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Two Roads Diverged: Two Alternate Strategies for Protecting Captive Freight Shippers in the "Americas" Model of Freight Rail Restructuring

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Abstract

How to protect "captive shippers" from monopolistic abuses by a railway? In an "open access" system, it's straightforward: provide infrastructure access to a competing train operating company. In a system without open access – as in, for example, the United States, Canada, Mexico, and Brazil – it's not so straightforward. For freight shippers lacking economic intramodal or intramodal shipping alternatives, regulators and policymakers have focused on regulatory alternatives in two broad categories: 1) direct regulation of rates, and 2) imposed, regulated competition from a second railway (for example, interswitching or trackage rights). We argue that, despite disadvantages familiar to every Economics 101 student, direct regulation of rates has proven to be the superior alternative, and we discuss alternative mechanisms currently under debate.

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Two Roads Diverged: Two Alternate Strategies for Protecting Captive Freight Shippers in the "Americas" Model of Freight Rail Restructuring

Russell Pittman[1]

Introduction

Over the last few decades, policy makers around the world have become dissatisfied with the performance of the traditionally state-owned, vertically integrated, monopoly railway and have debated and often implemented structural reform strategies.[2]

Two broad restructuring models have dominated the debate: the "European" model of opening the monopoly infrastructure to competing train-operating companies (TOCs) – sometimes termed an "open access" model – and the "Americas" model of vertically integrated railroad companies competing over parallel routes and to and from common points. The European model easily divides into two sub-models, depending on whether the enterprise controlling the infrastructure is permitted also to be a TOC; if so, this is a "third party access" model, while if not, this is a "vertical separation" model.[3]

The two (or three) models have different attributes and advantages and may be appropriate in different settings, depending on, for example, country size and freight/passenger mix. (For example, the U.S., Canadian, and Mexican railways are freight-dominant, while most European railways are passenger-dominant.) I have argued that, broadly speaking, each has one conspicuous advantage and one corresponding disadvantage vis-à-vis the other.[4]

The principal advantage of either variant of the "open access" European model – competition "above the rail" among TOCS utilizing a monopoly, state-owned or -controlled infrastructure – is that there are, by design, no "captive shippers", that is, shippers with no ability to choose among competing railway service providers (i.e., TOCs). "Open access" means that independent TOCs that meet technical requirements and satisfy infrastructure access terms and charges can begin serving an area and provide alternative service to customers dissatisfied with that offered by the incumbent. Indeed, shippers may even purchase locomotives and rolling stock and vertically integrate into the provision of their own rail service, for inputs, outputs, or both. Or, of

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[2] China, Russia, and India are three large countries where there has been more "debate" and less "implementation".

[3] José Gómez-Ibáñez and Ginés de Rus, eds., *Competition in the Railway Industry: An International Comparative Analysis*, Cheltenham, UK: Edward Elgar, 2006; Russell Pittman, "Options for Restructuring the State-Owned Monopoly Railway," *Research in Transportation Economics* 20 (2007), 179-198.

[4] Russell Pittman, "The Underappreciated Connection between Rail Restructuring Strategies and Financing," *Review of Network Economics* 16 (2017), 161-169; Pittman, "On the Economics of Restructuring World Railways, with a Focus on Russia," *Man and the Economy* 7 (2020).

course, they may threaten to take advantage of either option in order to negotiate better terms from their incumbent provider.

The Americas model suffers in comparison in this respect. Vertically integrated railway companies, generally under no obligation to provide access to their infrastructure to other TOCs, inevitably enjoy a degree of monopoly power over certain shippers of certain rail-captive commodities in certain locations. There are limitations to this monopoly power – the delivered prices of the same commodity from alternative locations, most clearly – but it is real. Generally, governments that have chosen (or inherited) this model of railroad structure have sought various regulatory mechanisms to protect such shippers. That is the topic of this paper.

The principal advantage of the Americas model has proven to be its success in attracting private investment into the industry and, in particular, into the infrastructure. Although in countries utilizing this model – the United States, Canada, Mexico, and Brazil, for example – there has been some government financing of particular investment projects and even (in Canada) in rolling stock, overall these systems have relied on attracting billions of dollars of private investment over the years – in the United States and Canada since substantial deregulation in the later decades of the last century, in Mexico and Brazil in the second half of the 1990s with the auctioning to the private sector of long-term (50 years and 30 years, respectively) franchise control of particular regional rail infrastructure and operations.

