



U.S. Department of Transportation  
Office of the Assistant Secretary for Research and Technology

# **Bureau of Transportation Statistics**

**Office of Statistical and Economic Analysis**

## **Effects of COVID-19 on Seasonal Adjustment**

**March 12, 2021**

# Seasonally adjusted data series

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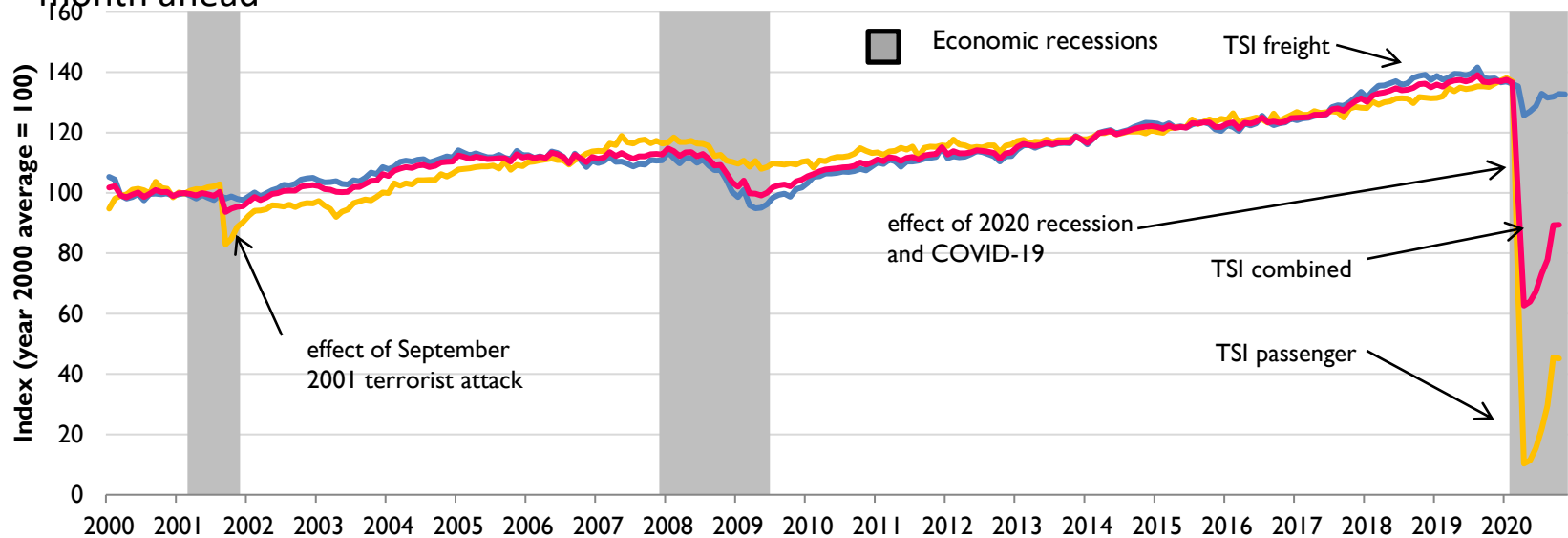
<https://www.transtats.bts.gov/osea/seasonaladjustment/>

- Air traffic
  - Enplanements
  - Available seats miles
  - Revenue passenger miles
- Inputs to Transportation Services Index
  - Freight:
    - Truck tonnage
    - Rail carloads
    - Rail intermodal units
    - Revenue ton miles of freight and mail
    - Pipeline petroleum
    - Natural gas pipeline
    - U.S. waterways tonnage
  - Passenger
    - Air revenue passenger miles
    - Rail passenger miles
    - Public transit ridership
- Vehicle Miles Traveled

