

BEFORE THE
SURFACE TRANSPORTATION BOARD

Ex Parte No. 722

RAILROAD REVENUE ADEQUACY

Ex Parte No. 664 (Sub-No. 2)

PETITION OF THE WESTERN COAL TRAFFIC LEAGUE TO INSTITUTE A
RULEMAKING PROCEEDING TO ABOLISH THE USE OF THE MULTI-STAGE
DISCOUNTED CASH FLOW MODEL IN DETERMINING THE RAILROAD INDUSTRY'S
COST OF EQUITY CAPITAL

Reply Comments

submitted by

OLIN CORPORATION

On April 1, 2014, the Surface Transportation Board (the "Board") issued a notice publicizing its intent to receive comments in Docket No. EP 722 (the "Notice") "to explore the Board's methodology for determining railroad revenue adequacy, as well as the revenue adequacy component used in judging the reasonableness of rail freight rates." The Board also sought comments in Docket No. 664 (Sub-No. 2) relating to its methodology in calculating the railroad industry's cost of equity capital. On September 5, 2014, Olin Corporation, through its Chlor Alkali Products Division ("Olin"), submitted opening comments to the Board in these proceedings. Olin, as a member of the American Chemistry Council and The Chlorine Institute, also expressly supported the opening comments of the "Concerned Shipper Associations," which

is comprised of a collection of shipping associations. Olin now respectfully submits these Reply Comments to the Board and in a general manner supports the Reply Comments of the Concerned Shipper Associations that are being simultaneously submitted. The purpose of these Reply Comments is to reiterate some of the essential points contained in Olin's opening comments to the Board and to respond to some of the assertions and statements made by other parties in this proceeding.

1. There is a Growing Disconnect between the Board's Current Methodologies and the Railroads' Extreme Profitability.

Olin, along with other shippers and shipper organizations including the Concerned Shipper Associations, and Senator John D. Rockefeller, IV, detailed the extreme profitability of the Class I railroads over the past several years in their opening comments.¹ According to Senator Rockefeller, "Anyone who follows the railroad industry and its history knows the Class I railroads are financially strong, and have been for several years."² In their opening comments, even the railroads do not deny their recent financial success, choosing instead to focus on public policy as justification for their extreme profits.

As evidenced by recent earnings reports, the railroads' growing financial success has continued through 2014. According to Union Pacific's third quarter earnings report for 2014, the following quarterly records were achieved in comparison to the same period of the previous year: (1) diluted earnings per share of \$1.53 improved 23 percent; (2) operating revenues totaled \$6.2 billion, up 11 percent; (3) operating income totaled \$2.3 billion, up 19 percent; and (4) operating

¹ See Comments of Olin Corporation to EP Docket Nos. 722 and 664 (Sub-No. 2), 3-4.

² Statement of Senator John D. Rockefeller, IV, EP Docket No. 722.

ratio of 62.3 percent improved 2.5 points.³ CSX Corporation also recently announced that it enjoyed record third-quarter financial results for revenue, operating income, net earnings, and earnings per share, and even provided optimistic guidance that it expects to sustain double-digit earnings growth and margin expansion in 2015.⁴ With this expected profitability, it should not be surprising that many railroads such as Canadian Pacific Railway Ltd., which recently engaged in “exploratory” conversations with CSX Corporation, are searching for other railroads to acquire and expect consolidation of North American railroads in the coming years. The ongoing financial success of the railroads is also illustrated in dividend increases, such as the 10% increase recently announced by Union Pacific for the third quarter of 2014, and the continued implementation of share repurchase programs, such as the share repurchase program recently announced by the Canadian National Railway Company.

As provided by Olin in its opening comments, even though railroads are continuing to set records in profitability, the methods for captive shippers like Olin to challenge the reasonableness of freight rates remain unchanged and mostly illusory. This illustrates a clear disconnect between the Board’s current methodologies and the current economic environment of the rail industry. It is, therefore, time for the Board to clarify a straightforward process for enforcing the revenue adequacy constraint in order to reduce the monopolistic pricing power of railroads, which is clearly not necessary to sustain the financial viability of railroads.

³See Union Pacific Earnings Release, dated October 23, 2014 at http://www.up.com/investors/attachments/earnings/2014/3q2014_pressrelease.pdf

⁴ See CSX Corporation Earnings Release, dated October 14, 2014 at http://investors.csx.com/phoenix.zhtml?c=92932&p=irol-newsArticle_Print&ID=1977628

2. The Stand Alone Cost Constraint Is Ineffective and Economically Unjustifiable.

As discussed in the opening comments of Olin and other shippers and shipper organizations, the Stand Alone Cost (“SAC”) constraint is prohibitively expensive, time-consuming, and unnecessarily complex. Further, one of the original developers of the “stand alone cost” principal, Dr. Gerald R. Faulhaber, Professor Emeritus, Wharton School, University of Pennsylvania and Law School, University of Pennsylvania, has come to the conclusion that “there can be no economic justification for the use of the stand alone cost test as a measure of cross-subsidy for railroads. None.”⁵ In other words, not only does the SAC constraint impose an impractically high burden on shippers, but it cannot even be justified by economic theory. As a result, the SAC constraint fails in every way to provide a meaningful counterbalance to the strong pricing power the railroads wield over captive shippers. The juxtaposition of the extreme profits of the railroads and the results of the two most recent SAC cases by captive shippers makes this conclusion patently obvious.⁶

Not surprisingly, the railroads are the strongest advocates for the Board’s continued reliance upon the SAC constraint. The Association of American Railroads (“AAR”) stated in its opening comments that it “believes that the Board’s existing rate regulation tools are adequate to address the potential for railroad abuse of market power.”⁷ Similarly, Norfolk Southern in its own opening comments provided that, “the SAC test is already a rigorous measure of revenue adequacy...There is no need for the Board to develop another independent, top-down revenue

⁵ See Verified Statement of Gerald R. Faulhaber to Comments of Concerned Shipper Associations, Railroad Rates for Captive Shippers; Time for a Rest, 7.