In countries where the infrastructure remains government owned, governments have proven to be unreliable investors, and private investment in infrastructure has been rare (as opposed to in locomotive and rolling stock assets, which have prospered relatively in the open access era). Furthermore, the EC rail packages call for infrastructure access charges to TOCs to be based on variable costs only, with mark-ups to contribute to fixed costs permitted only with certain restrictions.[5] As a result, these countries – those of the European Union as well as others in Europe, for example – remain subject to track congestion and bottlenecks, significantly hampering their broader green policies seeking to move freight and passengers from road to rail.[6]

The question of how to attract into the railway sector some of the billions of dollars that are flooding capital markets – often with no good place to go, and so being returned to stockholders – is an important one and raises important questions of institutional design so long as the main

[5] See, for example, Chris Nash, Yves Crozet, Heike Link, Jan-Eric Nilsson, and Andrew Smith, "Track access charges: reconciling conflicting objectives," Brussels: Centre on Regulation in Europe, 9 May 2018, https://cerre.eu/wp-content/uploads/2020/06/180509_CERRE_TrackAccessCharges_OverallReport_final-1.pdf.

[6] See, for example, E.CA Economics, "Vertical integration, competition and efficiency in the rail industry: Economic trade-offs," June 2024, https://www.e-ca.com/wp-content/uploads/2024/08/eca-report-on-vertical-integration-in-rail-transport-june-2024-final.pdf. There are also reasons to believe that the Americas model provides better incentives for investing in network quality than the European model. See David Besanko and Shana Cui, "Railway restructuring and organizational choice: Network quality and welfare impacts," *Journal of Regulatory Economics* 50 (2016), 164-206, and Besanko, "Restructuring Rail Systems: Implications for Network Quality and Welfare," in Jeffrey Macher and John Mayo, eds., *U.S. Freight Rail Economics and Policy: Are We on the Right Track?*", London: Routledge, 2019.

infrastructure remains under state control.[7] That would seem to be a crucial topic of attention for those countries adopting or considering the European model of railway reform going forward.

In this paper I examine an arguably equally crucial topic facing those countries adopting the Americas model: how best to protect "captive shippers", i.e. those freight shippers who are not only dependent on railways for their transport services but also, inherently for some shippers in the Americas model, dependent upon only one railway. How best to protect these shippers from monopoly exploitation by the railway that serves them?

Let us examine the regulatory policies chosen by three main countries using the Americas model: the United States, Canada, and Mexico. (Policies in Brazil continue to be in flux.)[8] As we shall see, though in each country the shipper and/or the regulator have a menu of options in seeking to rein in the exercise of monopoly power, in practice the options fall starkly into two baskets: **the direct control of rates, and the reliance on (regulated) competition from a connecting railroad.** Let us note, as we begin, that this dichotomy may claim something of a lineage from the classic dichotomy posed by Martin Weitzman in his "Prices vs. Quantities" (*Review of Economic Studies* 41 [1974], 477-491), which suggested that a regulator may choose to specify one or the other depending on her knowledge as well as the risks associated with getting the one wrong. As we shall also see, a difference here is that it may be much easier for a regulator to order a price than a quantity.

United States

Under the Staggers Rail Act (1980) and the regulations of the Surface Transportation Board (STB, formerly the Interstate Commerce Commission, the ICC), a railroad is judged to be dominant and a shipper to be captive if two criteria are satisfied: first, the shipper has no economic alternative to shipping on its serving railroad, and second, rates are more than 180 percent of the variable cost to the railroad of supplying the service, as measured by the (admittedly far from perfect) Uniform Rail Costing System (URCS).[9] The principal shipper-protection strategy then relied on is the first one listed above: **the direct control of rates.**

Rates charged to captive shippers must be "reasonable". As formulated by the ICC in its *Coal Rates Guidelines* (1985), the reasonableness of rates is judged under the rubric of

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[7] For example, see Martha Lawrence and Gerald Ollivier, "Private Capital for Railway Development," *China Transport Topics* No. 10, August 2014, https://documents1.worldbank.org/curated/en/134031468263105814/pdf/901170NWP0CTT10385300B00PUBLIC000EN.pdf.