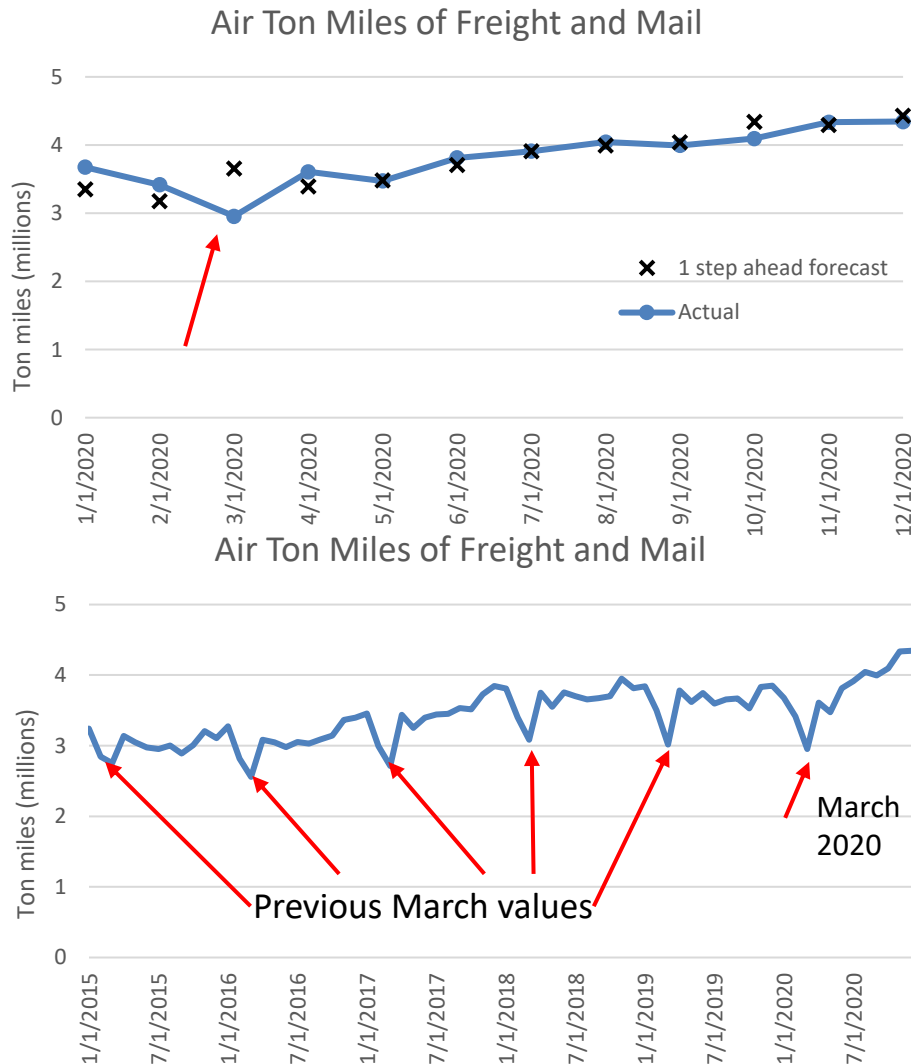


# Transportation Services Index (TSI)

- TSI measures the volume of freight and passenger transportation services provided monthly by the for-hire transportation sector in the U.S.
- BTS produces three indexes: a freight index, a passenger index, and a combined index.
- BTS uses the Fischer Ideal methodology to combine the modal indexes and chains them to generate period-to-period changes that are independent of the base year (2000)
- Monthly for-hire transportation data are available with a two-month lag for most transportation modes and where data lags by more than two-months, BTS forecasts one month ahead



# Some modes relatively unaffected by COVID-19

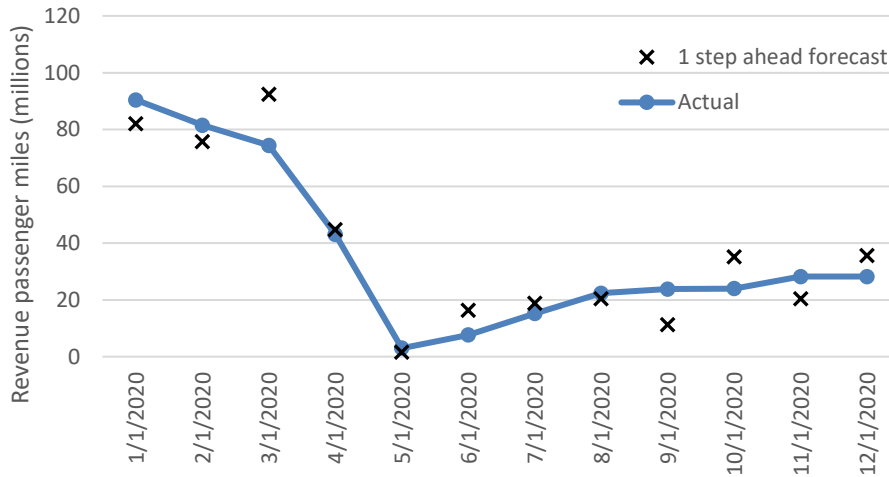


- BTS forecasts air ton miles of freight and mail one month ahead each month because the series lags one month behind the other inputs to the Transportation Services Index (TSI)
- March 2020 only month where forecast most inaccurate but observed decline every March
- Given no strong COVID-19 effects and small weighted contribution to freight TSI, BTS proceeded with one step ahead forecast

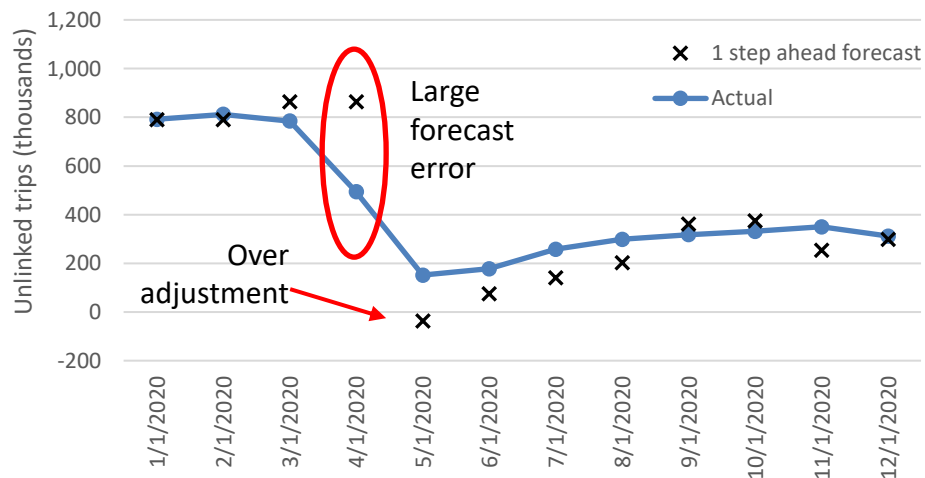


# Other modes affected by COVID-19

Air Revenue Passenger Miles



Public Transit Ridership



- BTS forecasts all three passenger TSI inputs one month ahead each month because the series lag one month behind the other inputs to the TSI
- Given the strong COVID-19 effects, BTS withheld the release of the passenger TSI (releasing data for months with actual data only)
- For several series, BTS switched from additive model to multiplicative model to account for over adjustment



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## Contact Information

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