⁶ See E.I. du Pont de Nemours and Company v. Norfolk Southern Ry. Co., Docket No. 42125 (served March 24, 2014); See also SunBelt Chlor Alkali Partnership v. Norfolk Southern Ry. Co., Docket No. 42130 (served June 20, 2014) (Miller, concurring).

⁷ Opening Comments of the Association of American Railroads to EP Docket Nos. 722 and 664 (Sub-No. 2), 2.

adequacy constraint and developing such a constraint would create far more problems than it would solve.”⁸ Given the extreme profitability enjoyed by the railroads, it is understandable why the AAR, Norfolk Southern, and other railroads are so committed to the Board’s current methodologies. However, as evidenced by the opening comments of Olin, Senator Rockefeller, and other shippers and shipper associations, including the statements of Dr. Faulhaber, this sentiment clearly contradicts the current economic climate for captive shippers like Olin. Contrary to the railroads’ opening comments, the SAC constraint is ineffective in protecting the interests of captive shippers. For this reason, the Board should utilize the revenue adequacy constraint to create a more manageable counterbalance against railroads’ immense pricing powers.

3. In Applying the Revenue Adequacy Constraint, the Board Should Implement a Ceiling on the Railroads’ Revenue-to-Variable Cost Ratio that may be Charged by Railroads to Captive Shippers.

In implementing the revenue adequacy constraint as an alternative for captive shippers to the SAC constraint, the Board should strive to avoid the same complications that have rendered the SAC constraint useless to shippers. This requires that the Board create a relatively simple, cost and time efficient procedure for reviewing unreasonable rates. In its opening comments, Olin advocated for the adoption of a ceiling on the revenue-to-variable cost ratio (“R/VC Ceiling”) that a railroad may charge captive shippers.⁹ In support of this approach, Olin cited to a number of sources, including past filings by the Department of Agriculture, Westlake Chemicals, and the Western Coal Traffic League under Docket No. EP 705, as well as well-known analysis by Dr. Russell Pittman, the Director of Economic Research and International

⁸ Opening Comments of Norfolk Southern Railway Company to EP Docket No. 722, 1.

⁹ See Comments of Olin Corporation to EP Docket Nos. 722 and 664 (Sub-No. 2), 7-9.

Technical Assistance, Economic Analysis Group, Antitrust Division, U.S. Department of Justice.¹⁰ Olin believes that the R/VC Ceiling is the Board's most promising approach to the implementation of the revenue adequacy constraint because it can provide a relatively high level of certainty about its outcomes and effects, and could be applied in an efficient manner. This, in turn, would streamline the regulatory process and create a viable alternative for captive shippers and enhance their bargaining power with railroads when negotiating private contracts.

Olin would like to clarify that it only advocates for the implementation of the R/VC Ceiling on rates being charged to *captive shippers* (*shippers where railroads are market dominant*), and not to *all* revenue being earned by the railroads. If rail markets are actually competitive, then the revenue adequacy constraint and the R/VC Ceiling will not come into play. In their opening comments, the railroads repeatedly misconstrued or misunderstood this point.¹¹ Additionally, the Board should not arbitrarily set a rigid ratio as the R/VC Ceiling. Instead, the R/VC Ceiling should be sufficiently flexible to address the current economics of the rail industry and the financial condition of each individual railroad.

While some proposals discussed by other shippers may indeed be viable alternatives for the implementation of the revenue adequacy constraint, Olin believes that the R/VC Ceiling is the most promising because of its overall simplicity and the resulting potential to provide much needed bargaining power to captive shippers.¹² Unlike the "Yardstick Approach," which is being advocated by the Concerned Shipper Associations and the verified statements of Dr. Hal J.

¹⁰ *Id.* A copy of Dr. Pittman's article, entitled "Against the Stand-Alone Cost Test in the U.S. Freight Rail Regulation," *Journal of Regulatory Economics*, 38 (2010), is attached hereto as Appendix A.

¹¹ Opening Comments of the Association of American Railroads to EP Docket Nos. 722 and 664 (Sub-No. 2).

¹² See Verified Statement of Kevin Caves and Hal Singer to Reply Comments of Concerned Shipper Associations, The Best Way Forward for Rate Protection for Captive Shippers.

Singer, Principal, Economists, Incorporated, Washington, D.C., Senior Fellow, Progressive Policy Institute, and Adjunct Professor, Georgetown University McDonough School of Business, and Dr. Kevin W. Caves, Senior Economist, Economists, Incorporated, Washington, D.C., the R/VC Ceiling will not require complex and nuanced debates regarding the existence of a truly competitive market and the identification of comparable rail movements. Determining whether a market is “competitive” is considerably more complex (and arguably impossible) than merely recognizing that a market is served by more than one railroad. As indicated by Laurits R. Christensen Associates, Inc., many shippers view the current rail industry as two separate duopolies, with BNSF and UP dominating the industry in the western United States and CSX and NS dominating the industry in the eastern United States.¹³ As a result, the entire industry is prone to “parallel behavior,” meaning that markets in areas that are served by two or otherwise very few railroads are not necessarily competitive in nature.¹⁴ The resulting lack of true competition among railroads was effectively demonstrated by various captive shippers and shipping associations in comments under Docket No. EP 705.¹⁵ The R/VC Ceiling is a particularly attractive option because it will not require the dueling parties to prove or disprove whether a comparative market is actually competitive. This contentious debate as well as the debate over whether a specific market is “comparable” can be avoided with the implementation of the R/VC Ceiling. The simplicity and overall practicality and efficiency of the R/VC Ceiling makes it uniquely suited to decrease the overbearing market power enjoyed by the railroads over captive

¹³ See Laurits R. Christensen Associates, Inc., Analysis of Competition, Capacity, and Service Quality, Volume 2, Revised Final Report for The Surface Transportation Board, November 2009.