[8] See, for example, Patrícia Sampaioa , Joisa Dutrab Edson Gonçalvesc, Mariam Daychoum, and Bruno Palermoe, "Regulatory reform in the Brazilian railway sector – a preliminary assessment," *Network Industries Quarterly* 17 (2015), 14-16; Armando Castelar and Luísa Ozevedo, "Rail Regulation in Brazil," *Network Industries Quarterly* 18 (2016), 12-15; Gregoire Gauthier, "Rail Sector and Regulation in Brazil," World Bank, July 2, 2019, https://www.gob.mx/cms/uploads/attachment/file/474510/4._Gregoire_Gauthier_Brazilan_Railways.pdf; and Marcos Kleber Ribeiro Felix, "Railway Authorizations Law: Brazil's Most Successful Rail Policy in 100 Years," unpublished paper, Brasilia, 2024, https://ousebem.com.br/railway-authorizations-law-brazils-most-successful-rail-policy-in-100-years.

[9] For a discussion, see, for example, Wesley Wilson and Frank Wolak, "Freight Rail Costing and Regulation: The Uniform Rail Costing System," *Review of Industrial Organization* 49 (2016), 229-261.

"constrained market pricing" (CMP). Under CMP, differential pricing based on a shipper's elasticity of demand for transport – "Ramsey pricing" – is not only allowed but encouraged, as an economically efficient methodology for pricing in the presence of significant fixed and sunk costs.

However, the ability of a dominant railroad serving a captive shipper to price differentially is not unlimited. The *Coal Rate Guidelines* stipulate three criteria that must be met and under which the reasonableness of rates charged to captive shippers may be challenged:

- "Management efficiency", so that shippers are not required to pay a premium to support poor railroad management;
- "Revenue adequacy", so that shippers are not required to pay a premium to provide a railroad enterprise with supercompetitive profits; and
- "No cross-subsidy", so that shippers are not required to pay a premium to allow the railroad to engage in pricing below cost to other shippers or to pay for infrastructure that they do not use.[10]

In practice, virtually the only criterion under which rate challenges have been brought and adjudicated is the "no cross-subsidy" criterion, and this has been evaluated under the stand-alone-cost (SAC) test that rail regulators inherited from telecommunications regulators. Under this test, rates must be no higher than those that would be charged by a hypothetical new railroad line built to connect origin and destination. In the most recent rate case before the STB, *Consumers Energy v. CSX* (2018), the complaining shipper sought relief under both the no cross-subsidy test and the revenue adequacy test. The STB granted relief under the former but declined relief under the latter, nevertheless noting that the US railroad companies seem to be revenue adequate under current conditions and that this criterion may well be relevant in future rate challenges.

The STB chair and commissioner authoring the *Consumers Energy* decision both included dicta expressing their dissatisfaction with the SAC test; they thus joined a chorus of commentators criticizing the test as unnecessarily expensive and complex as well as generally favoring the railroad over the shipper.[11] As I have argued elsewhere, the decision to set a ceiling on Ramsey pricing in particular or on rail rates in general is a political rather than an economic one; there is no obvious economic guidance as to how the surplus generated by, for example, coal shipments to electricity generation plants should be divided among coal mine owners, coal miners, railroad companies,

[10] To my knowledge, neither the STB nor the ICC has ever found cross-subsidization in the strict sense, which would require that some rail customers were paying less than the (true) variable cost of serving them in addition to other shippers paying more than SAC. See, for example, the discussion in "STB Economists' Round Table on the Stand Alone Cost Test and Its Future," *Journal of Transportation Law, Logistics and Policy* 90 (2023), 89-161, relying on G.R. Faulhaber, "Cross-subsidization: Pricing in public enterprises," *American Economic Review* 65 (1975), 966-977.

