Monthly Labor Review

BLS

October 2021

Employment in rail transportation heads downhill between November 2018 and December 2020

This article examines recent employment declines in rail transportation, a small but important component of the transportation and warehousing industry. Although employment in rail transportation remained relatively stable for most of the past 25 years, it declined by 40,000 jobs from November 2018 to December 2020. This article provides an analysis of the recent employment declines in the rail transportation industry.

After remaining stable for over two decades, employment in the rail transportation industry began to decrease in November 2018, according to data from the U.S. Bureau of Labor Statistics Current Employment Statistics (CES) survey.[1] By December 2020, the industry had lost 40,000 jobs. (See chart 1.) Many sources, including both the public media and rail industry experts, attributed the beginning of the industry's employment losses to three main factors: the decline of the reliance on coal as a natural resource, an uncertain trade environment, and a new method of operations adopted by railroads called Precision Scheduled Railroading (PSR). In addition, a fourth factor, the coronavirus disease 2019 (COVID-19) pandemic, further exacerbated job losses in the industry.

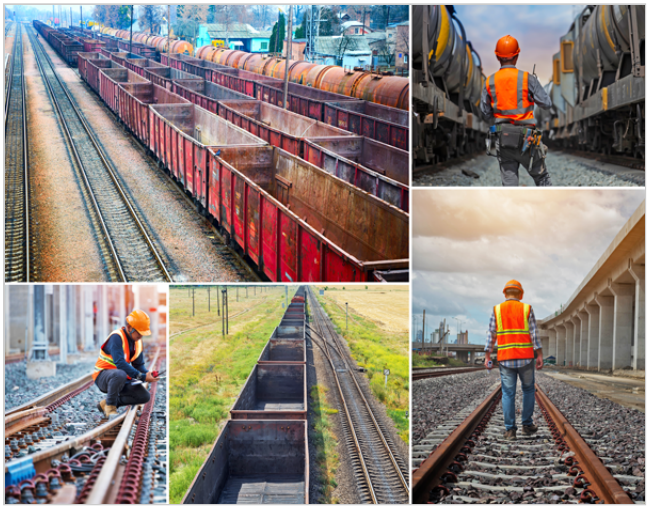

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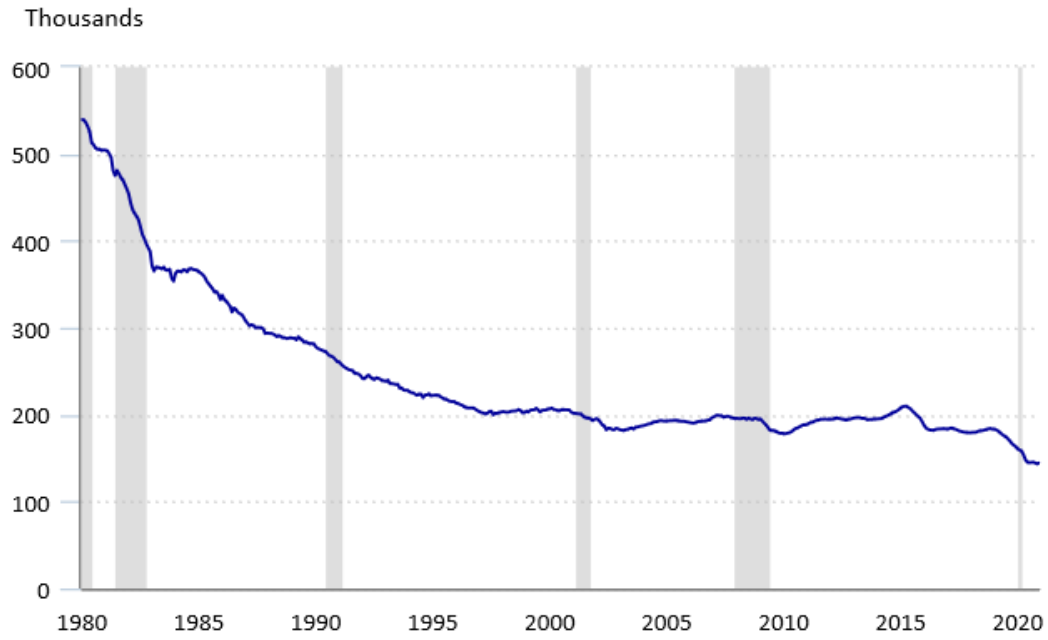
Chart 1. Employment in rail transportation, January 1980–December 2020, seasonally adjusted



Click legend items to change data display. Hover over chart to view data.
Shaded areas represent recessions as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics.

