013). They find that accounting measures of performance indicate that railroads outperformed other industries between pre- and post-reform periods; but market-based measures indicate that railroads have tended to underperform. Accounting-based measures reflect performance over the accounting cycles and are affected by management actions, while market-based measures are more likely to incorporate future growth prospects. Given this difference, they carefully assess the purpose of the measures that are used to gauge policy, and they stress the importance of looking beyond averages, since their data imply substantial performance differences across firms.

Mayo and Sappington describe price regulation since Staggers and point out that railroads now haul substantial amounts of traffic that is subject to price regulation as well as substantial amounts that is not subject to price regulation. They review the evolution of regulatory policy and draw upon the cost-allocation and earnings-regulation literatures to highlight the lessons that have been learned. They develop a stylized model of partially regulated firms to highlight the implications of comprehensive earnings regulation and price-cap regulation, finding in the former sharp reductions in incentives to innovate. They note that price cap regulation could in theory eliminate this problem, but argue that in practice price caps are set in light of realized earnings, so that price cap regulation tends to resemble earnings regulation. Finally, they stress the potential of modern incentive regulation and make the point that economic profit is not necessarily a sign of regulatory failure; instead, it can reflect regulatory success in attracting capital to the industry and stimulating innovation.

Wilson and Wolak describe the regulation of rates by the Surface Transportation Board (STB), the successor to the Interstate Commerce Commission. Rate regulation is a two-stage process. First, regulators determine whether they have the jurisdiction to consider whether a challenged rate is reasonable. This requires rates to exceed 180 percent of STB-determined average variable cost and for the shipper involved to lack competitive alternatives (market dominance). Second, if jurisdiction is established, the shipper can ask that the rate be assessed using one of three available standards. The most-used standard is that the rate may not exceed the cost of a hypothetical railroad that provides only the service at issue and operates efficiently. Both market dominance and reasonableness considerations depend heavily on the Uniform Rail Costing System (URCS). Wilson and Wolak describe URCS and point out its conceptual and empirical shortcomings. They present a model of railroad pricing and argue that even if costs were known with certainty, they would be of limited value in determining whether a railroad rate was unreasonable because of economies of scope and scale. They conclude that both the current system of regulating rates and URCS are conceptually flawed. They

recommend that both be abandoned in favor of alternative forms and point to benchmarking, as discussed by Schmalensee and Wilson, as one option.

Railroads haul vast numbers of commodities and must cover not only the incremental costs associated with each but also the costs of the network and other common costs. Regulatory reform introduced the notion of railroads' revenue adequacy and required the STB to assess revenue adequacy every year. When the Staggers Act was passed, railroads were clearly not revenue adequate, but their financial situations have improved since then. STB determinations rest heavily on estimates of railroads' cost of capital. Procedures to estimate the cost of capital have evolved over time but remain controversial. Currently, the STB uses a measure that blends the costs of debt and equity. Burton and Sims argue that because railroad investments tend to be lumpy and long-lived and because the timing of investments is often a decision variable, they should be viewed as real options, and a real options approach should be used to measure the cost of capital. In particular, they hold that the impacts of the longevity of assets and the levels of both common costs and sunk costs can be better represented by taking into account that the option to postpone a capital investment is valuable to rail industry decision-makers. They argue that since current STB methods do not adequately capture the effects of real options, the current comparisons of railroad rates of return to estimated revenue needs as reflected within STB cost of capital measures may be misleading.

The next three papers consider policies that have been offered as reform options. Beard, Macher, and Vickers examine a proposal that rail carriers open their networks to other firms in markets that lack competition. In most rail markets the huge sunk costs of building new rail networks essentially make such entry infeasible. However, the threat of entry via equipment that runs on existing tracks might mitigate excessive pricing by the incumbent firm. The authors liken this to "unbundling" and the proposals as similar to those made in the Telecommunications Act of 1996. They examine the two markets and conclude that the experiences of telecommunication unbundling imply that network unbundling for railroads is unlikely to instill a meaningful threat of entry and therefore will not serve effectively to limit the pricing of incumbents. Instead, to protect captive shippers it will be necessary to continue to regulate the rates that incumbents charge.

A closely related analysis is provided by Gómez-Ibáñez. He examines "open access" experiences in many countries' railroad industries. He presents alternative versions of open access and compares the benefits of open access (increased competition) with its costs. These include the loss of scale and/or density economies, higher transaction costs, and problems that are related to imperfect contracts among the railroads. He describes the experiences in Australia and Europe, which have open access, and those of the US and Canada, where railroads largely operate on their own tracks. He finds that the costs and benefits of open access vary widely, depending on the ease of access, excess capacity in the network, whether or not reciprocity in access limits opportunistic behavior, and the level of access.

Boyer examines the pricing of track access, noting that under current US regulations, shippers are only permitted direct access by carriers that serve them. He establishes three efficiency principles that should be considered in pricing track

access: The first is that fees should reflect congestion and should be set as close as possible to optimal congestion tolls. He also holds that the fees should reflect fixed costs such as track maintenance, land, and plant and equipment. Finally, he argues that track fees should reflect traffic and cost conditions and should not be discriminatory. Adherence to these principles, he contends, will encourage outcomes such that tracks are optimally used, track capacity is at optimal levels, and potential users make socially optimal location decisions. He notes that his results are based on a stylized model in which a single commodity is shipped and a non-profit, self-financing, single-purpose track district owns the infrastructure. He does not discuss how his principles might be implemented under other circumstances, which remains an important area of future research.

The final paper, by Ellig and McLaughlin, focuses on railroad safety. They summarize the dramatic fall in railroad accidents since 1978, when there were more than 11,000 accidents, to 2013, when there were only 1867 accidents; and they econometrically assess the relative effects of safety regulation and economic regulation on the accident rate, using an interesting new data set: RegData. While economic regulation has fallen considerably since 1980 according to these data, safety regulation has increased dramatically. Their econometric analysis leads them to conclude that the post-Staggers reduction in economic deregulation—by improving railroads' financial health—has given railroads the resources to invest in trackage and equipment that have enhanced safety. They provide evidence that economic deregulation is associated with improved safety, while safety regulation had its biggest effect when economic regulation curtailed railroads' ability to make the investments that were needed to operate safely.

This special issue contains a wide range of papers that together provide considerable information about recent trends in the railroad industry and how it is regulated. They discuss a range of regulatory reform proposals and provide forward-looking examinations of important regulatory issues. As always, there remain important unanswered questions and considerable research to be done, and our hope is that this issue serves future researchers well.

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