

Mandated reciprocal switching would reverse many of the gains from the Staggers Act and impose significant costs on the U.S. economy

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For many manufacturers that need to ship goods a long distance to their customers, transporting them by rail is often the most expedient way to do so. Most shippers are serviced by a single set of railroad tracks, which means that if they want to ship their goods by rail, they generally must work with the railroad that owns those tracks.

Some of these shippers would like the ability to work with other railroads, and they have petitioned the Surface Transportation Board to require that competing railroads be given access to the tracks that service them, at a “reasonable” price. The incumbent railroad would be compelled to conduct the pickup for a competing railroad and deliver the cars to the competitor, a transaction referred to as “reciprocal switching.” These rail customers aver that reciprocal switching would serve to increase competition and reduce shipping costs.

However, such a task would impose a steep cost on the incumbent railroad, and a mandate to do so would effectively serve to reduce the amount of goods that can be shipped over rail. That would push some of the freight onto trucks and impose costs on the rest of society via increased road congestion, smog, and greenhouse gas emissions.

The practice of railroads owning and operating their own tracks allows them to schedule their trains to maximize how much freight is transported. If a railroad must accept other rail cars and arrange the schedule of its own cars on its network to accommodate them, it will be forced to carry less freight. Reciprocal switching would also require the government to adjudicate the prices of switched cars, and the ensuing price regulation would effectively necessitate a new regulatory regime for rail, hearkening back to the desultory pre–Staggers Act days of the industry.

The Rail Industry Has Thrived Since Deregulation

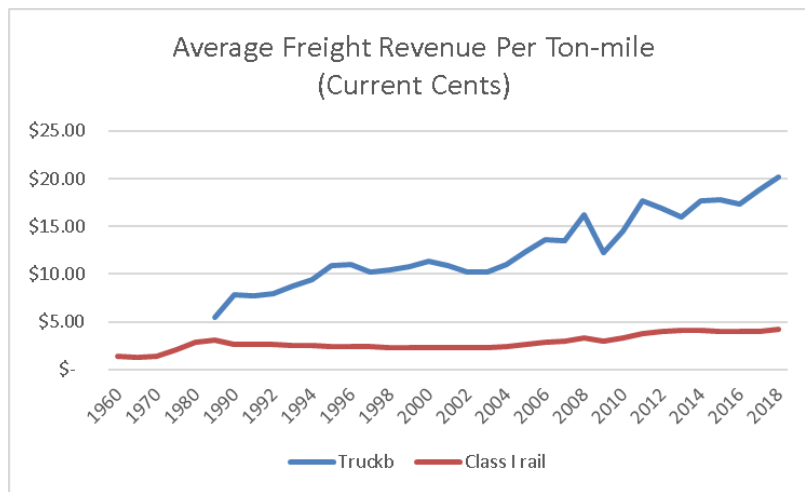
The Staggers Act, which became law in 1980, essentially ended the practice of the government setting prices for transactions between shippers and railroads. That allowed railroads to begin investing in their networks with the expectation of earning a reasonable return. It ended an era of bankruptcy and disinvestment that had plagued the industry since the advent of cross-country trucking and the Interstate Highway System.

The law quickly reversed the degradation of the nation's rail infrastructure. In the ensuing decades, the railroads dramatically increased their investments in tracks, cars, and network infrastructure. Today the U.S. has the most productive and efficient freight rail networks in the world.

After the Staggers Act, the cost of shipping goods by rail fell steadily. By moving more traffic over a modernized network, railroads could offer lower prices and increase profits at the same time. At the time the act passed, the freight rate per ton mile averaged \$2.87, but by 1985 it began to fall steadily. Twenty years later, it was less than half of its 1980 rates after adjusting for inflation.

Lower prices and increased capacity allowed rail to steal freight business from the trucking industry, which the government also deregulated in 1980 with the Motor Carrier Act. Figure 1 shows that at the time of deregulation, goods could be shipped by rail for almost half the cost of going by truck. Today, shipping goods by rail costs about 20% of shipping by truck.