Within the transportation and warehousing industry, rail transportation is one of the smallest component industries, in terms of employment. In fact, rail transportation made up only 3 percent of transportation and warehousing employment as of November 2018, but the industry accounted for 33 percent of the 121,000 jobs lost between November 2018 and December 2020. (See table 1 and chart 2.) Employment in rail transportation declined consistently throughout 2019 and into the beginning of 2020, accelerated in April and May of that year, and then leveled off through December.

Table 1. Industry composition of transportation and warehousing, November 2018

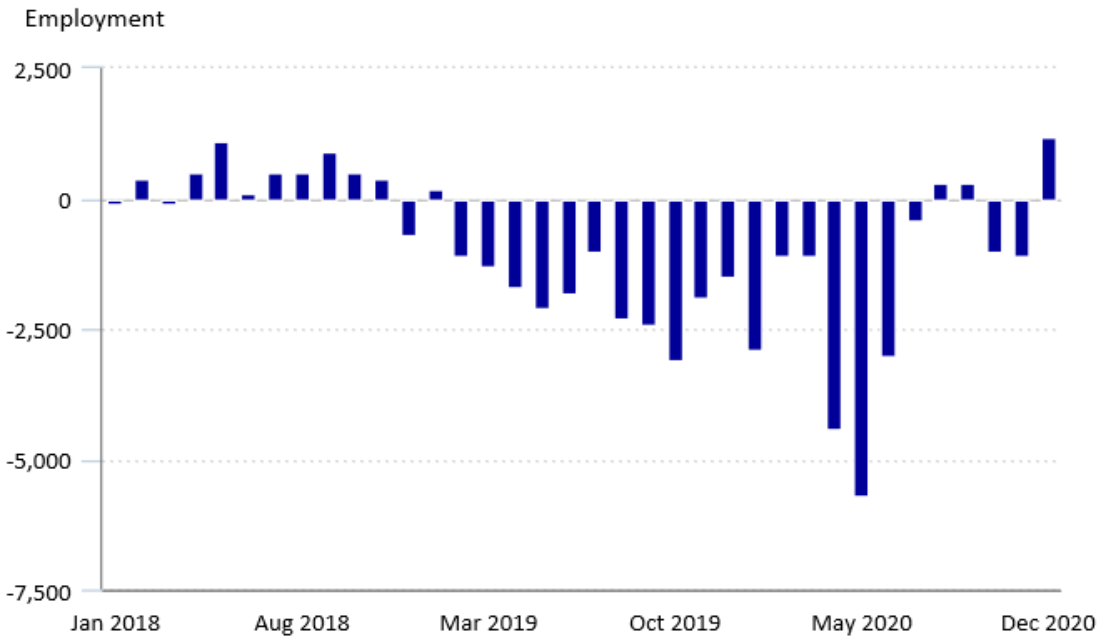
Section	Percent
Air transportation	8.9
Rail transportation	3.3
Water transportation	1.2
Truck transportation	27.3
Transit and ground passenger transportation	8.9
Pipeline transportation	0.9
Scenic and sightseeing transportation	0.6
Support activities for transportation	13.5
Couriers and messengers	14.1
Warehousing and storage	21.1

Note: Values do not sum to 100 due to rounding.

See footnotes at end of table.

Source: U.S. Bureau of Labor Statistics.

Chart 2. Employment in rail transportation, over-the-month change, January 2018–December 2020, seasonally adjusted



Hover over chart to view data.
Source: U.S. Bureau of Labor Statistics.

