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Parallel or Converging? A Comparative Analysis of the Grain Handling and Rail Transportation Systems in Canada and the United States (Summary)

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This is a summary of “Parallel or Converging? A Comparative Analysis of the Grain Handling and Rail Transportation Systems in Canada and the United States” by James Nolan, Chi Su, Logan Pizzey, and Steven Peterson.¹ This research and analysis received funding from USDA’s Agricultural Marketing Service (AMS) through cooperative agreement number 16-TMTSD-SK-0007. The opinions and conclusions expressed are the authors’ and do not necessarily reflect the views of USDA or AMS. The full report is available online at <https://ageconsearch.umn.edu/record/307243>.

WHAT IS THE ISSUE?

Railroads are the predominant mode for moving heavy freight long distances in North America. In both the United States and Canada, railroads face the same basic operational fundamentals to move freight from an origin to a destination. Likewise, in both countries, the industry is capital-intensive and characterized by few firms, making the regulator’s task a difficult one. Rail regulators—the Surface Transportation Board (STB) in the United States and the Canadian Transportation Agency (CTA)—must balance competing needs. Most notably, they must protect railroads’ ability to earn adequate revenues to invest in infrastructure while protecting shippers and end consumers from abuses of market power.

Yet, despite their similarities, railroads in each country operate in very different regulatory environments. This is a product of different geographies, historical developments, shipper pressures, policymaker philosophies, and other factors. In recent years, regulators in both countries have increasingly looked across the border for insight and ways to improve outcomes for railroads and shippers. For example, Canadian railroads have pushed the CTA to eliminate the revenue cap over grain shipments (a feature not present in the United States), and STB has considered implementing a new rate review process that includes a “final offer” component, a key feature of rate review in Canada. These regulatory elements and others are described in the next section.

This study compares, contrasts, and evaluates the U.S. and Canadian rail systems, with an emphasis on grain transportation. It describes the evolution and recent history of key rail regulations in each country and highlights key operational differences.

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HOW WAS THE STUDY CONDUCTED?

As part of the study, the researchers considered economic data from STB, CTA, and several other academic and industry sources. Additionally, they included information on rail regulations from regulatory bodies in Canada and the United States.

The researchers performed several quantitative analyses of available metrics, such as rail speeds and dwell times, to measure operational differences between the United States and Canada.

WHAT DID THE STUDY FIND?

Comparison of Rail Operations

The study found several characteristic differences between railroad operations in the United States and Canada. Some of these differences are natural (e.g., due to differences in land area and topography), while others are affected by policy. For instance, because the United States produces substantially more grain, the U.S. rail system moves roughly 10 times more grain than its Canadian counterpart. U.S. domestic demand for grain—from food uses, feed for livestock, biofuel production, and more—significantly exceeds Canadian domestic demand. As a result, Canada exports roughly three-quarters of its grain, while the United States exports only around one-quarter. Canada’s reliance on exports and its lack of an inland waterway create somewhat different competitive pressures than those in the United States. Whereas Canadian railroads principally carry grain from rural production centers to coastal export terminals, U.S. railroads fulfill higher domestic demand for grain and compete for export traffic with barge, where it is available.

In terms of specific operational metrics, U.S. railroads require fewer cars and employees, but more fuel, to move the same freight volume as Canadian railroads. Grain trains move 15 to 20 percent faster in the United States, a difference of about 3 miles per hour. In general, Canadian trains are more efficient for short trips, while U.S. trains perform better on longer hauls. In Canada, a fraction (25 percent) of the grain cars are government-owned, with the remainder owned (or leased) by industry (shippers and railroads). In contrast, all grain cars in the United States are owned (or leased) by industry.

Comparison of Rail Regulations

Railroading in both the United States and Canada has had some form of Government oversight and regulation since the late 19th and early 20th centuries, especially pertaining to rates.² In more recent decades, rail regulations in both countries have evolved differently, with each generally emphasizing a disparate but important component of rail transportation. That is, the United States has typically focused on cost-based regulations, while Canada has a key revenue-based provision (at least for grain shippers).

