

MEMORANDUM

TO: Dawson Hobbs
FROM: John Dunham
DATE: November 14, 2022
RE: Impact of Potential Rail Strike

The Brotherhood of Maintenance of Way Employees, which is a division of the International Brotherhood of Teamsters, has rejected a labor deal with railroads that the Biden Administration had helped to negotiate. This creates the potential for a railroad strike starting on November 19, right before the start of the holiday season.

According to the Association of American Railroads, a strike could cost the US economy as much as \$2 billion per day.¹ While the report does not document the methodology used to calculate this figure, it is potentially conservative. Our analysis suggests that the cost to the economy in terms of increased freight rates alone would be as high as \$4.5 billion per day.

Based on data from the Bureau of Transportation Statistics (BTS), and IMPLAN, Inc., nearly 1.3 trillion ton-miles of domestic freight are carried by railroads in the US annually. This is about 88.4 percent of all rail tonnage as reported by the BTS, with the remainder being through traffic from Canada to a US port, or imports from abroad.² This is roughly 52 percent of current domestic truck traffic in terms of ton-miles.

Table 1
Industries that Spend the Most on Rail Freight

Industry	Ton Miles	Rail Spending	Rail as Pct of Transportation
Truck transportation services	102,598,969,414	\$ 5,193,516,330	11.0%
Iron and steel and ferroalloy products	63,794,090,095	\$ 3,229,229,792	41.0%
Electricity transmission and distribution	49,463,998,507	\$ 2,503,846,632	9.7%
Flour	35,076,118,064	\$ 1,775,538,224	43.9%
Refined petroleum products	28,656,179,853	\$ 1,450,563,674	8.6%
Paperboard containers	27,531,343,427	\$ 1,393,624,931	32.4%
Other basic organic chemicals	26,532,477,078	\$ 1,343,062,740	31.9%
Other animal food	25,509,706,768	\$ 1,291,290,541	35.5%
Ready-mix concrete	24,502,416,097	\$ 1,240,301,914	30.2%
Petrochemicals	24,262,444,949	\$ 1,228,154,676	41.4%
Total	1,273,480,379,065	\$ 64,463,036,833	9.0%

Obviously, were the rail freight system to be shut down, it would be impossible for the nation's truckers to carry this much freight.³ In addition, the inland waterway system is unlikely to pick up more traffic as many locks will be closing for the winter, and the Mississippi River system is experiencing a drought and barge traffic is already down by 25 percent.⁴

¹ *The Economic Impact Of A Railroad Shutdown*, Association of American Railroads, September 2022, at: <https://www.aar.org/wp-content/uploads/2022/09/AAR-Rail-Shutdown-Report-September-2022.pdf>

² *U.S. Ton-Miles of Freight*, US Department of Transportation, Bureau of Transportation Statistics, at: <https://www.bts.gov/content/us-ton-miles-freight>

³ Op. Cit. Footnote 1

⁴ Marquis, Erin, *Drought Along Mississippi River Adding to U.S. Inflation Woes*, *Yahoo News*, October 19, 2022, at: <https://news.yahoo.com/drought-along-mississippi-river-adding-145000447.html>

Based on data from IMPLAN, industries producing in the United States spent about \$56.1 billion on rail transportation in 2020. Adjusting for inflation this is \$64.5 billion in today's dollars. Those industries most dependent on freight rail (in terms of total spending) are: Trucking, iron and steel, electricity generation, flour, and refined petroleum products such as gasoline. See Table 1 on the prior page.

With the ability to ship by rail, and no way to move more cargo to the inland waterway system, companies would be forced to rely more on trucks. According to the BTS, trucks already carry 46.2 percent of all freight in the country in terms of ton-miles. Based on dollars, about a third of all freight transportation costs are for trucking. However, trucking capacity is limited. In 2020, according to the BTS, trucks handled about 2.4 trillion ton-miles of freight.⁵ This coincided with some of the worst congestion in the nation's transportation system, and trucking rates rose to historic highs. The Cass Freight index is still 80 percent above where it was prior to COVID-19.⁶

However, if the entirety of the nation's production that is currently shipped by rail were able to transition to trucks, the costs would be dramatic. First, trucking generally costs much more than rail per ton mile of cargo shipped. According to the BTS in 2020, on average it cost about 4.4 cents to ship a ton of cargo one mile by rail. The same cost for shipping by truck was 17.9 cents. So, if all the cargo currently shipped by rail were to move to truck the average cost would increase by 13.5 cents per ton mile, an increase of about \$428.7 million per day.

But trucking, like most services, is a normal good. As such, when demand rises so do prices. Trucking and rail elasticity figures were developed by Oum in 1979.⁷ Adding in the expected price increase, the overall cost per day would rise to \$4.5 billion, or about \$1.65 trillion on an annual basis.