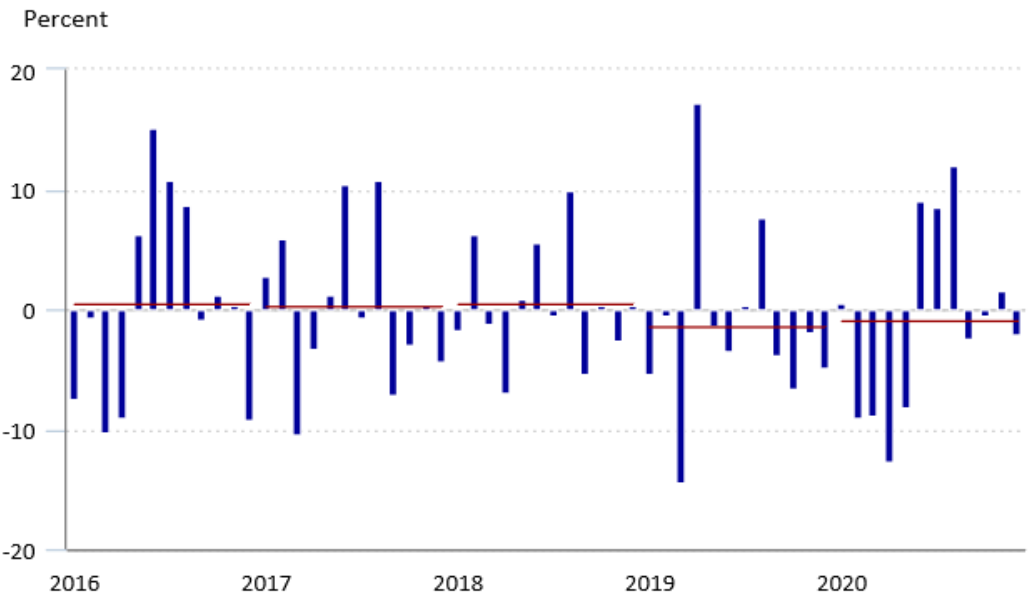
The decline of coal

In 2019, U.S. railroads moved 4 million carloads of coal, with each carrying enough coal to power 19 homes for an entire year. Five states accounted for approximately 71 percent of U.S. coal production in 2019, despite coal being consumed all over the country.[2] However, because of recent advances in natural gas extraction and the increased use of renewable resources to generate electricity, the United States is becoming less reliant on coal as an energy source.[3] In fact, the movement of millions of coal carloads in 2019 actually represented a decline of 405,000, or 9.2 percent, over the year. According to Association of American Railroads (AAR) Vice President John T. Gray, the number of coal carloads in 2019 were the lowest they had been in decades.[4] With the United States relying less on coal, the demand for rail cars that transport coal decreases. In turn, there is a decrease in the need for rail cars overall, as well as the need for employees to work on the railroads.

In 2020, the COVID-19 pandemic added to the decline in the use of coal, as business closures, shelter-in-place mandates, and generally low demand from the public weakened the overall economy. In addition, cheap natural gas prices prompted the increased use of natural gas instead of coal to generate electricity, deepening the decline in the number of coal carloads further. As of April 25, 2020, when the tightest of COVID-19 restrictions across the United States were still in effect, coal was down 21.4 percent over the year.[5] As shown in chart 3, the decline

accelerated in the beginning of 2020.[6] In fact, the 2-month period (April and May 2020) in which the largest percentage declines in the number of coal carloads occurred corresponded with the rail industry's largest over-the-month declines in employment. In addition, once the country began to reopen in the summer, the number of coal carloads began to increase and rail employment returned to smaller monthly declines. Although coal carloads do not correlate with rail employment on a month-by-month basis, it is evident that reductions in coal carloads have a negative influence on rail employment.

Chart 3. Over-the-month percent change in number of coal carloads, January 2016–December 2020



Hover over chart to view data.
Note: Over-the-month percent changes were calculated by comparing the weekly average number of coal carloads from one month to the next. March and April 2019 data probably reflect the impacts of historic flooding in the Midwest.
Source: Association of American Railroads.

An uncertain trade environment

Businesses strive to make efficient use of their time, money, and other resources, and changes in the demand for rail transportation and impacts on their revenues as a result of trade uncertainties can impact the industry's employment. Rail freight volumes and movement—how often trains are moving freight from one point to another—have recently been reduced by an uncertain trade environment involving the negotiations of the United States-Mexico-Canada Agreement (USMCA) and trade relations between the United States and China. According to AAR economist Luisa Fernandez-Willey, trade uncertainty and tariffs had a strong negative effect on the rail transportation industry in 2019, as 42 percent of rail carloads and intermodal units (units using two modes of freight, such as truck and rail, to transport goods) and 35 percent of annual rail revenue are associated with international trade.[7] In addition, about 50,000 jobs, worth over $5.5 billion in annual wages and benefits, also

depend on international trade.[8] The relationship between rail carloads and international trade is strongly tied to employment, as fewer carloads and lower revenue tied to international trade mean a reduced need for workers.

