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BEFORE THE
SURFACE TRANSPORTATION BOARD

Docket No. EP 722

RAILROAD REVENUE ADEQUACY

SUPPLEMENTAL COMMENTS OF
UNION PACIFIC RAILROAD COMPANY

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At the Board's recent hearing, railroads and shippers agreed that the Board should regulate in the public interest to promote a healthy railroad industry that supports growth in the broader United States economy. However, the parties strongly disagreed about what form of rate regulation would best advance this shared objective.

Union Pacific believes that price controls triggered by a measure of revenue adequacy are not in the public interest because they are inconsistent with market principles and would reduce and distort rail investment. Our position is informed by the Board's governing statute, experience with rate regulation, and established economic theory. The message from all three sources is the same—the Board should rely on competitive market principles in regulating railroad rates.

We believe the shipper groups at the hearing misrepresented or ignored the governing statute and economic theory in arguing that rate regulation amounting to price controls would be in the public interest. Most notably, they argued that forcing rates of revenue adequate railroads down towards marginal cost—*regardless of whether the rates exceeded the competitive price*—would reduce the "deadweight loss" for society and thus increase economic welfare. Not only does this contention misapply economic theory, it also ignores the immediate impact that such rate constraints would have on railroad investment decisions and the longer-term consequences for the railroad industry. The harmful effects of price controls—reduced investment and thus reduced output—are well recognized in the economic literature and help explain Congress's direction that the Board rely to the greatest extent possible on competition and demand for service to establish reasonable rates.

Union Pacific is submitting these supplemental comments and the accompanying verified statement of Kevin M. Murphy to explain further why forcing a firm's prices below competitive levels is not in the public interest, even if the firm could earn adequate revenues while setting its prices closer to marginal costs. These comments show that Congress recognized this economic principle and embedded it within the rail transportation policy and rail rate provisions of the Interstate Commerce Commission Termination Act ("ICCTA").

Moreover, Union Pacific understands that adopting appropriate rules for regulating rates in the public interest is complex. And we understand the Board's desire to simplify current rate regulation processes. We therefore provide several proposals that the Board might consider in simplifying its rate regulation processes while adhering to sound economic and regulatory principles.

I. Forcing a firm's prices below competitive levels is not in the public interest, even if the firm would remain revenue adequate.

Professor Murphy's statement explains why forcing prices closer to marginal costs is not in the public interest when competitive price levels are higher than marginal costs. As Professor Murphy explains, real-world markets rarely reflect the textbook model of perfect competition, which says price should be set at marginal cost to achieve the socially optimal outcome. In the real world, firms operating in competitive markets often price their products above marginal costs, and using price controls to force price down towards marginal costs would immediately impact investment decisions and produce disastrous consequences for the firms and consumers over the longer run. "When competition motivates such a firm to reduce price, the firm's incentive is to become more efficient and provide better service in order to keep and grow sales in the face of increased competition." Murphy Supp. VS at 2. But "regulation that uses price controls to force prices down towards marginal costs does not produce the same economic welfare benefits as actual market competition." *Id.* To the contrary, "[t]he danger of price controls is well-established as a matter of economic theory." *Id.* at 3. Experience has shown that any short-run benefits from forced rate reductions would likely be overwhelmed by "the more critical effect on economic welfare from reducing . . . incentives to invest in maintaining and improving service to meet the long-run demands of customers." *Id.* at 3-4.

Professor Murphy uses the example of Apple's iPhone, which is priced substantially above its marginal cost, to help explain why forcing prices below competitive levels is not in the public interest. As he explains, application of price controls to reduce iPhone prices may increase consumption in the short run as consumers rush to snap up available inventory, but in the longer run, output as measured by both quantity and quality of products would likely decline: "price controls would immediately reduce Apple's incentives to continue to innovate and introduce new products with improved features and the highest possible quality." *Id.* at 2-3. The same considerations apply to railroads. Price controls might spark a surge in demand, but railroads would have reduced incentives to invest to meet any increased demand or improve the quality of service they offer.[1] Simple economic models designed to illustrate how competition drives firms to reduce price and increase output do not capture the dynamic behaviors of real-world firms reacting to imposition of price controls and the longer-run consequences for consumers.

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[1] Union Pacific witnesses Murphy and Jon Panzer described in their hearing testimony how rate freezes or rate reductions triggered by a finding that a railroad was revenue adequate would reduce and distort investment and undermine incentives to operate efficiently.

II. The Interstate Commerce Commission Termination Act requires the Board to rely on competition and the demand for services to establish reasonable rates.