Figure 1
Average rate per ton mile, rail versus truck



Source: [Bureau of Transportation Statistics](#)

Manufacturers Want Lower Shipping Prices

However, not everyone is happy with the status quo in the rail industry. In particular, some shippers that rely on rail believe they pay too much for shipping. Some of these shippers — mainly large chemical companies — want the government to step in and reduce their shipping costs in some way.

The Staggers Act did give the Interstate Commerce Commission (now the Surface Transportation Board, or STB), the power to regulate and maintain a competitive balance in the industry. In 2011, a coalition of shippers called the National Industrial Transportation League petitioned the STB to broaden a more modest switching rule that was then (and still is) on the books. Those efforts culminated in 2016 with the STB proposing a rule for mandatory reciprocal switching across Class I railroads, which are railroads with annual operating revenues of \$250 million or more. Railroads vigorously opposed the idea and the STB never finalized it.

In July 2021, President Biden issued Executive Order 14036 targeting corporate consolidation and other practices the administration deemed to be wrongful exercises of market power. Included in the order is a provision directing the STB to “further

competition in the rail industry and to provide accessible remedies for shippers.” The order asked the STB to consider reducing the burden of proof for shippers to force railroads to allow other railroads to compete with them on their lines. This has revived the idea of mandatory reciprocal switching,

To understand what this would entail, suppose that Acme Chemical Company has one set of tracks that leads to its facilities, and the tracks are solely owned and operated by Railroad A. Acme’s customer is in Chicago, 800 miles away. Railroad A can deliver the load directly to the customer on its tracks, but Acme would like a competitive quote from a competing railroad, B.

Railroad B’s network connects with the Chicago customer as well, and 25 miles away from Acme’s facility the networks for Railroad A and B connect. Acme wants to get a quote from B that would force A to do the laborious pick-up and drop-off at the connector between A and B, where its goods would then be transported by Railroad B the final 775 miles to the receiver.

At present, the STB can mandate a reciprocal switch only in the case of illegal and anticompetitive behavior, conditions that shippers claimed were difficult to meet. The 2016 proposal would have compelled a railroad to perform a switch if four conditions were met:

- The shipper’s or receiver’s facilities for which switching is sought are served by only one Class I rail carrier.
- There is no effective inter- or intramodal competition for the rail shipments.
- There is (or can be) a “working interchange” between the incumbent carrier and another Class I within a “reasonable distance” of the shipper’s facilities.
- The arrangement is feasible and safe, and it would not unduly hamper the ability of either carrier to serve its shippers.

Notice that the proposed rule does not require that a working interchange already exist between two railroads, only that there “could be” one. In effect, the language suggests that a shipper’s successful petition could serve to force a railroad to construct such an interchange — a not-insignificant capital expenditure — for the benefit of its competitors.

In essence, the proposed rule would give shippers a unilateral right to request a railroad do something that would both reduce its productivity and its revenue as long as it can be asserted to be “feasible and reasonable,” without any consideration of the costs it imposes on the railroad.

The Drawbacks of Forced Reciprocal Switching

One way for the STB to satisfy EO 14036 would be to resurrect and enact the 2016 proposed rule, and some observers believe that will be attempted. But mandating reciprocal switching in a multitude of situations would create many problems in the rail freight industry.

Worse service / Reciprocal switching entails costly and time-consuming operations for the railroad. This can be analogized to an airline passenger who can only reach his destination through a connecting flight between two different airlines. Rather than simple, low-risk, and fast, the traveler has a complex route at greater risk of a disruption. But in the case of rail freight, the incumbent railroad — and its other shippers — would bear much of that cost.