Of course, this is not possible since many of the industries that rely on rail over truck transportation are extremely heavy products such as coal and cement, and these products simply could not be carried by trucks due to road weight limits. (See Table 2)

Table 2
Industries Where Rail is the Largest Share of Transportation Costs

Industry	Ton Miles	Percent of Industry Transportation
Coal	16,827,536,445	75.0%
Flat glass	9,766,407,588	69.3%
Glass containers	7,129,495,724	68.0%
Carbon and graphite products	4,740,953,547	65.6%
Other pressed and blown glass and glassware	5,278,415,952	59.9%
Cement	9,167,762,778	59.8%
Adhesives	9,842,256,423	59.7%
Gypsum products	8,808,142,339	56.6%
Lime	1,527,852,731	56.6%
Wood pulp	2,354,501,518	50.9%

As an exercise, it is possible to calculate the total cost of a railroad strike assuming that all freight could be transferred to truck. Logistics managers across the country as well as those in Canada and Mexico are doing just that for their specific companies.

⁵ Op. cit., footnote 2

⁶ Cass Transportation Index Report September 2022, Cass Information Systems, Inc., at: <https://www.cassinfo.com/freight-audit-payment/cass-transportation-indexes/september-2022>

⁷ Elasticities do not tend to change over time. See: Oum, Tae Hoon, *A cross sectional study of freight transport demand and rail-truck competition in Canada*, *The Bell Journal of Economics*, Autumn 1979, at jstor.org/stable/300347.

Adding together both the cost differential per ton mile between truck transportation and rail transportation, and inflating trucking costs based on the elasticities developed by Oum, the overall cost of moving freight produced in the United States would be upwards of \$1.65 trillion annually, or about \$4.5 billion per day. This is double what the AAR estimated.

Looking at just the beverage alcohol industry, the cost increases of shifting from rail to truck could be substantial, over \$138.0 million per week.

Table 3
Estimated Cost on the Alcohol Wholesaling Industry

Category	Rail Ton-Miles	Current Freight Costs	Current Rail Costs	Estimated Cost Increase	
				Per Week	Percent Increase
Beer, ale, malt liquor and nonalcoholic beer	5,868,991,567	\$ 1,396,947,501	\$ 258,470,389	\$ 93,203,623	346.9%
Wine and brandies	724,075,880	\$ 741,406,943	\$ 31,888,302	\$ 14,808,181	103.9%
Distilled liquors except brandies	1,855,293,350	\$ 394,536,457	\$ 81,707,119	\$ 30,024,416	395.7%
Total	8,448,360,798	\$ 2,532,890,901	\$ 372,065,810	\$ 138,036,220	283.4%

These costs would pass through to wholesalers. And while rail is not a substantial part of the transportation infrastructure of alcohol wholesaling, the increase in prices would have a negative impact on the industry.

It is likely that the overall cost of increased alcohol prices to beverage alcohol retailers would be \$158.7 million per week⁸

A cost increase of this magnitude on the alcohol distribution industry would be equal to a tax of \$0.0135 per gallon on beer, \$0.0131 per gallon on wine and \$0.0507 on beer.⁹ Note that this is per week of the strike. A 14-day strike would therefore be equal to double the price increase per gallon.

Based on a model developed for the WSWA by John Dunham & Associates, the price increases resulting from each week of a rail strike would result in a decrease of 0.002 percent in beer sales, 0.02 percent in wine sales and 0.08 percent in spirits sales. Lower sales volumes will result in reduced jobs as distributors need fewer truck drivers, clerks and warehouse staff.

Table 4
Economic Impact of the Proposed Rule on the Beverage Alcohol Distribution Industry

	Jobs	Wages	Output
Direct	-585	-\$20,913,000.00	-\$69,612,000.00
Beer	-1	-\$89,000.00	-\$631,000.00
Wine	-13	-\$896,000.00	-\$4,689,000.00
Spirits	-16	-\$1,578,000.00	-\$22,055,000.00
Wholesale	-42	-\$3,543,000.00	-\$10,301,000.00
Retail	-512	-\$14,808,000.00	-\$31,936,000.00
Supplier	-215	-\$14,152,000.00	-\$44,762,000.00
Induced	-322	-\$16,673,000.00	-\$52,888,000.00
Total	-1,121	-\$51,738,000.00	-\$167,262,000.00

As Table 4 shows, the strike could have a substantial impact on the alcohol distribution industry. Around 585 FTE jobs in the beverage alcohol industry, including 42 alcohol distribution jobs, could be lost due to the higher prices resulting from each day of the rail strike. Including businesses that supply alcohol

⁸ Based on an overall transportation cost increase of \$138.0 million multiplied by 15.00 percent. *Margins After Redefinitions: 2007 Detail*, Industry Economic Accounts Directorate, Bureau of Economic Analysis (BEA), US Department of Commerce.

⁹ This is based on the volume of all alcoholic beverages, with the costs spread out across the entire market.

distributors, and those that depend on re-spending by direct and supplier firm employees, each week of the strike would lead to a total of over 1,120 fewer FTE jobs and over \$51.7 million in lost wages and benefits. On top of this, the American economy would be nearly \$167.3 million smaller.

It must be remembered that this is just the impact on the alcohol distribution industry. Higher prices for alcoholic beverages will flow through other sectors of the economy, leading to more job losses. In reality, there is not enough truck capacity to handle an additional 1.3 trillion ton-miles of freight, and in the end, an already stretched logistics system could buckle leading to higher inflation and even more product shortages.