Even general uncertainty resulting from the United States' trade relationships with other countries can lead to the hesitance of firms to hire, and thus the USMCA and trade relations with China have been widely referenced in analyzing rail employment declines in 2019. Fernandez-Willey noted that clarity on trade would be vital for the rail industry to recover in 2020, stating that the ratification of the USMCA and the resolution of disputes with China would be the key factors to achieving this clarity.[9]

In 2019, uncertainty that is due to the ongoing disputes between the United States and China lowered demand for companies that move freight, especially within the agriculture and manufacturing industries.[10] These disputes included the United States and China imposing tariffs on hundreds of billions of dollars of each other's goods. Tensions ran especially high in 2019, with the two countries spending the last few months of the year threatening to impose new tariffs and increase existing tariffs against one another.[11] Uncertainty appeared to grow out of the USMCA's delayed ratification as well, with the final outcome of the agreement relatively unclear for most of the year. In December 2019, the U.S. House of Representatives passed the USMCA, which established key policy changes.[12]

In January 2020, it appeared trade uncertainty and its negative effect on rail employment may have started to fade once a phase-one trade deal with China was established and the USMCA was signed into law.[13] However, the positive outlook for trade and rail employment did not last long into 2020, once the COVID-19 pandemic began. Global trade and shipment volumes were disrupted throughout the year, as people across the world stayed at home and quarantined in an effort to contain the virus. The Cass Freight Index for April 2020, released at the height of the U.S. stay-at-home orders, is particularly revealing, as it reported that shipment volumes dropped 22.7 percent and freight expenditures fell 18.2 percent year-over-year in North America.[14] The COVID-19 recession appears to have held back improvements to trade uncertainty, as little has changed regarding U.S. trade relations with China since the start of the pandemic.[15] Recessions are also typically characterized by a surge in trade disputes and a slowdown in trade negotiations, as rising unemployment heightens uncertainty.[16]

Precision Scheduled Railroading

Precision Scheduled Railroading (PSR), is a railroad strategy that uses departure schedules and point-to-point delivery methods to achieve low operating ratios (how much a company needs to spend to make a dollar) and consolidate railroad networks (the elimination of shorter, less efficient lanes in favor of high-volume lanes).[17] PSR may be the most widely accredited reason for the decrease in rail transportation employment. Before PSR was implemented, the North American rail model, which includes the United States and Canada, focused on moving long trains with a single good in order to maximize capacity and yield the greatest efficiency. However, this model was actually slowing down the rail network because trains would be late or canceled if they did not meet specific length requirements, thus leaving customers unexpectedly without service. With the implementation of PSR, the focus shifted to moving cars with mixed goods, so that the trains are always moving and cars are picked up on schedule, regardless of train length. Despite lower length requirements, average train length increased because railroad companies were no longer discouraged from transporting multiple types of goods in a single train.

As a result of PSR, there is now more efficient timing and scheduling, as well as an effective allocation of resources, such as crews, cars, and locomotives, in the places where they are needed on the rail network.[18]