And reciprocal switching is more complicated than navigating multiple connecting flights. While a traveler measures a layover in minutes or hours, a connection in freight operations is measured in days, as cars sit on sidings or in railyards awaiting trains going their way. With reciprocal switching, a car may require multiple connections just to begin its journey. For instance, one train might pick up the car from the shipper and drop it at a serving yard while another takes it to the interchange, and then the competing railroad picks up the car at the interchange and takes it to another serving yard, where it gets put on a long-haul train. The car may be shuffled between several more trains before it even begins its journey, and each transfer is time- and resource-intensive.

Reciprocal switching can add as much as three days to the duration of the trip while also making it less predictable. The biggest source of delivery time uncertainty is the connection between trains, and reciprocal switching would increase that. For a railroad

operating near capacity, a missed connection could delay cars its own (and the ones it carries for its competitor) for days until a train with space arrives. Failing that, the railroad would need to “bump” traffic to accommodate the car, which would slow other cars in the network and degrade service elsewhere.

Reciprocal switching creates a moral hazard problem. The railroad that is mandated to do the switch incurs a high opportunity cost because the reciprocal switch slows its own deliveries and reduces how much it can effectively transport. It is highly unlikely the STB-sanctioned payment for performing this switch will reflect this opportunity cost. The incumbent will likely be paid a fraction of what the competing railroad receives, reflecting the proportion of the trip that it undertook.

Complex and costly / Reciprocal switching is costly for a railroad. Rail cars are effectively stuck on a one-dimensional track: for one car to move to another train requires that there be multiple tracks as well as a junction between them with a reversal of direction. Cars cannot be turned; rather, they must be guided to the end of a connecting track, akin to a highway onramp. With a reciprocal switch, this activity must take place at the industry location, at the first railroad’s serving yard (where cars are collected), at the interchange connecting the two railroads, and again at a serving yard of the second railroad.

Rail cars are heavy, weighing as much as 100 tons fully loaded, and each move requires a locomotive. These locomotives are almost never at an industry location on their own; rather, they are invariably pulling a train from which they must be decoupled to perform this car movement, and then reattached.

The car must be put in a siding or railyard akin to a parking lot where there are other cars to maneuver around, which is no easy task in a congested railyard. Finally, another train must come and pick it up, following many of those same steps.

This is merely the beginning of the process. Depending on the configuration of yards and interchange tracks, these steps may need to be repeated multiple times. An explainer video from the rail industry describes a situation in which a single reciprocal switch

arrangement necessitates 68 individual train operations. A single railroad transporting the rail cars for the entire trip would obviate the need for most of these switches. Switches are labor-intensive and slow the ultimate delivery of the goods on the train involved.

Productivity losses / A railroad would like to move as much freight as possible at the top safe speed with as few stops as possible. Train cars that sit in rail yards for an extended period or travel empty reduce how much a railroad effectively transports. Reciprocal switching would reduce rail velocity — the rate at which trains and cars move across the network — in multiple ways.

Reciprocal switching directly affects the assets used in service on the trains serving the reciprocal switch customer. Reciprocally switched cars must spend more time on sidings, and locomotives on those trains spend more time handling those cars, reducing their use in other services.

Reciprocal switching also has indirect effects that impinge performance. In an environment where rail networks operate at full capacity, performing reciprocal switches slows the entire network. For example, increased work events (exchanging cars between trains) near mainlines can stop trains for miles while the work is completed, degrading service for every car that traverses near that event.

With cars from other railroads entering the network, everything becomes less fluid. More work events mean more time for cars in yards, adding to the congested railcar “parking lot” that rail yards could become. Those cars sit idle for longer periods because of the connections they have to make, and the time it takes to conduct the additional switching operations diverts valuable locomotive time to car maneuvering.

On top of a reduced return on investment from all these factors, the U.S. rail industry will be hard-pressed to afford its current level of investment as a result of forced switching. The railroad industry estimates that it would cost \$8 billion in revenue, which is 80% of the \$10 billion in capital investments made by the Class I railroads each year. If the railroads’ investment produces less revenue because of mandated reciprocal

switching, then railroads will reduce their investments, and the growth of the capacity of railroads will diminish.