On the revenue-side, the Canadian Government allows railroads some freedom to set price, but limits rail market power in Western Canada through the “Maximum Revenue Entitlement” (MRE). This regulation has been in place since 2000 and applies to agricultural commodities shipped over certain routes (mainly, grain export corridors). Canadian railroads face penalties if their annual revenues are greater than the MRE level, which is determined annually by a formula. No comparable revenue cap exists for railroads in the United States, though STB does define and consider issues pertaining to “revenue adequacy.”³

Costs are fundamental to U.S. rail regulation, especially rate-related regulation. In the United States, a shipper can bring a rate case to STB only under certain conditions (e.g., if the rail rate is at least 180 percent of a railroad’s variable cost and the market is found to lack effective competition). For qualified cases, STB’s methods to determine

2 Specifically, Canadian railroads were governed by the Crow’s Nest Pass Agreement (1897), a subsidy which afforded shippers low rates. This became known as the “Crow Rate.” In the United States, the Interstate Commerce Commission set rail rates for different routes until Congress granted railroads more rate-setting flexibility in 1976 through the Railroad Revitalization and Regulatory Reform (4R) Act and in 1980 through the Staggers Rail Act.

3 STB defines revenue adequacy as a railroad earning sufficient funds to cover its costs and provide a fair return on its investment; that is, the railroad earns a return on invested capital at least as high as its cost of capital. STB has not indicated whether this level represents a floor or a ceiling or how it could be used in a rate case.

rate-reasonableness are primarily cost-based tests, such as the Stand-Alone Cost (SAC), Simplified-SAC, and Three-Benchmark.⁴ Generally, shippers have found these processes to be costly and inaccessible, preventing them from challenging rates.

Canadian shippers also have a mechanism to challenge unreasonable rates. The CTA uses final offer arbitration (FOA) to assess rate challenges. Through FOA, shippers and carriers each build a rate case. Then, CTA accepts the case deemed more reasonable between the two. Still, rate cases are rare, and the process can be improved. Although carriers complain that shippers can prepare a case in advance of the rate challenge, the researchers determined that carriers, as “repeat players,” gain an advantage in these challenges.

In addition to FOA, interswitching (also known as reciprocal or competitive switching) constitutes another relief mechanism for Canadian shippers.⁵ Shippers served by a single railroad can switch to a less proximate, competing railroad if the competing railroad is within 30 kilometers (about 18 miles) of the shipment’s origin.⁶ In an interswitch, the originating railroad is compensated by pre-determined rates, which vary by distance and number of cars moved. Canadian shippers also have access to a “long-haul interswitching” provision, where they can seek a switch (under certain conditions) up to 1,200 kilometers (about 745 miles). The researchers suggest the United States could implement an interswitching policy to increase competition. However, U.S. regulators would first need to establish an interswitching radius and compensatory rates for the originating railroad. Both countries could also allow cross-border interswitching to increase competition further and improve rail service quality.

Takeaways

Considering the differences between the U.S. and Canadian systems, the researchers noted several important conclusions. First, for comparable shipments, Canada’s system yielded lower and more stable rates over time than the U.S. system. The authors posit this is likely due to the revenue cap (MRE) governing Canadian railroads over grain shipments.

The researchers also determined that each country would see a benefit in international trade by harmonizing their rail regulations and adopting one another’s best practices to ensure an effective and efficient system for all. Evidence suggests that there is consideration of the other’s regulations and signs of some convergence. In recent years, Canadian railroads have reignited a push to eliminate the MRE, and STB is considering regulatory aspects related to rail revenues.⁷ Furthermore, STB is evaluating a new method for reviewing small rate cases called “Final Offer Rate Review,” which includes a final offer component somewhat akin to the FOA process in Canada.⁸ Finally, despite the interest from shippers, the U.S. and Canadian rail systems do not appear to be converging on interswitching, but it remains a possibility.

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4 For example, in a SAC test, shippers must develop and prove that a hypothetical stand-alone railroad could provide service at a lower rate and still receive an adequate return on capital. SAC was adopted in 1985 and Simplified-SAC in 2007. Three-Benchmark was established in 1996, went unused, and was modified in 2007.

5 U.S. shippers have a form of interswitching (e.g., a shipper can switch as part of a voluntary arrangement between carriers or it may be ordered by the STB), but few requests have been sought. Possible modifications to its interswitching provisions remain an open topic on STB’s docket.

6 For a time, lawmakers allowed an extended 160-km interswitching radius in Western Canada following the 2013-14 grain transportation slowdown. Although interswitches did temporarily increase, the extended radius expired in 2017.

7 For instance, in December 2019, STB held a hearing on revenue adequacy. They sought input on several topics, such as the possibility of defining a “long-term” revenue adequacy measure and the possibility of implementing a “rate increase constraint” for long-term revenue adequate railroads.

8 Under STB’s procedures, arbitration decisions are made public. The researchers contend this makes STB’s proposed final offer rate review process more effective than Canada’s FOA process (where results are not public) through reductions in information asymmetries.