¹⁴ *Id.*

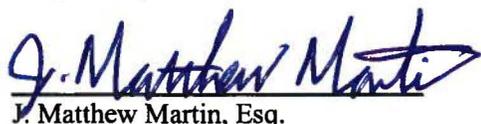
¹⁵ See Joint Comments of the Alliance for Rail Competition, the American Chemistry Council, and other Interested Parties to EP Docket No. 705. See also Comments of Olin Corporation to EP Docket No. 705.

shippers like Olin by focusing on the matter at hand: preventing railroads from realizing extreme profits at the continuing expense of captive shippers.

4. Conclusion

The Board's current methodology for judging the reasonableness of rail freight rates and determining whether the railroads have achieved revenue adequacy is no longer appropriate considering the enormous profits enjoyed by the railroads. The SAC process has proven to be prohibitively expensive, time-consuming, and overly complex and is wholly ineffective for shippers. In short, the SAC process does not operate as a constraint at all in a revenue adequate financial environment. Olin therefore urges the Board to implement a clear, simple, and efficient procedure for reviewing rate cases under the revenue adequacy constraint to create a more practical counterbalance to the railroad's current monopolistic pricing power over captive shippers. The R/VC Ceiling discussed in these reply comments and in Olin's opening comments appears to satisfy each of these goals and would be the most effective approach to implementing the revenue adequacy constraint.

Respectfully submitted for and on behalf of Olin Corporation by:



J. Matthew Martin, Esq.
Deputy General Counsel and Vice President –
Chlor Alkali Products Division
Olin Corporation
490 Stuart Road, NE
Cleveland, TN 37312

APPENDIX A

ECONOMIC ANALYSIS GROUP
COMPETITION ADVOCACY PAPER

Against the Stand-Alone-Cost Test in U.S.
Freight Rail Regulation

by

Russell Pittman *
EAG 10-1 CA April 2010

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* Director of Economic Research, Economic Analysis Group, Antitrust Division, U.S. Department of Justice, and visiting professor, New Economic School, Moscow. The author benefited from excellent research assistance from Michael Carley. The Antitrust Division encourages independent research by its economists; the views expressed herein are entirely those of the author and are not purported to reflect those of the U.S. Department of Justice.

Abstract

The stand-alone-cost test has become an expensive, extensive, and time-consuming part of the regulatory practice of the U.S. Surface Transportation Board in the performance of its statutory duty to protect "captive shippers" from monopoly rail rates. Worse, a close examination of the history of its adoption and application suggests only a very tenuous connection with its claimed intellectual foundations, the classic works of Faulhaber (1975) and Baumol, Panzar, and Willig (1982). It is time to retire this tool and replace it with something simpler and more effective and transparent.

Against the Stand-Alone-Cost Test in U.S. Freight Rail Regulation

Rate regulation for the majority of freight movements on U.S. railroads was eliminated by the Staggers Act (49 U.S.C., Public Law 94-473) in 1980. However, one category of traffic remains subject to potential regulation: that carried by so-called “captive shippers,” those shippers with no economic alternative to the use of a single railroad.¹ A recent decision by the rail regulator, the Surface Transportation Board (STB), interprets the statutory principle as follows:

Where a railroad has market dominance, its transportation rates must be *reasonable*. Market dominance is defined as an absence of effective competition from other rail carriers or modes of transportation for the transportation to which a rate applies. The Board is precluded from finding market dominance if the revenues produced by a challenged rate are less than 180% of the carrier’s variable costs of providing the service.²

In 1985 the predecessor agency to the STB, the Interstate Commerce Commission, issued its *Coal Rate Guidelines, Nationwide*, which set out the standards by which the Commission (and later the STB) would evaluate the “reasonableness” of rates charged to captive shippers.³ These standards went under the label “constrained market pricing” (CMP) – a label that could alternatively be phrased “constrained differential pricing”.

The objectives of CMP can be simply stated. A captive shipper should not be required to pay more than is necessary for the carrier involved to earn adequate revenues. Nor should it pay more than is necessary for efficient service. And a captive shipper should not bear the cost of any facilities or services from which it derives no benefit.⁴

In formulating CMP, the ICC acknowledged the welfare advantages of differential or Ramsey pricing – prices set inversely to the demand elasticities of customers – in the presence of economies of scale sufficient to render marginal cost pricing impractical. However, the freedom of the railroads to set differential prices would not be unlimited. In particular:

CMP contains three main constraints on the extent to which a railroad may charge differentially higher rates on captive traffic. The *revenue adequacy constraint* ensures that a captive shipper “will not be required to continue 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

¹ In a companion paper (Pittman, forthcoming), I discuss legislative proposals to increase the protections offered to captive shippers by removing the partial antitrust exemption currently enjoyed by U.S. freight railways.

² *Major Issues in Rail Rate Cases*, STB Ex Parte No. 657 (Sub-No. 1), October 30, 2006, at 5-6, emphasis added, citations omitted.