Congress did not embrace the textbook model of perfect competition and marginal cost pricing in ICCTA. Rather, it adopted a real-world approach that relies on markets where prices are established based on "competition and the demand for services." 49 U.S.C. § 10101(1). Congress established a regulatory policy that calls for maintaining "reasonable" rates, not rates equal to marginal costs, because it understood that the public interest is best served by allowing markets to work as long as competition is "effective," not just when competition is perfect. *Id.* § 10101(6). Congress embedded real-world, market-based pricing principles even more firmly into ICCTA by expressly limiting the Board's authority to regulate rates to situations in which railroads lack "effective competition," *id.* § 10707(a), and by providing that "reasonable" rates remain the objective even when a railroads has market dominance, *id.* § 10701(d). Congress further embedded real-world, market-based pricing into ICCTA by providing that a railroad cannot be found market dominant when a challenged rate results in a revenue-variable cost percentage that is less than 180 percent. *See id.* § 10707(d)(1)(A). In addition, Congress has endorsed the stand-alone cost test, which implements competitive market pricing principles necessary for sound regulation of railroad rates. *See id.* § 10701(d)(3).

Decades of experience shows that Congress adopted the correct approach: under a regime of regulation based on competitive market principles, rates fell while volume, productivity, and investment increased, as railroads were allowed to respond to market forces and set rates in accordance with demand. As our opening evidence demonstrated, our customers obtained substantial and lasting benefits from a market-based approach to regulation.

III. The Board should improve its current, economically sound rate regulation processes rather than focus on special rules for revenue adequate railroads.

The Board commenced this proceeding to address issues relating to revenue adequacy, but the comments and testimony showed shippers are concerned about their ability to access the agency's rate regulation processes regardless of whether railroads are deemed revenue adequate. The Board should use the momentum from this proceeding to renew its focus on improving its existing rate regulation processes, rather than to try to develop rules that would apply only if a railroad were ever deemed revenue adequate under a correctly calculated, long-term measure. Indeed, if the Board tried to move forward with one of the proposals offered by the shippers or shipper associations, it would just be spinning its wheels: none of the proposals was based on sound economic principles, and thus none merits adoption by this agency or could withstand judicial scrutiny.

Union Pacific suggests the Board reopen Ex Parte No. 715 or open a new proceeding focused on improving the stand-alone cost test. As discussed at the hearing, SAC has evolved over time as parties and the agency have gained experience with recurring issues. We believe opportunities exist to speed up the evolutionary process, and we suggest focusing on three general issues:

First, we believe the road property analysis could be simplified by developing a default set of standard, railroad-specific asset costs that a shipper could use to construct a stand-alone railroad. This might be accomplished by indexing actual railroad asset costs to reflect current cost levels, using techniques similar to those used to develop the estimate of replacement costs presented in Professor Murphy's testimony for Union Pacific. If a default set of asset costs were developed, shippers could still be allowed to elect to develop their own asset costs, but unlike the default costs, the alternative costs would be subject to challenge by the railroads.

Second, we believe operating plan design and analysis could be simplified by developing a top-down approach. A top-down approach would begin with the defendant railroad's existing operating plan and associated operating statistics, while allowing the shipper to depart from the existing plan by showing how its case-specific traffic selection or operating assumptions would eliminate the need for specific existing operations or otherwise reduce existing operating costs. Since a defendant's existing operations would form the core of the stand-alone railroad's operating plan, use of a top-down approach should minimize the number of potential disputes and should simplify the Board's review and analysis. As with standardized road property costs, a top-down approach to the operating plan could be established as a default, with shippers free to develop a bottom-up plan that would be subject to stricter scrutiny.

Third, we believe the Board should explore whether there are technological tools, such as computer models and other software, that parties and the Board could be using to help improve and standardize the development and analysis of stand-alone railroads. The Board might be able to accomplish this by inviting experts to participate in a Board-sponsored technical conference.

Union Pacific recognizes that the proposals we offered will require further development before they can be implemented, and we are prepared to participate actively in the development process. We believe interested parties and this agency should focus their resources on continuing to improve the Board's existing, economically principled, and judicially approved rate regulation processes, rather than on the likely futile pursuit of new procedures that are contrary to economic principles and that will never even be applied unless a railroad is found revenue adequate.

Respectfully submitted,

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SUPPLEMENTAL VERIFIED STATEMENT OF

PROFESSOR KEVIN M. MURPHY

AUGUST 6, 2015

My name is Kevin M. Murphy. I previously filed a Verified Statement and a Reply Verified Statement in this proceeding. I also testified at the hearing held on July 22-23, 2015.