[11] Russell Pittman, "Against the Stand-Alone-Cost Test in U.S. Freight Rail Regulation," *Journal of Regulatory Economics* 38 (2010), 313-326; Transportation Research Board, *Modernizing Freight Rail Regulation*, Washington, DC: National Academy of Sciences, 2015. For an alternative view, see John Mayo and Robert Willig, "Economic Foundations for 21st Century Freight Rail Regulation," in Macher and Mayo, *U.S. Freight Rail Economics and Policy*, *op cit*.

railroad workers, electricity companies, electricity company employees, and electricity rate payers.[12]

There are several proposals under debate in the United States for a mechanism to replace SAC in the direct control of rail rates. Among them are the following:[13]

- A ceiling based on rates charged by the same railroad for comparable traffic that is not captive.[14] A similar methodology is already included in the "three benchmarks test" that the STB has made available for smaller rate cases.
- A return to something close to a simplified rate-of-return regulatory analysis based on the localized costs of the incumbent, a methodology termed by the STB staff report that introduced it "Incumbent Network Cost Analysis."[15]
- Since rate cases have involved only a small number of commodities – coal, bulk chemicals, and grain – impose a commodity-specific maximum mark-up over variable costs (as measured by URCS), based on considerations of fairness, efficiency, incentives, and any other considerations deemed relevant by the STB.[16] The STB staff report recommends commodity-distance-specific mark-up ceilings for those railroads determined to be revenue adequate.
- Finally, in a variant methodology of these proposals for direct control of rates, the STB itself has adopted its own version of final offer arbitration ("baseball" arbitration in the U.S.) that it calls "final offer rate review" as well as a more traditional arbitration mechanism, for use at this point in small rate cases only – though as of this writing, an appeals court has ruled that this STB rulemaking exceeds the agency's statutory authority.[17] As we shall see below, final offer arbitration is already one of two mechanisms chosen for direct control of rates in Canada.

The discussion in the United States of regulatory mechanisms for the protection of captive shippers has been dominated by these debates regarding methodologies for the **direct control of rates.** However, the Staggers Act, which was the legislation that broadly deregulated the industry in 1980, also envisioned use of the second captive shipper protection mechanism outlined above: **the reliance on (regulated) competition from a connecting railroad.**

The Act specifically enabled the regulator to impose two standard versions of this model of relief: either reciprocal switching or trackage rights. Under **reciprocal switching**, if one railroad company has monopoly power over a captive shipper, the regulator may order that railroad to originate the traffic but to "switch" it to a competing railroad company at the first available junction

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[12] Pittman, "Against the Stand-Alone-Cost Test," *op. cit*.
[13] See also "STB Economists' Round Table, *op cit*.
[14] Wesley Wilson and Frank Wolak, "Price Benchmark Regulation of Multiproduct Firms: An Application to the Rail Industry," *Journal of Law and Economics* 65 (2022), S155-S190. An earlier version of this paper was included in the Transportation Research Board report, *ibid*.
[15] STB, *Rate Reform Task Force – Report to the Surface Transportation Board*, April 25, 2019.
[16] Pittman, "Against the Stand-Alone-Cost Test," *op cit*. See also 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," report to the Agricultural Marketing Service of the U.S. Department of Agriculture, October 2020.
[17] Union Pacific Railroad v. STB, No. 23-1325, 8th Circuit 2024.

of the two, with payment to be determined by the regulator if it is not agreed upon bilaterally. Under **trackage rights** – a provision of the Transportation Act of 1920 maintained by Staggers – a railroad company that has monopoly power over a captive shipper must permit a connecting railway company to run its trains on the first company's tracks, so that that railway may serve the otherwise captive shipper. The access fee paid by the second company may also be subject to regulation.[18]

In practice, **trackage rights** have been frequently agreed to bilaterally by railroad companies and have been imposed by the STB as a condition for approving mergers, but have not otherwise been used as a method for providing competition to a captive shipper. (They have also been legislatively imposed in the form of a requirement for the class I freight railroad companies to provide access, at a regulated rate, to passenger trains operated by AMTRAK.)[19]

Reciprocal switching has had a more colorful history. The Staggers Act specifically envisioned the ICC imposing switching requirements under certain conditions:

> The Commission may require rail carriers 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.

However, in its landmark *Midtec* decision (1985) and the subsequent *Intramodal Rail Competition* decision (1985), the ICC determined that mandatory switching should be imposed on a monopoly rail company only if the shipper could demonstrate a history of "abusive conduct" by the railroad. This high bar for successful switching petitions was followed by three decades of inaction on this front.

In 2016, the STB issued a Notice of Proposed Rule Making which would have effectively removed the "abusive conduct" requirement and eased the way for the Board to impose switching requirements to create competition in situations where it was lacking. After years of extensive hearings, however, the Board effectively abandoned this aggressive proposal by closing the docket in 2023, and in 2024 it adopted a rule that would allow it to impose switching requirements only in the presence of documented service deficiency by the incumbent railroad.