Crew safety / Car handling operations are the single highest-risk activity for railroad workers in rail operations. Each car movement requires a coupling and decoupling of the car on the train, including connecting brake hoses. Each connection requires a conductor to get off and back on the train, and each movement at a customer requires stop and start activities on the main line. While none of these activities are particularly unsafe by themselves, they do constitute more risk to rail workers than a train operating at normal speed on its way to a destination. Additional switching requirements increase the number of car handling operations, further increasing risk.

However, the bigger safety issue with reciprocal switching involves the reduction in investment it would engender. Railroads spend a significant amount of money each year on both maintaining their tracks and expanding how much their tracks can carry — such as by adding parallel lines on high-trafficked routes. Railroads will be far less likely to continue their current level of investment in track maintenance and improvement if forced switching reduces their returns to capital.

While the primary motivation for railroads' investments in track infrastructure is to increase how much they can transport, these investments also improve safety. Derailments occur primarily as a function of track conditions, and reduced investment inevitably leads to deteriorated tracks. Policy changes that affect how much a railroad can effectively carry — as would occur with reciprocal switching — would reduce investment and safety.

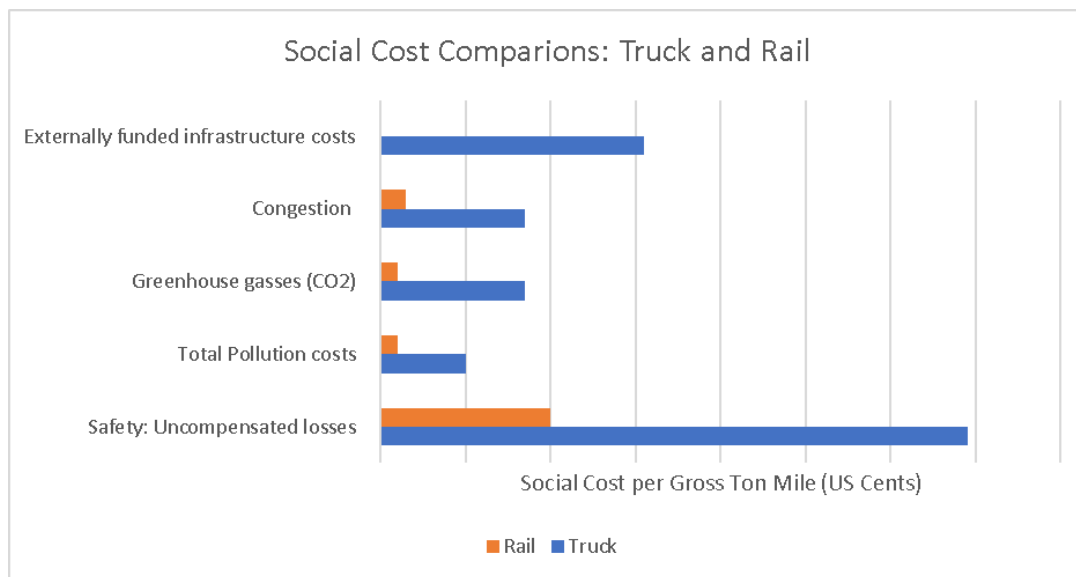
Environmental harm / The productivity gains achieved by the rail industry in the last four decades — a typical mile of track carries three times as much in a year as it did 40 years ago — has been welcomed by environmentalists because increased rail capacity has effectively moved freight off of trucks and onto the more environmentally friendly rail.

However, because reciprocal switching would increase congestion and effectively reduce the capacity of rail lines, more goods would travel by truck.

Such a development would be worrisome because trucks impose far more social costs than rail. Emission of greenhouse gasses and particulate matter from moving 1 ton of freight 1 mile by rail are one-fifth of what it would be if the load traveled via truck. Displacing one double-stack intermodal train would require as many as 240 trucks on the road to move the equivalent amount of goods. Rail congestion caused by reciprocal switching would also slow passenger rail trips that share freight rail, as is the custom in the United States outside of the Northeast Corridor.