³ 1 I.C.C. 2d 520 (1985).

⁴ *Major Issues in Rail Cases*, at 6-7.

current and future service needs.” The *management efficiency constraint* protects captive shippers from paying for avoidable inefficiencies ... that are shown to increase a railroad’s revenue need to a point where the shipper’s rate is affected. The *stand-alone cost (SAC) constraint* protects a captive shipper from bearing costs of inefficiencies or from cross-subsidizing other traffic by paying more than the revenue needed to replicate rail service to a select subset of the carrier’s traffic base.⁵

Finally,

The Stand-Alone-Cost test posits a hypothetical railroad that serves a subset of the movements in the railroad’s network, including the route used by the complaining shipper. That hypothetical railroad is called a Stand-Alone Railroad, known as a SARR, and it is designed to be optimally efficient. The Stand-Alone-Cost test determines the rate that the shippers using the SARR ... would be charged by taking into account the costs of running the SARR, including a reasonable return on investment.... The amount of those costs becomes the maximum amount that the railroad may collect from the traffic group.⁶

Unfortunately, in the decades following the ICC’s issuance of the Guidelines, the stand-alone-cost (SAC) test has become what a reviewing court feared it would be: “a full employment bill for economists”.⁷ The STB has estimated that “shippers’ litigation costs in recent Full-SAC cases have approached \$5 million” and cited with approval an estimate that “even a Simplified-SAC presentation would likely cost up to \$1 million to litigate.”⁸ These estimates do not include the corresponding costs incurred by the defendant railroads and the STB. The reason for this is straightforward: given the huge amounts of money at issue, both sides in a rate case have the incentive to add increasing layers of complexity to the inherently uncertain exercise of simulating the costs of a SARR – so long, of course, as each layer added either adds to or subtracts from the costs, as desired – and thus to dissipate rents.

It is worth quoting at length from an STB decision that describes the degree of detail involved in this exercise (and note that the STB is simply stating the facts here, not arguing that the degree of detail is excessive).

To make a SAC presentation, a shipper designs a hypothetical new carrier (a stand-alone railroad, or SARR) that is specifically tailored to serve an optimum traffic group with the optimum physical plant (rail system) needed for that traffic. Projected traffic volumes, operating speeds, and traffic densities must be calculated to determine the requirements for locomotives, cars, and train operating

⁵ *Ibid.* at 7, emphasis added.

⁶ *BNSF Railway v. STB*, U.S.C.A. (D.C. Circuit) No. 06-1372, May 20, 2008.

⁷ *Consolidated Rail Corp. v. U.S.*, 812 F.2d 1444 (3d Cir. 1987), at 1463 (Becker, J., concurring in part).

⁸ *Simplified Standards for Rail Rate Cases*, STB Ex Parte No. 646 (Sub-No. 1), September 4, 2007, at 5. See also Gaskins (2008).

personnel. A detailed operating plan must be developed to further define the physical plant that would be needed for the SARR. For example, roadway must be sufficient to permit the attainment of the speeds and density that are presumed. The length and frequency of passing sidings must be able to accommodate the specific train lengths and frequency of train meets that are assumed, and traffic control devices must be designed to allow trains traveling in opposite directions on the same track to be handled safely and efficiently based on the density and congestion assumed in the operating plan.⁹

At this point,

These plans are used to compute the total investment and operating costs that would be incurred by the SARR and would need to be recovered by it. To be fully viable, a SARR would have to generate sufficient revenues to cover its investment costs, the cost of funds tied up during the construction period, operating expenses, tax liabilities, and a reasonable return on investment.¹⁰

In the case whose STB decision was just quoted, the shipper posited a SARR of 1400 route miles, traversing five states, connecting coal mines in the Powder River Basin of Wyoming with eleven coal-fired power plants in four states. The SARR was even given a name: the West Texas Railroad. Not to be outdone, another shipper created a 3000-mile SARR, dubbed the Overland Railroad, extending “from Portland, OR to Chicago, IL and Kansas City, MO, with a 375-mile extension into the Powder River Basin (PRB) coal fields.”¹¹ In that case the STB decision Appendix describing the SARR configuration, operating plan, and revenue analysis runs to almost 100 pages.

Evidence with this degree of complexity inevitably invites further regulatory dispute and litigation over a seemingly endless list of details regarding the configuration, costs, and revenues of the hypothetical SARR. Among the issues litigated have been the following:

- Whether a one-year, ten-year, or twenty-year SAC analysis is most appropriate;¹²
- Since the SAC analysis may include twenty years of future SARR operations, whether expected average productivity improvements in freight railroads generally should be applied without adjustment to the SARR, or whether, since the SARR would be *ex hypothesi* newly built and so at the frontier of productivity, whether such industry-wide improvements should be factored in only gradually (and if gradually, how gradually);¹³

⁹ *West Texas Utilities Company v. BN Railroad*, 1 S.T.B. 638 (1996), at 13-14 (parentheses in original).

¹⁰ *Ibid.* at 14 (footnotes omitted).

¹¹ *FMC Wyoming Corporation and FMC Corporation v. Union Pacific Railroad*, STB Ex Parte No. 346 (Sub-No. 29A), May 10, 2000.

¹² *Major Issues in Rail Cases*, at 61-66.

¹³ *BNSF Railway v. STB* (2008).