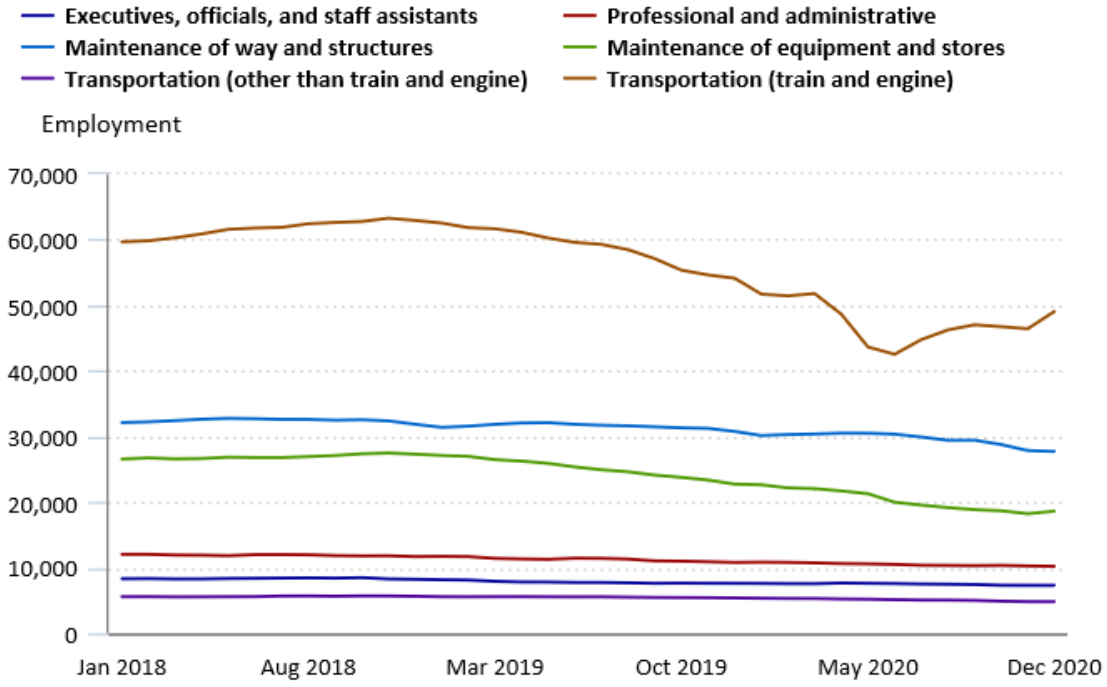
North American railroads are divided by revenue into different classes. Class I railroads are the largest, and have an annual operating revenue of at least $447,621,226, while Class II railroads are known as regional railroads and Class III railroads are known as short-line railroads.[19] The practice of furloughing employees is rather common within the rail industry and usually depends on the volume of freight at a given point in time. After Class I railroads adopted PSR, furloughs and layoffs in the industry increased. Rail companies, including Norfolk Southern and Union Pacific, have stated explicitly that they have furloughed or closed down certain operations because of PSR.[20] Industry officials seem to hail the new efficiency PSR has brought to the railroads, while union leaders have responded negatively because of its effect on employees. One article noted that reduced staffing is made possible by running longer trains, as hitching two trains together allows one rail work crew to be cut. This coincides with a 25-percent increase in the average train length (1.4 miles) since 2008. In addition, according to rail economist Jim Blaze, seven major freight railroads idled nearly 30 percent of locomotives in 2019 alone, as they aim to run fewer and longer trains.[21]

The North American Class I railroads that have adopted PSR as part of their operations include Canadian National Railway, Canadian Pacific Railway Limited, CSX Corporation, Norfolk Southern Corporation, Union Pacific Corporation, and Kansas City Southern.[22] The Surface Transportation Board (STB) regulates North American Class I railroads inside the United States and collects monthly data on employment and occupational composition. These data can be used to show changes in the occupational composition of some of the railroads that have implemented PSR, while CES rail transportation employment data are not broken down by the specific type of job in which the workers perform. The STB breaks down the employment data into the following occupational classifications:

- Executives, officials, and staff assistants
- Professional and administrative
- Maintenance of way and structures
- Maintenance of equipment and stores
- Transportation (other than train and engine)
- Transportation (train and engine)

Thus, the STB data show where, in terms of types of jobs, losses are occurring in the rail industry in a way that CES data do not. Chart 4 displays each of the STB's occupational classifications and their employment since January 2018, showing little change from January 2018 to November 2018, as well as the changes in trend over the period from November 2018 to December 2020.[23]

Chart 4. Employment in North American Class I rail transportation, by occupational group, January 2018–December 2020



Click legend items to change data display. Hover over chart to view data.
Source: Surface Transportation Board.

The STB data show that the greatest job losses occurred in the occupational groups most directly involved with the actual operation and maintenance of trains on the railroads. Out of the 31,000 jobs lost estimated by the STB, transportation (train and engine) accounted for 46 percent of the losses from November 2018 to December 2020, despite representing less than 43 percent of all railroad jobs in November 2018. At the same time, maintenance of equipment and stores jobs accounted for more than a quarter of the losses, despite being less than a fifth of all employment in November 2018. In contrast, the other classifications each contributed between 3 and 15 percent of the job losses over the same period. Although PSR appears to have altered the hiring and layoff decisions of rail establishments over the period, employment in rail transportation began to flatten in the second half of 2020, indicating that railroads may have balanced out their employment levels with the new scheduling method.