Figure 2 shows the estimated social costs associated with transporting freight by rail and by truck. The social costs with rail infrastructure are much lower, both because of lower emissions and because railroads privately finance their networks.

Figure 2
Social costs of truck and rail



Source: “Evaluating the Public Investment Mix in U.S. Freight Transportation Infrastructure,” by Michael F. Gorman. *Transportation Research Part. A* 42(1): 1–14 (2008).

Suboptimal investment / In previous research, one of us (Gorman) found that the current method of planning U.S. freight infrastructure is inherently inefficient. While railroads manage their own rail infrastructure, the U.S. government manages highways. Railroads can be hesitant to invest ahead of demand because of the risk of being left with underused infrastructure if demand forecasts prove to be too high or new or expanded highways appear that boost truck transport.

Additionally, because railroads get only a part of the benefit of their investment (shippers get lower rates while the public gets lower road congestion and pollution), they underinvest from a societal perspective. The U.S. government invests little in private infrastructure, and the Biden administration is taking steps beyond the reciprocal switching rule that would likely depress investment in rail infrastructure.

Amtrak operates most of its passenger trains on freight railroads. Mandating reciprocal switching would interfere with the ability of passenger rail to share the tracks with freight rail. Rail tracks are already congested in most regions, and if the government reduces the incentives for railroads to invest in capacity and maintenance, it will result in even less space for passenger rail to operate. Amtrak service quality would decline, and its offerings would likely be curtailed, resulting in more people driving on their trips.

Reduced rail capacity caused by reciprocal switching would also boost smog and greenhouse gas emissions by adding to road congestion. Highway congestion costs Americans 8.8 billion hours of wasted time stuck in traffic and 3.3 billion gallons of fuel burned while idling in traffic per annum, according to the Texas A&M Transportation Institute.

There are other external congestion costs as well. In previous research we found that increased road congestion and slower rail delivery times effectively reduce U.S. economic productivity. We estimated that the increased congestion on U.S. highways from 2000 to 2015 reduced productivity growth over that period by as much as 15%. Slower productivity growth depresses economic output and wage growth.

Bureaucratic and litigious processes / For the last four decades, the freight rail industry has expanded steadily. That growth has been helped along by the ability of railroads to set their own prices largely free of government interference. Reciprocal shipping would necessitate the government interjecting itself into the industry to adjudicate prices. Reciprocal switching would undoubtedly trigger a raft of petitions from shippers to the STB for a ruling on eligibility for reciprocal switching.

In each case, the determination of eligibility based on “reasonable and feasible” reciprocal switching would need to be made, as well as the determination of “nearby” or “possible” interchange locations. If the STB mandates a reciprocal switch, the two railroads would have to negotiate “reasonable” compensation to the serving railroad. It is more than likely that the STB will need to adjudicate these prices in most instances as well. Well-meaning but vague precepts like those set forth in the 2016 proposed rule would create reciprocal switching mandates and undoubtedly result in complicated and litigious processes.

Conclusion

A reciprocal switching requirement on U.S. railroads would effectively reduce the capacity of our rail system. As a result, the United States would see fewer goods shipped by rail and fewer passenger trains operating — or the passenger trains that did operate would do so only by supplanting a greater number of freight rail cars.

Such an outcome would effectively increase the number of trucks and cars on the nation’s roads, and the amount of rail investment (and rail capacity) would invariably slow as well. As a result, transporting goods or people by rail would take longer and be more variable. The four decades of remarkable productivity growth accomplished by the U.S. rail sector — ignited by industry deregulation — would likely come to an end.

Reciprocal switching may certainly be welcome by a subset of rail shippers that would like to pay less to transport their goods. But giving them the right to choose their shipper would impose a significant cost on incumbent railroads and their other customers. It would also damage the environment. There’s no reason to think a government regulator

tasked with setting “reasonable” prices for a reciprocal switch would correctly take all of this into account.

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