- Whether “a shipper hypothesizing costs in a joint rate case may ... rely on the trackage rights that one defendant railroad ... holds over track belonging to a second defendant railroad;”¹⁴
- How to allocate the hypothetical rates paid by hypothetical traffic that travels partly over the SARR and partly over existing lines of the defendant railroad between the two parts of the routing;¹⁵
- Whether train “dwell times” at points of traffic interchange should be assumed to be 30 minutes, 45 minutes, 60 minutes, or 90 minutes;¹⁶ and
- When new information becomes available – as it does inevitably for a ten- or twenty-year (hypothetical) forecast – “whether we [the STB] can continue to examine the reasonableness of the challenged rate within the framework of the prior SAC analysis (i.e., in a reopened proceeding), or whether we should instead vacate the rate prescription and dismiss this proceeding so that a new and different SAC analysis can be presented in a new proceeding.”¹⁷ The decision quoted was written in 2007 and concerned an STB ruling made in 1996.

It goes without saying that a process such as this one is plagued with both problems of asymmetric information and the resulting incentives and ability to pick and choose among such information in order to further one’s own agenda. As Heald (1996) points out:

In cases where there are no incontrovertible technical answers, participants in the policy process (dominant incumbents, potential entrants, consumers, regulators and governments) may have strong economic incentives to support particular technical solutions to the cost allocation problem, for reasons which are demonstrably congruent to their economic interest.

In 1996, Congress directed the STB to “establish a simplified and expedited method for determining the reasonableness of challenged rail rates in those cases in which a full stand-alone cost presentation is too costly, given the value of the case.”¹⁸ When no cases were brought under the “simplified guidelines” issued by the STB in response, the STB in 2006 created “a simplified stand-alone cost (Simplified-SAC) procedure to use in medium-size rate disputes for which a full stand-alone cost (Full-SAC) presentation is too costly, given the value of the case” and refined “the ‘Three-

¹⁴ *Arizona Electric Power Cooperative v. STB*, U.S.C.A. (D.C. Circuit), No. 05-1136, July 18, 2006, at 2; see also *Pennsylvania Power & Light Co. vs. Consolidated Rail Corp*, Decision, ICC Docket No. 38186S, July 24, 1984.

¹⁵ *Ibid.* at 24-39.

¹⁶ *Western Fuels Association and Basin Electric Power Cooperative v. BNSF Railway*, Decision, STB Docket No. 42088, February 17, 2009, at 17-18.

¹⁷ *West Texas Utilities Company v. BNSF Railway Company*, STB Decision, Docket No. 41191, September 2007, at 7.

¹⁸ 49 U.S.C. 10701(d)(3).

Benchmark' method of [the] *Simplified Guidelines* ... for small rate disputes for which even a Simplified-SAC presentation would be too costly, given the value of the case.”¹⁹

Such refinements, however, seem only to highlight the importance of a set of more fundamental questions. When does a stand-alone cost presentation become “too costly” – not “given the value of the case” but given its contribution to an efficient and/or equitable outcome to a rate dispute? Where did the stand-alone-cost test come from, and to what degree do its analytical origins and foundations justify the importance granted it by the STB – not to mention the resulting expenditures of real resources on its use by shippers, carriers, and the STB – in large rate disputes? How much justification is there for the STB’s stated view that “the SAC test, which judges the reasonableness of a challenged rate by comparison to the rate that would prevail in a competitive market, rests on a sound economic foundation...”²⁰ As we will see, the answers to these questions are not reassuring.

The Origins

Where did the stand-alone-cost test come from? The ICC decision that introduced CMP, *Coal Rate Guidelines, Nationwide*, places its origins squarely within the concept of contestable markets:

Two economic theories are central [to] Constrained Market Pricing – differential pricing and the contestability of markets. They provide the analytical basis for determining those costs for which a shipper may properly be charged and the extent to which the shipper should bear the costs.... Our use of SAC introduces the competitive standard of contestability into a non-competitive market. The stand-alone cost, as we define it here, approximates the full economic costs, including a normal profit, that need to be met for an efficient producer to provide service to the shipper(s) identified.²¹

Similarly, an appeals court decision notes that “the SAC test ... [is] rooted in the concept of contestable markets....”²²

In turn, the *locus classicus* for market contestability, Baumol, Panzar, and Willig (1982, hereinafter BPW), credits the concepts of stand-alone cost and the stand-alone-cost test to the classic paper by Faulhaber (1975).²³ So it is to that paper that we turn first.

¹⁹ *Simplified Standards for Rail Rate Cases*, STB Ex Parte No. 646 (Sub-No. 1), September 4, 2007, at 4.

²⁰ *Ibid.* at 13.

²¹ *Coal Rate Guidelines, Nationwide*, at 5, 9.

²² *PPL Montana v. STB*, U.S.C.A. (D.C. Circuit) No. 04-1369, February 17, 2006, at 9.

²³ See also Sidak (2007): “The stand-alone cost test and the related incremental cost test are two standard methods in the economics of regulation for detecting the presence of cross-subsidy. Gerald Faulhaber formally proposed both tests as a part of an economic framework developed for cross-subsidization analysis in a classic 1975 article.” (p. 35; emphasis and footnotes removed)

Faulhaber addresses “the problem of pricing commodities produced in the presence of common costs by a publicly owned or regulated enterprise.” He notes that

the economics literature has by and large focused on the *efficiency* of such commodity prices [he is referring here mainly to the literature on Ramsey pricing] whereas public policy makers are also concerned about more loosely defined questions of *equity*: does a proposed price structure for the multicommodity enterprise “unduly” favor the consumers of one commodity at the expense of the purchasers of another commodity, i.e., does the price structure result in cross-subsidy? (p. 966; emphasis added)