I have been asked by Union Pacific Railroad Company to respond to a claim made at the hearing by Dr. Kevin Caves, on behalf of the Concerned Shipper Associations, that once a railroad is revenue adequate, any adjustment that moves rates closer to marginal cost, while still allowing the railroad to maintain revenue adequacy, will deliver economic benefits to society. Dr. Caves made this claim in support of proposed regulatory intervention to force rates closer to marginal costs, without regard to whether affected rates are actually above competitive levels.[1]

Dr. Caves is wrong to argue that, once a railroad is revenue adequate, regulators can guarantee welfare gains by ignoring competitive market outcomes and forcing prices down to marginal cost. His overly simplistic and incomplete theoretical analysis ignores important economic insights gained through decades of analysis and experience with price controls. If adopted, his proposal likely would create widespread economic harm for railroads, shippers, and the public. Put simply, using regulation to reduce rates that are not above the competitive level creates immediate inefficiencies in investment choices and operational decisions that will over the longer run reduce the quantity and quality of railroad service, both for shippers whose rates are adjusted downward and for other shippers using the rail network.

The fundamental error Dr. Caves makes is to rely on a short-run, textbook model of perfect competition which says that prices must be set at marginal cost to achieve the socially optimal outcome, and that moving prices down towards marginal cost increases output and reduces what economists call "deadweight loss." By focusing on this model, Dr. Caves confuses the benefits to consumers (and economic welfare) when competition causes prices to decline toward marginal cost with how economic welfare changes when, instead, regulation is used to force prices down toward marginal cost.[2]

[1] Dr. Caves's statements elaborated on a verified statement and a reply verified statement that he and Hal Singer previously submitted on behalf of the Concerned Shipper Associations.

[2] When I refer to competition, I am referring to competition that has arisen because of the market-based behaviors of participants in the transportation marketplace, or regulation that attempts to replicate market-based outcomes, like the Board's stand-alone cost test. I am not referring to the artificial competition that would be created by the forced-access proposals that were also discussed at the hearing. The artificial injection of a second railroad where market conditions did not support the entrance of a second railroad is a form of regulation that likely would be as harmful, if not more harmful, as price controls.

In particular, Dr. Caves's model ignores two fundamental elements that make his claims invalid.

1) The distortionary and welfare-reducing effects of using price controls (and in particular cost-based price controls) to lower prices.

2) The fact that the level of output and welfare depend critically on investments made by the railroad (which will be reduced by his proposal), and not simply on the price paid by the shipper.

A. Dr. Caves fails to consider the consequences of reducing rates through regulation as opposed to competition.

When competition motivates a firm to reduce price, the firm's incentive is to become more efficient and provide better service in order to keep and grow sales in the face of increased competition. For example, when a railroad faces increased competition from trucks, it will be motivated to reduce rates, increase output (in terms of improved quality of rail service – e.g., better schedules, more rapid delivery, etc.) and otherwise act in ways likely to benefit those shippers that now have additional competitive options. Moreover, because of the network nature of the rail industry, when a railroad improves service for one group of shippers, other customers often benefit as well, even where there was no increase in competition for those other customers. Competition motivates firms to become more efficient and thus reduces deadweight loss.

However, regulation that uses price controls to force prices down towards marginal costs does not produce the same economic welfare benefits as actual market competition. Indeed, many products in the broad economy are sold at prices that exceed marginal cost, yet the short-run gain in reduced deadweight loss from forcing down prices would not improve consumer welfare, but instead would cause substantial (and long-lasting) harm to consumers.

For example, the price of an iPhone is substantially higher than its marginal cost (and Apple earns large profits from iPhone sales). Yet, few would argue for regulation to force the price of an iPhone down to marginal cost, and wisely so. While sales of iPhones might increase in the short run as more consumers purchase iPhones at the lower, regulated price, in the longer run consumer welfare and output are likely to fall because the price controls would immediately reduce Apple's incentives to continue to innovate and introduce new products with improved features and the highest possible quality. Over the longer run, the harm to consumers from forgoing new improved iPhones is likely to outweigh any short-run benefits consumers receive from lower prices.

The danger of price controls is well-established as a matter of economic theory.[3] And it is not just theory; we also have historical evidence on the effect of price controls. For example, the use of rent controls to reduce property rental rates has been studied extensively to understand whether the rent controls, which have been implemented in many places and at many times in the past, are an efficient way to increase consumer welfare. In Dr. Caves's framework, such controls should simply reduce prices closer to the marginal cost of supplying an apartment which, once it has been constructed, is very low. However, economic analysis has shown convincingly that forcing down rents through regulation (rather than through increased competition from construction of new apartments and thus an increase in supply) reduces incentives for landlords to maintain their properties and to provide high quality rental units, thereby creating an offsetting loss of consumer welfare. This is an area where there is a strong consensus among economists documented in surveys of the literature and of economists' opinions.[4]

In short, Dr. Caves ignores the dynamic impact of price control regulation, focusing instead on a simplistic analysis that suggests forced price reductions could eliminate some deadweight loss in the short run. Dr. Caves's analysis ignores the more critical effect on

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[3] *See, e.g.*, Averch, Harvey, and Leland L. Johnson. "Behavior of the Firm Under Regulatory Constraint," The American Economic Review (1962), pp;. 1052-69; Baumol, William J., and Alvin K. Klevorick. "Input Choices and Rate-of-Return Regulation: An Overview of the Discussion," The Bell Journal of Economics and Management Science (1970), pp. 162-90.