Thus we may conclude that **U.S. regulators have expressed a clear preference for the direct control of rates charged to captive shippers over the alternative of relying on (regulated) competition from a connecting railroad.** The former strategy is not without its complications and other disadvantages – other than SAC adherents, no one argues that there is a "scientific" way to set rate ceilings – but it does not suffer from what I and others have argued is perhaps a fatal weakness of the regulated competition approach: the requirement that a competing railroad company exhibit a willingness to compete aggressively for its rival's business by submitting a competitive offer for the traffic to be switched. In the almost universal North American setting of duopolistic freight rail markets, in which rail freight customers complain that neither actor in a

[18] A schematic representation of these two options is presented in Pittman, "On the Economics of Restructuring World Railways," *op cit*.

[19] For a recent discussion, see Bill Stevens, "Amtrak on-time performance woes mirror host railroad freight service, shippers say," *Trains*, August 7, 2024, https://www.trains.com/trn/news-reviews/news-wire/amtrak-on-time-performance-woes-mirror-host-railroad-freight-service-shippers-say/.

duopoly is willing to risk setting off a competitive war with its counterpart, why should one expect different behavior just because the STB has changed the requirements?[20]

As we shall see, this weakness of the regulated competition approach manifests itself in Canada and (especially) Mexico as well.

Canada

Canada also uses forms of both the **direct control of freight rail rates** to captive shippers and the **reliance on (regulated) competition from a connecting railroad**. However, the emphases and the details have been quite different. Interestingly, as noted by Nolan, *et al*. (2020) and others, in both Canada and the United States dissatisfaction with the current state of protection for captive shippers has led to shippers and analysts looking to the other country as a possible source of more effective mechanisms.

Regarding the **direct control of rates**, the Canadian regulatory regime has nothing directly comparable to the U.S. concept of "constrained market pricing", much less a well-established regimen for SAC-based or other cost-based rate ceilings. What it does have is a requirement toward which, as we noted above, the STB has been slowly moving: final offer arbitration (FOA). Under FOA, if a shipper institutes a rate challenge, the shipper and the serving railroad make their "final offers" to an arbitrator, and the arbitrator is limited to choosing one or the other offer as the rate going forward. The thinking behind FOA is that this limitation on the arbitrator's choice will incentivize both parties to make reasonable offers, unlike – the thinking goes – a more traditional arbitration arrangement where the arbitrator is free to choose her own preferred outcome, thus sometimes acting to "split the difference" between the proposals of the two parties, and thus incentivizing extreme rather than reasonable offers.[21]

Despite its apparent attractiveness to some U.S. shippers and analysts (and regulators), the use of FOA in the control of rail freight rates to captive shippers in Canada has hardly been a panacea. For one thing, proceedings and decisions are confidential; thus they have no precedential value, and thus the two class I railway companies, Canadian National (CN) and Canadian Pacific Kansas City (CPKC), are able to build up more institutional knowledge and procedural expertise than are shippers. Furthermore, preparing for an FOA proceeding, like preparing for a SAC proceeding, is expensive. Perhaps as a result, it is estimated that there are no more than one or two rate disputes using FOA per year.[22]

However, Canada employs a second form of rate regulation that may have more impact: a Maximum Revenue Entitlement (MRE) for railroads shipping Western Canadian grain. In a spirit

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[20] See, for example, Russell Pittman, "The Economics of Railroad 'Captive Shipper' Legislation," *Administrative Law Review* 62 (2010), 919-936, and U.S. Department of Justice, Antitrust Division, "Comment" on Reciprocal Switching for STB Docket No. EP-711 (Sub-No. 1), https://www.justice.gov/atr/page/file/1479511/dl?inline.

[21] Two areas of frequent use of FOA are for determining the salaries of public sector workers and U.S. baseball players. A widely cited analysis of the incentives involved is Henry Farber, "An Analysis of Final Offer Arbitration," *Journal of Conflict Resolution* 24 (1980), 683-705. See also Nolan, *et al*., "Parallel or Converging?", *op cit*.