Faulhaber proceeds to argue that

As a first approximation, we may use this intuitively appealing notion as the basis for a definition: If the provision of any commodity (or group of commodities) by a multicommodity enterprise subject to a profit constraint leads to prices for the other commodities no higher than they would pay by themselves, then the price structure is *subsidy-free*. (p. 966; emphasis in original)

This “intuitively appealing notion” might seem to suggest a “fairness” argument, but Faulhaber quickly backs away from this line of thinking. First he notes that “we [are not] entitled to assume that such [subsidy-free] price structures are morally superior to their subsidy-prone fellows on grounds of social justice” (p. 967); then in a footnote he explicitly and forcefully contrasts his own analysis reported in this paper with that of other papers that recommend a certain method of setting prices in public enterprises “on the basis of its purported ‘fairness’ and ‘equity’.”²⁴

In fact Faulhaber’s reasoning is based unambiguously on what BPW will term “sustainability”. His game-theoretic analysis asks the question: what is the highest price that a profit-constrained, multiproduct monopolist may charge a particular group of customers without giving that group the incentive to break away and engage in self-supply? This price is the stand-alone cost, the cost that such a group would have to pay to supply itself only:

In this paper, the emphasis is not on finding a unique set of prices which is “fair”, but rather on determining a set of prices, all of which are subsidy-free, and ... provide the appropriate incentives for consumer groups to seek the most efficient means of supply in the presence of joint production. (p. 970, fn. 13)

If any prices are set above this level – above stand-alone cost – some group of customers will have the incentive to “go it alone,” even though “the single supplier is the uniquely

²⁴ Thus Borrman and Zauner (2004) seem to be simply incorrect when they argue that “There is a fundamental ambiguity in Faulhaber’s (1975) concept. Is cross-subsidy about fairness or about market entry?” (p. 246, fn. 1)

most efficient production arrangement” (p. 968). Indeed, if the regulator insists upon setting prices above the stand-alone cost level,

Then the coercive authority of the government must be employed to restrict or prohibit entry into the market. Thus, even when the public enterprise enjoys increasing returns to scale, if the regulators adopt a pricing policy of subsidization as we have defined, entry must be restricted. (p. 972)

Again, Faulhaber emphasizes that “prices which are subsidy-free do not necessarily promote the common weal or bring about social justice.” Furthermore,

there is no a priori reason to expect that prices which maximize welfare subject to a break-even constraint [i.e., Ramsey prices] will necessarily be subsidy-free.... Since quasi-optimal prices depend on marginal costs and demand elasticities, whereas the constraints defining subsidy-free prices depend on the costs of alternative means of supply, it is no surprise that the two ideas are not necessarily compatible. (p. 973)

Thus Faulhaber. When BPW take up Faulhaber’s concept of stand-alone cost, it is once again with an emphasis on the prevention of inefficient entry:

Prices cannot be sustainable if they involve any cross subsidy.... Quite simply, if the revenues collected from the sale of a subset of products ... exceed the cost of providing the same quantity of those products independently, a profitable entry opportunity is offered to anyone willing to supply the same bundle at a slightly lower price and, in a perfectly contestable market, entry will occur.... Equilibrium in perfectly contestable markets requires that the revenues earned on any part of the total output of the industry be no more than the stand-alone production cost of that part. (pp. 351-52 and 354)

A near-simultaneous verified statement by Baumol and Willig also cites the classic treatise by Kahn in support of this test, and Kahn is specifically discussing “cream skimming” – the question of whether prices higher than stand-alone costs (he does not use this term yet) might attract inefficient entry and so threaten sustainability.²⁵

Besides emphasizing sustainability, however, BPW are arguably a bit more willing than Faulhaber to venture into normative grounds:

Condition (12D1) has been referred to by Faulhaber ... and others as the stand-alone cost test, and failure to pass it indicates that the set of services ... *is in a significant sense subsidizing* the remaining set of the firm’s products. This is true because, at current prices, the users of these services will then be paying more than it would cost a separate firm to provide only those products at their current levels. (p. 352; emphasis added; original emphasis removed)

²⁵ Baumol and Willig (1981), at 74; Kahn (1970), at II:220-224.

Again,

When the monopoly market is not perfectly contestable, regulation may be desirable; but regulatory policy *should* then be designed, insofar as possible, to replicate the results of a contestable market. (p. 355; emphasis added)

Thus BPW. According to Faulhaber and BPW, the stand-alone-cost test is motivated and justified mostly by concerns for the sustainability of the natural monopoly in the face of potential inefficient entry. In addition, it may suggest that certain Ramsey prices are cross-subsidizing other prices and are thus in some sense unfair. Not surprisingly, there is not much foundation laid for the fairness argument, and Heald's (1996) evaluation seems on the mark in this respect:

The academic literature on cost allocation is overwhelmingly normative in design and prescriptive in its conclusions. How to allocate common costs is an intellectually fascinating problem, in answer to which it is possible to engage in sophisticated modeling and mathematical analysis. Perhaps the fundamental question to be asked about these solution algorithms relates to why decision-makers should find compelling the particular value judgments which underpin particular solutions. The algorithms, however elegant, often have little in terms of behavioral or motivational underpinnings.

Evaluation

Let us review the bidding up to this point. According to the scholarly works upon which the STB has based its rulings, the application of a stand-alone-cost test to rates charged to customers of a monopolist constrained to earn zero economic profits insures that, in a contestable market, costly and inefficient entry does not take place. In addition, at least one of these works seems to entertain the idea that the stand-alone-cost test guards against such a monopolist unfairly forcing one group of customers to cross-subsidize another group of customers.

This would suggest the relevance of a few questions regarding the choice by the STB to use stand-alone-cost tests to evaluate rates charged to "captive" freight rail shippers.