[4] A 1992 article reported results of a survey of 1,350 economists (of which 34.4 percent responded) on the question whether "A ceiling on rents reduces the quantity and quality of housing available." About 93.5 percent of respondents agreed – the highest consensus obtained for any of the 40 policy questions asked. *See* R. M. Alston, J.R. Kearl and M. B. Vaughan, "Is There a Consensus Among Economists in the 1990's?" 82(2) *AEA Papers and Proceedings* 203 (1992), p. 204. A 2012 poll of economists at major U.S. universities (the IGM Economic Experts Panel) found that 95 percent of responses (weighted by each expert's confidence) disagreed with the proposition that "Local ordinances that limit rent increases for some rental housing units... have had a positive impact over the past three decades on the amount and quality of broadly affordable rental housing in cities that have used them." *See* http://www.igmchicago.org/igmeconomicexpertspanel/pollresults?SurveyID=SV_6upyzeUpl73V5k0. As summarized in a survey article reporting on the near unanimity of opinion on the harmful impact of rent controls, "Economists have shown that rent control diverts new investment, which would otherwise have gone to rental housing, toward greener pastures – greener in terms of consumer need. They have demonstrated that it leads to housing deterioration, fewer repairs, and less maintenance." *See* Walter Block, "Rent Control," Concise Encyclopedia of Economics (http://www.econlib.org/library/Enc/RentControl.html). According to a well-regarded textbook, rent control "reduces the incentive to build new rental housing, exacerbating the shortage in the long run. Similarly, owners have less of an incentive to maintain rental housing, so it deteriorates faster than otherwise." *See* D. W. Carlton and J. M. Perloff, *Modern Industrial Organization* 3rd ed. (1999), p. 769.

economic welfare from reducing railroads' incentives to invest in maintaining and improving service to meet the long-run demands of customers.

B. Dr. Caves's simple textbook model does not reflect the nature of pricing, competition, and service in the railroad industry.

The simplistic model on which Dr. Caves bases his analysis, which assumes a monopolist that charges a single monopoly price to all buyers of a single product, does not capture the nature of competition and pricing in the railroad industry. First, Dr. Caves presents no evidence that railroads generally charge prices above competitive prices, even where the Board would find them market dominant. Second, railroads do not follow the textbook "single price" model since they do not charge the same price to every shipper that seeks transportation of the same product. Rather, railroads are multiproduct firms that negotiate rates individually with shippers over a large range of elements – rates, service, quantity commitments, etc. This ability to charge different prices based on an individual shipper's demand allows railroads to increase output and eliminate much of the deadweight loss that the textbook models identify as resulting when a monopolist sets the same price for all of its customers. Thus, the model on which Dr. Caves relies is not directly relevant for purposes of understanding what deadweight loss exists today and how regulation that forces down rates without regard to whether rates are set at competitive levels would affect economic welfare.

Finally, the impact of imposing price controls on the quality of service is not limited to the long-run and the associated loss in investment. Dr. Caves also ignores that railroad service is not a single uniform commodity where the quantity consumed is simply a function of price. Real-world railroad service is a complex commodity where the customer's demand for service depends not only on the price, but also on the quality, of service provided by the railroad. When prices are set in a market (competitive or otherwise), firms have the incentive to maintain or improve quality since the firm is rewarded for producing a better product by being able to charge a higher price. The use of price controls breaks this linkage, Thus, the impact of price controls is to reduce the railroad's incentive to provide high quality service (since it will not be able to raise price in order to recoup the additional cost and will gain less from any resulting increase in output). This decline in quality is essentially a way to avoid the price controls, and will serve to reduce rather than increase output. Thus, even by Dr. Caves's narrow standard of evaluating the benefit of proposed price interference by its short-run impact on output and deadweight loss, his proposals may result in lower rather than greater efficiency.

* * *

In summary, Dr. Caves claims that forcing market-based rates down towards marginal cost will increase output and thus consumer welfare. However, decades of analysis and experience teaches otherwise. It is no coincidence that the Staggers Act and regulation more broadly have focused on maximizing reliance on functioning marketplaces, with any regulatory interference targeted narrowly and only where an individual customer can demonstrate that it lacks sufficient competition.

VERIFICATION

I, Kevin M. Murphy, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this Supplemental Verified Statement.

Executed on August 6, 2015.

Kevin M. Murphy

Kevin M. Murphy