Coronavirus delivers deeper losses

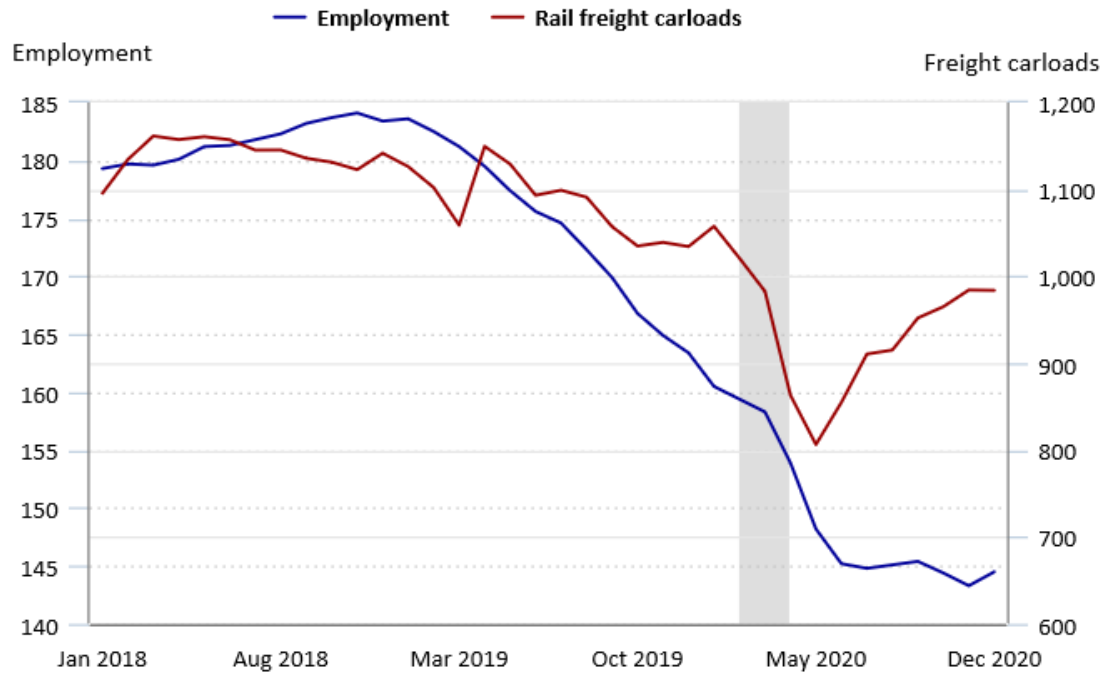
COVID-19 is discussed earlier in this article because the disease coincided and interacted with the other factors associated with the recent decline of employment in rail transportation. However, the COVID-19 pandemic itself can be viewed as a fourth factor contributing to the decline of employment in rail transportation.

A national emergency regarding COVID-19 was declared on March 13, 2020, as the virus began to rapidly spread throughout the United States. On March 15, the Centers for Disease Control and Prevention discouraged gatherings of 50 or more people over the next 8 weeks, prompting many business and school closures in a public health effort to slow the spread of the disease. By March 26, the United States led the world in confirmed coronavirus cases.[24] As of April 20, over 316 million Americans in at least 42 states were being urged to stay

home.[25] COVID-19-related business closures during this period caused millions of Americans to lose their jobs, and the rail transportation industry was no exception.[26] Employment in rail transportation experienced two large monthly declines during the early months of the pandemic—April and May 2020—for a combined loss of 10,000 jobs. This accounts for a quarter of the 40,000 rail transportation jobs lost from November 2018 to December 2020, suggesting that the effects of the pandemic had a considerable impact on employment.

Chart 5 displays employment in rail transportation and the number of rail freight carloads over the period from January 2018 to December 2020.[27] The two series moved similarly during April and May 2020, at the height of COVID-19 pandemic restrictions and business closures. In fact, both employment in rail transportation and rail freight carloads experienced notable contractions during those 2 months. However, the two series have diverged since May 2020. After declining since January 2020, the number of rail freight carloads began to increase again in May, which may be a result of the easing of state restrictions and businesses reopening in some capacity amid the pandemic. Despite the continuing spread of the virus, every state had begun to at least partially reopen businesses by the end of May.[28] From June to December, employment in rail transportation began to level off, while the volume of rail freight carloads continued to recover.

Chart 5. Level of rail transportation employment and number of freight carloads, January 2018–December 2020, seasonally adjusted (in thousands)



Click legend items to change data display. Hover over chart to view data.
Shaded area represents a recession as determined by the National Bureau of Economic Research.
Source: U.S. Bureau of Labor Statistics and U.S. Bureau of Transportation Statistics.