[22] Transportation Research Board, *Modernizing Freight Rail Regulation, op cit*.; Nolan, *et al*., "Parallel or Converging?", *op cit*.

somewhat akin to price cap regulation, the Canadian Transport Agency provides to CN and CPKC an annual ceiling for the revenues collected in carrying grain Western Canada, and the railways pay a penalty for overshooting the ceiling – five percent of the overage if the overshot is one percent or less, fifteen percent if it exceeds one percent. Despite the fact that the MRE is calculated and imposed *ex post*, that is, following the end of each crop year, CN and CPKC have historically come close to meeting it. Nolan, *et al*. (2020) calculate that in the period 2000-2017 the combined overage and penalties of the two railroads accounted for only 0.6 percent of the total capped revenues.

The MRE is subject to complaints by the railroads that it restricts their market freedom; some analysts further complain that it both acts as a disincentive to investment and innovation and forces other freight shippers to cross-subsidize grain shippers.[23] However, I have come across no criticism related to a separate concern: that of its broader incentive structure. The MRE is calculated after the end of the crop year with a formula based on factors fully or partly endogenous to the competitive decisions of the railroads themselves: revenues received, volumes hauled, average length of haul, and a price index determined by the prices paid by the railroad companies for labor, fuel, materials, and capital purchases.[24] Does no one else notice that this looks a lot like the formulas traditionally used in rate-of-return regulation, with many of the poor incentive properties noted by economists and other specialists for decades?[25]

Those steeped in the history of US rail regulation may also note its similarity to the long-discontinued practice of the ICC of sometimes requiring merging railroads, especially in the case of end-to-end mergers or portions of mergers, to pay "indemnities" to other railroads from which the merged firm "diverted" future traffic. The affected railroads, the Antitrust Division of the Justice Department, and the ICC itself all recognized the mischievous possibilities of such a practice regarding the incentives of any and all of the railroads involved.[26]

Price ceilings in any form are imperfect, and the MRE is no exception. It does appear to have constrained rates for Canadian grain shippers, many of whom are captive to one or the other railroad. It does not appear to have seriously harmed the operations or profits of either the CN or the CPKC – no surprise since all agricultural products account for only about ten percent of the commodities hauled by the two. In its submission to a Transportation Act review panel in 2015, the

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[23] See, for example, Barry Prentice and Graham Parsons, "Freedom in Western Grain Movement," report prepared for the Railway Association of Canada, January 13, 2015, Appendix C of https://www.railcan.ca/wp-content/uploads/2023/02/Canada-Transportation-Act-Review-1.pdf.

[24] Prentice and Parsons, "Freedom in Western Grain Movement," *op cit*.; Canadian Transportation Agency, "The Maximum Revenue Entitlement: A Guide," December 22, 2020, https://otc-cta.gc.ca/eng/publication/maximum-revenue-entitlement-a-guide.

[25] See, for example, Alfred Kahn, *The Economics of Regulation: Principles and Institutions*, New York: Wiley, 1970; reissued Cambridge, MA: MIT Press, 1988, and Merle Fainsod, "Regulation and Efficiency," *Yale Law Journal* 49 (1940), 1191-1211.

[26] See *Pennsylvania Railroad Company – Merger – New York Central Railroad Company*, Interstate Commerce Commission Reports, Finance Docket No. 21989, June 9, 1967, discussing amendments proposed to the conditions imposed in *Pennsylvania Railroad Company – Merger – New York Central Railroad Company*, Interstate Commerce Commission Reports, Finance Docket No. 21989, April 6, 1966.

Canadian Competition Bureau limited its comments on the MRE to proposing tweaks in the MRE formula in order to improve railroad incentives, especially at times of peak demand.

Canada's version of the **reliance on (regulated) competition from a connecting railroad** has a longer and even more complicated history than its U.S. counterpart. Termed in Canada "interswitching", this regulatory mechanism has been required by law in various forms in the Canadian railway system since the early twentieth century. Early requirements took hold only if an interchange to the second railroad was within 6.4 kilometers of the shipper; in that era, the focus of the policy was less on the creation of competition than on the avoidance of the construction of duplicate tracks in urban areas.[27] In 1987, reflecting the growth of the size of cities and a desire to provide competitive relief for grain shippers, the distance to an interchange to which interswitching could be required was increased to 30 kilometers. In 2014, in the midst of a savage winter and a huge grain harvest, the distance was increased again, to 160 kilometers, before being returned to 30 kilometers in 2017. Finally, in 2018, a new transportation law introduced the concept of "long-haul interswitching", which could be required at distances up to 1200 kilometers but would have to be approved by the Canadian Transportation Agency (CTA) rather than being a service that a shipper was automatically entitled to, as under the shorter distances. Apparently no applications for long-haul interswitching have yet been received by the CTA.[28]