First, are freight railroad companies in the U.S. constrained to earn zero economic profits?²⁶ No, they are not: the "revenue adequacy constraint" referred to above means that once firm-wide economic profits exceed the estimated cost of capital, the STB may regulate the rates charged to captive shippers, but that fact is (obviously) not the same as a regulatory constraint on company profits. In fact, a large-scale study recently

²⁶ The principal reason for the importance of this question is the showing by both Faulhaber and BPW that in the presence of a zero profit constraint and under the assumption of efficient operations, if one group of shippers is paying more than SAC, it necessarily follows that some other group is paying less than its incremental cost – i.e., is being subsidized. See, e.g., Faulhaber (1975), BPW, Lenard, *et al.* (1992), and Meitzen and Larson (1992).

commissioned by the STB concludes that the U.S. Class I railroads are now near or at the point of earning economic profits (Christensen Associates, 2008). And yet, in a recent paper that evaluates the experience of regulatory application of the concepts in Faulhaber (1975), Faulhaber (2005) notes that

In non-regulated enterprises, the norm would be that total revenues would at least equal and possibly exceed total economic cost.... The focus of cross-subsidy analysis shifts entirely to the IC [incremental cost] tests. *The SAC tests are not helpful under conditions of positive economic profits.* (emphasis added)

Second, is the railroad industry contestable? Of course not: a necessary (but not sufficient) requirement for contestability of an industry is that “entry is absolutely free and exit absolutely costless,”²⁷ and the *Coal Rate Guidelines, Nationwide*, freely concede that “the railroad industry is recognized to have barriers to entry and exit and thus is not considered contestable for captive traffic.”²⁸ (The last three words seem unnecessary.) The STB statement that its “use of SAC introduces the competitive standard of contestability into a non-competitive market”²⁹ has a reasonable sound but does not really explain why such an exercise is in any sense welfare- or efficiency-enhancing.

One possible path out of this particular conundrum might be the insight of Tirole (1988) that “the theory of contestable markets can ... be seen as a generalization of Bertrand competition to markets with increasing returns to scale.” There is some limited support in the empirical literature for Bertrand competition as the duopoly outcome of railroads shipping coal from the Powder River Basin (Winston, *et al.*, 2007). As Grimm (2008) points out, language in the most recent STB merger decisions suggests a possible adoption of this view: “We now believe that rail carriers can and do compete effectively with each other in two-carrier markets.”³⁰ However, this is certainly not the standard finding or assumption, and the STB has not relied on this interpretation of contestability in its SAC discussions.

A second possible path is proposed by Fanara and Grimm (1985), who acknowledge the potentially large gap between rates that might attract actual stand-alone entry and the lower rates that are implied by the hypothetical SARR constructed under a CMP analysis. The former rates, they suggest, would correspond to concerns regarding actual sustainability but would be extremely high, while the latter would thus correspond more closely to concerns regarding fairness.

But this suggests a third question: in the freight railroad sector, is stand-alone-cost analysis an important tool for regulators actually seeking to prevent inefficient entry? This seems quite unlikely: new entry into the freight railroad business in the U.S. has been extremely rare; until fairly recently, the industry has been in a long period of

²⁷ *Coal Rate Guidelines, Nationwide*, at 8, quoting testimony by Baumol.

²⁸ *Ibid.*

²⁹ *Ibid.* at 9.

³⁰ *Union Pacific – Control and Merger – Southern Pacific*, STB Finance Docket No. 32760, Decision No. 44, August 6, 1996, at 116-17.

shedding excess capacity. Furthermore, it is entirely in the interest of the incumbent railroad to price in such a way that entry into its territory does not appear attractive. In addition, the STB has the authority to deny applications for new line construction if the presence of the new capacity would “unduly harm existing services.”³¹

The single major project for new railroad construction advanced in recent years has been for the construction by the Dakota, Minnesota & Eastern Railroad (DM&E) of a new line into the Powder River Basin, the coal producing area served by the carriers in some of the rate cases cited here. In the lengthy STB proceedings that authorized construction (which has not yet taken place, and may not),³² the principal participating shippers’ group, the Western Coal Traffic League, argued that “access to the PRB by an additional ... rail carrier would assist in mitigating UP’s and BNSF’s [the current serving carriers] capacity shortcomings, and thereby improve rail service reliability.”³³

The STB decision alludes briefly to the possibility (and relevance) of harm to existing *carriers* as an instance or cause of harm to existing *services*, but the decision does not so much as mention any evidence that the UP and/or BNSF would be significantly harmed by DM&E entry into the PRB – evidence that would seem to be at least related to the sustainability question – rather focusing entirely on the seemingly odd issue of whether the magnitude of the proposed investment project and the possibility of its failure might constitute threats to existing service *by the DM&E* to its existing, non-PRB customers.³⁴ Remarkably, then, in the single major SAC case in which the sustainability issue is at least in principle relevant, the STB decision avoids the issue almost entirely.

Seen from this perspective, the STB statements justifying the use of the SAC test seem more to avoid than to address the questions of economic efficiency and total welfare:

In sum, our use of SAC introduces the competitive standard of contestability into a non-competitive market. The stand-alone cost, as we define it here, approximates the full economic costs, including a normal profit, that need to be met for an efficient producer to provide service to the shippers identified. This

³¹ *Dakota, Minnesota & Eastern Railroad Construction into the Powder River Basin*, STB Finance Docket No. 33407 (3 S.T.B. 847; 1998 STB LEXIS 968) (December 10, 1998), citing 49 U.S.C. 10901(c) and *Tongue River R.R. - Rail Construction & Operation - Ashland to Decker, MT*, STB Finance Docket No. 30186 (Sub-No. 2) (Nov. 8, 1996).