In addition, news sources also recognized the negative effects of COVID-19 on railroads, stating that the shelter-in-place mandates in April and May caused rail volume to be slashed. The COVID-19 pandemic had been

predicted to result in a reduction in U.S. imports, translating into less volume on the railroads.[29] As a result, Class I railroads had to deal with reduced demand by temporarily shutting down facilities with less rail traffic.[30]

In August, a *FreightWaves* article stated that the STB and the Federal Railroad Administration, who are responsible for enabling safe, reliable, and efficient movement of people and goods, had asked the Class I railroads to resolve service issues that had arisen during the pandemic as a result of crew availability issues. At the same time, labor unions questioned the railroads companies' furlough practices, stating that some recalled furloughed employees were being sidelined for a second time.[31] This information suggests that railroads may have hired back workers earlier than they were needed, which may explain the deceleration of rail transportation employment losses towards the end of 2020. However, the pandemic is not over. New variants of COVID-19 could place further stress on the global economy and could make firms' decisions regarding employment in the near future more uncertain.[32]

Summary

Rail transportation employment may be one of the smallest components of transportation and warehousing, but recent job losses have been substantial, with the industry losing 40,000 jobs from November 2018 to December 2020. Rail industry experts and the public media speculate that the three main reasons for the job losses were the United States' decreased reliance on coal as a resource, an uncertain trade environment, and PSR—a new method of scheduling operations. The COVID-19 pandemic compounded these factors and affected rail transportation employment as a fourth factor. These factors suggest that some of these job losses may be permanent. Although we can acknowledge what led to the large declines in rail transportation employment over this period, the future of the industry's employment remains uncertain.

SUGGESTED CITATION

Ryan Ansell, "Employment in rail transportation heads downhill between November 2018 and December 2020," *Monthly Labor Review,* U.S. Bureau of Labor Statistics, October 2021, https://doi.org/10.21916/mlr.2021.21

NOTES

1 The CES program, which provides detailed industry data on employment, hours, and earnings of workers on nonfarm payrolls, is a monthly survey of about 144,000 businesses and government agencies representing approximately 697,000 individual worksites. For more information on the program's concepts and methodology, see "Technical notes for the Current Employment Statistics survey," *Current Employment Statistics—CES (national)* (U.S. Bureau of Labor Statistics), https://www.bls.gov/web/empsit/cestn.htm. To access CES data, see https://www.bls.gov/ces/. The CES data used in this article are seasonally adjusted unless otherwise noted. Employment in the rail industry consists of jobs relating to the transportation of passengers and cargo using railroad rolling stock. The railroads within the industry either operate on networks, over an extensive geographic area, or over a short distance on a local rail line. Scenic and sightseeing rail transportation and street railroads, commuter rail, and rapid transit are not included in the rail transportation industry. See "Sector 48-49—Transportation and Warehousing," *2017 NAICS definition* (U.S. Census Bureau), https://www.census.gov/naics/?input=482&year=2017&details=482.

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10 See Heather Long "Railroads are slashing workers, cheered on by Wall Street to stay profitable amid Trump's trade war," *The Washington Post*, January 3, 2020, https://www.washingtonpost.com/business/economy/railroads-are-slashing-workers-cheered-on-by-wall-street-to-stay-profitable-amid-trumps-trade-war/2020/01/02/dc757ed4-1603-11ea-a659-7d69641c6ff7_story.html.

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12 For details on what was included in the United States-Mexico-Canada Agreement passed by the House, see Heather Long, "The USMCA is finally done. Here's what is in it," *The Washington Post*, December 10, 2019, https://www.washingtonpost.com/business/2019/12/10/usmca-is-finally-done-deal-after-democrats-sign-off-heres-what-is-it/.

13 See Jeff Stein, "Trump signs USMCA, revamping North American trade rules," *The Washington Post*, January 29, 2020, https://www.washingtonpost.com/business/2020/01/29/trump-usmca/.

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17 See Daniel Elliott, "What is Precision Scheduled Railroading?" *Breakthrough*, August 6, 2020, https://www.breakthroughfuel.com/blog/precision-scheduled-railroading/.

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21 See Long, "Railroads are slashing workers"

22 The railroad names are from Elliott, "What is Precision Scheduled Railroading?"

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