This paper is no place to reach a judgment on the effectiveness of the Canadian interswitching regime – though it is remarkable the degree to which U.S. advocates of increasing the level of regulatory protection for captive shippers invoke the Canadian interswitching regime, arguing, for example, that the U.S. regulator "would do well to consider the Canadian approach."[29] The fact that the mechanism is apparently not frequently used is cited as evidence both for its ineffectiveness and for its power as an incentive for the incumbent railroad to improve its offerings. The regulated rates imposed for interswitching by the CTA are labeled variously as cost-covering and confiscatory. The Submission of the Competition Council to the Canadian Transportation Act Review Panel suggests that the regime is ineffective for precisely the reason we questioned the imposition of reciprocal switching in the U.S.:

> Some shippers … said that interswitching was of limited use because its effectiveness is dependent on CP and CN being willing to compete with each other over the next segment. There was a perception that CN … and CP do not vigorously compete for each other's

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[27] Interestingly, the earliest advocates for use of SAC in monopoly rate regulation framed it as a mechanism to discourage inefficient, excessive market entry. See Faulhaber, "Cross-subsidization", *op cit*., and W. Baumol, J. Panzar, and R. Willig, *Contestable markets and the theory of industry structure*, New York: Harcourt, 1982.
[28] There is a vast literature on the Canadian interswitching debate. See the valuable discussions in Canadian Competition Bureau, Submission to the Canadian Transportation Act Review Panel, February 24, 2015, https://competition-bureau.canada.ca/how-we-foster-competition/promotion-and-advocacy/regulatory-adviceinterventions-competition-bureau/submission-canada-transportation-act-review-panel-rail-air-and-marine-transportation; Nolan, *et al*., "Parallel or Converging?", *op cit*.; Mary-Jane Bennett, "Should Canada Ditch the Switch? Interswitching and Canadian Rail Policy," *Journal of Transportation Law, Logistics & Policy* 89 (2022), 37-76; and Lucia Stuhldreier, "The Regulation of Interswitching in Canada: A Different Perspective on the Case for Ditching the Switch," *Journal of Transportation Law, Logistics & Policy* 90 (2023), 57-75.
[29] Curtis Grimm and Robert Harris, "Competition Access Policies in the Rail Freight Industry, with Comparisons to Telecommunications," in David Gabel and David Weiman, eds., *Opening Networks to Competition: The Regulation and Pricing of Access*, New York: Springer, 1998.

captive shippers as they reportedly fail to quote competitive prices on shipments originating from or departing to an interchange point.

The anticipation of the language of the Justice Department's Antitrust Division in its above-cited comments to the STB regarding reciprocal switching requirements in the U.S. is notable.

Mexico

The current Mexican railroad organizational model was implemented only in 1997-1999, and the Regulatory Law on the Railway Service was enacted in 1995. Both were the result of extensive study of the international rail reform experience.[30] Facing the same options as other countries for restructuring the antiquated and poorly performing state-owned monopoly railway, Mexico chose the Americas model and divided the system into three main vertically integrated regional concessions – TFM, Ferromex, and the smaller Ferrosur – along with a neutral terminal company covering Mexico City to be jointly controlled by the three concessions as well as the government of Mexico.

In an attempt to assure competitive outcomes in an inherently oligopolistic rail structure, the 1995 law mandated the provision by host railroads of trackage rights for the service of certain specific origins and destinations. A total of 2161 kilometers of rail were subject to this requirement, twelve percent of the total of 16,776 kilometers concessioned. However, in an apparent direct example of the unwillingness of oligopolists to permit competition to break out, none of the concessionaires utilized any of the trackage rights to which they were entitled. When, under the terms of the 1995 law, the Ministry of Transport and Communications sought to impose terms and conditions that might encourage utilization, the concessionaires successfully challenged these in the courts.