³² See U.S. Federal Railroad Administration, “FRA Administrator Denies DM&E Powder River Basin Loan Application Citing Unacceptable Risk to Federal Taxpayers,” February 26, 2007.

³³ *Dakota, Minnesota & Eastern Railroad Corporation Construction into the Powder River Basin*, 3 S.T.B. 847 (1998), at 7.

³⁴ *Ibid.*; see also the subsequent STB decision granting approval for construction following investigation of possibly averse environmental impacts, *Dakota, Minnesota & Eastern Railroad Corporation Construction into the Powder River Basin*, 2002 STB LEXIS 74, and the decision granting final approval for construction following court appeal and remand, *Dakota, Minnesota & Eastern Railroad Corporation Construction into the Powder River Basin*, Decision, STB Finance Docket No. 33407, February 15, 2006.

cost calculation produces a simulated competitive price standard against which actual rates can be compared.³⁵

A SAC analysis seeks to determine whether a complainant is bearing costs resulting from inefficiencies or costs associated with facilities or services from which it derives no benefit; it does this by simulating the competitive rate that would exist in a “contestable market.”... A SARR is ... hypothesized that could serve the traffic at issue if the rail industry were free of entry barriers.... This analysis produces a simulated competitive rate against which we judge the challenged rate.³⁶

We would seem to be left only with arguments for the stand-alone-cost test related to fairness. As I discuss in the companion paper to this one (Pittman, forthcoming), fairness is a perfectly relevant topic for discussion regarding rates charged to captive shippers; in a sector with a high level of fixed and sunk costs, there is no single, optimal way to set rates for full cost recovery.³⁷ Particularly once the railways are earning their cost of capital – as they are now, arguably – any increase in rates to the railroads (part of which goes to stockholders, but part of which goes to labor, and part to maintaining and improving capacity, including new and expensive statutory requirements for the installation of Positive Train Control equipment) comes at the expense of coal mine owners and labor and investment, electric utilities, and electricity rate payers (and customers of commercial rate payers).

What is the right mix of charges to those diverse groups? Rates set at “what the market will bear” economize on judicial and regulatory costs and fund railroad investment. Rates constrained to be below that level leave more resources in the hands of the coal and electricity industries and electricity customers. Ramsey prices achieve revenue adequacy at a minimum cost to total welfare, but customers with the fewest economic alternatives may pay very high – even “unfair”, even “cross subsidizing” – rates. Even Ramsey prices constrained by SAC analysis leave shippers – by definition – with zero share of the economies of scope of the overall railway enterprise. We have not even touched on the question of environmental externalities: whether, as complainants argued in the DM&E matter before the STB, lower rates for shipping coal may be a *bad* thing if they encourage the construction of more coal-fired power plants and the consumption of more electricity.³⁸ Large sums of money are at stake here, and political resolutions may be inevitable.

³⁵ *Coal Rate Guidelines, Nationwide*, at 9.

³⁶ *Major Issues in Rail Rate Cases*, at 7. See also Freeman (1984), who asks why, “where competition does not exist, it is [reasonable] to define maximum rate levels on the basis that nonexistent competition will keep them reasonable.”

³⁷ See also the more basic microeconomic presentation in Pittman (2004).

³⁸ See especially *Mid States Coalition for Progress vs. STB*, 345 F.3d 520 (8th Cir. 2003) and *Dakota, Minnesota & Eastern Railroad Corporation Construction into the Powder River Basin*, Decision, STB Finance Docket No. 33407, February 15, 2006.

What seems clear, however, is that a focus on the best level of the rates themselves is much to be preferred to a lengthy and expensive examination of various cost issues that – as I have argued in this paper – are not obviously relevant to the desirability of the rates themselves. Whatever is the fairest or best or most equitable way to divide the available quasi-rents among various claimants, it would seem to have extremely little to do with the choices of rules for introducing expected productivity improvements or for cost sharing on two sections of track on a hypothetical railroad over a twenty year period in the future – or with any of the other myriad of complex and expensive details that constitute the stand-alone-cost test as it is implemented in the context of U.S. freight rail regulation. Meitzen and Larson (1992) generalize this point:

The real issue in question is often the pricing of services, not their costs. In other words, it is believed that the prices of particular services should be above or below some level, or that they should be higher or lower. These beliefs are often supported by allocating shared costs in some manner (including ... SAC) which “proves” the prices in question are the correct ones.... In such instances, it would be more fruitful to phrase the debate directly in terms of prices and not camouflage the real issue with debates over arbitrary “costs.”

Surely a simpler, more straightforward, and above all cheaper way could be chosen to protect “captive” shippers. As I suggest in the companion paper to this one (Pittman, forthcoming), one possibility would be a ceiling on the price-to-variable-cost ratio – corresponding to the floor on this ratio below which the STB lacks jurisdiction to challenge rates – that would, like the stand-alone-cost test, act as a constraint on the degree to which Ramsey pricing is permitted. In fact the STB imposed exactly such a rate ceiling as a remedy in a recent matter where the shipper was able to demonstrate that the rates it had been paying had been greater than SAC.³⁹ Alternatively, the literature on incentive regulation (Laffont and Tirole, 2000; Joskow, 2005) might be a fruitful source of ideas.

³⁹ *Western Fuels Association and Basin Electric Power Cooperative v. BNSF Railway* (2009), *supra* note 16. See also the similar ceiling imposed in *West Texas Utilities Company v. BN Railroad* (1996), *supra* note 9.

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