A further blow to the creation of competition in the system occurred when Ferromex and Ferrosur merged in 2011. The combination was fought by the competition agency CFC (now COFECE) but approved by an appeals tribunal. The result is that the Mexican freight railway system now consists, like those of Canada and much of the U.S., of two duopolists: Grupo Mexico, the parent company of both Ferromex and Ferrosur, and Canadian Pacific Kansas City, the successor company to Kansas City Southern de Mexico, the former TFM. The U.S. class I railroad Union Pacific owns a 26 percent share of Ferromex.

In response to freight shipper complaints of abusive pricing by the two railroad companies, the legislature considered proposals for the imposition of open access conditions on the two concessionaires. Instead, however, the legislature in 2015 enacted the Regulatory Law on the Railway Service, which created the Regulatory Agency for Rail Transport (in Spanish, ARTF) and provided for the new agency, under certain conditions, to impose either of the regulatory strictures that we have discussed here. In particular, if COFECE, the competition agency, determines that there is an "absence of the conditions for competition on a given route", ARTF may either set tariff

[30] Valuable discussions are available in Stephen Perkins, "Regulation, competition and performance of Mexico's freight railways," *Network Industries Quarterly* 18 (2016), 21-26, and César Rivera-Trujillo, "Establishing the first economic regulation of the Mexican rail concessions," *Research in Transportation Economics* 100 (2023).

ceilings (Regulatory Law, Article 47) or order the concessionaires to "allow interconnection for the exercise of mandatory trackage rights (Article 36).

There has been one instance of the implementation of the **direct control of rates**. In February of 2020, COFECE investigated the competitive conditions facing shippers of certain chemicals and petrochemicals in southern Veracruz. COFECE identified twenty origin-destination pairs served by either Ferromex, Ferrosur, or KCSM (today CPKC) that exhibited a lack of effective competition. ARTF then debated and ultimately implemented a methodology for the calculation of rate ceilings similar to traditional rate-of-return regulation, setting rate ceilings based on the average total cost of service plus a return on capital. The Director of Economic Regulation at ARTF reported in 2023 that although implementation of its decision was not yet complete, many of the rates at issue had already shown significant reductions.[31]

Thus there has been as of this writing no case where COFECE or ARTF successfully implemented an order for the **reliance on (regulated) competition from a connecting railroad** as a competitive remedy (or for any other purpose). It seems probable that one reason for this is the failure of the original concessionaires to exercise the trackage rights granted to them by the original reform legislation. One reason for this failure may be the disinclination of duopolists to compete that we discussed earlier. An early commentator suggests a more technical reason: Ferromex and TFM paid dramatically different per-km prices for their concessions, so that access prices that included a return on investment would be very different for the two networks.[32] A further discouraging factor may be a fear by the concessionaires that any access prices and terms agreed upon by the two would be seized upon by ARTF and/or COFECE as prima facie equitable prices and terms to be imposed in regulated contexts.

Conclusion

Legislators and regulators in countries with railroads organized by the Americas model have tried to use variations on two broad strategies for the protection of captive shippers: **the direct control of rates** and **the reliance on (regulated) competition from a connecting railroad.** Rate controls have well-understood weaknesses and disadvantages in general, and their use in the railroad context is no exception. They may create undesirable incentives for providers, and the fact that there is no "scientific" way to set them – they rather tend to be set by regulators in a political context – means that they encourage rent-seeking by all the parties involved. Nevertheless some form of railroad rate controls have been imposed in the United States, Canada, and Mexico, and the controls are believed to have exhibited some ability to temper the exercise of monopoly power by the railroads.

The same cannot be said for regulatory regimes that seek to mandate competition from a competing railroad that may not wish to provide it. Both in general and in the railroad context in particular, regulators have limited ability to impose a "duty to deal" – to require a competitor that

[31] César Rivera-Trujillo, "Establishing the first economic regulation", *op cit*. See also Octavio Gutiérrez Engelmann and Andrea Lapatie, "Railroad Services' competition legal framework," COFECE slide presentation, July 2019.
[32] J. Campos, "Lessons from railway reforms in Brazil and Mexico," *Transport Policy* 8 (2001), 85-95.

may be quite satisfied with a stable duopoly or oligopoly to offer competitive service terms to a customer captive to its rival duopolist or oligopolist.

This suggests, inter alia, that the attention devoted in the United States and Mexico (especially) to the question of how best to set rate ceilings constitutes time and resources well spent. The productivity of efforts in the United States and Canada to find just the right terms and conditions for ordering trackage rights or switching is less obvious.