



Emergent Issues related to Freight Systems Impacted by the COVID-19 Pandemic

As of 1800 Hours (Eastern) on Friday, April 10, 2020

This document assesses the national freight system that connects demand and supply networks for many critical commodities in order to understand strategic risk and, potentially, offer recommendations.

Consensus Assessment: Based on available data and consultations with industry leaders, the national freight system has adapted to significant changes in demand but is increasingly showing signs of stress. The precipitous drop in contract tender volume from March's peak continued, supporting fears of a "freight cliff". The spot market turned quicker than many freight analysts expected as trucks now chase loads. **With volumes and rates dropping, concern for carrier financial viability is now prevalent.** The risk of worker absenteeism exacerbates carrier stress as workplace safety remains a concern. International cargo fluctuations and the repositioning of container equipment make the operating environment more complex. **This stressful combination of factors has increased the risk of fatigue in the freight system.**

Force on Target: Pandemic disease challenges traditional emergency management and business continuity plans. Despite the lack of infrastructure damage common to such planning, the entire population is a target of concern. The public sector has imposed varying degrees of measures restricting travel and commercial operations in most jurisdictions. Transmission of COVID-19 poses a direct risk to all, including essential supply chain workers. Unprecedented shifts in shipper demand among essential and non-essential businesses have challenged the freight system's agility. And carriers must adapt in the midst of a novel operating environment due to public and private efforts to control virus transmission.

Geography Targeted: This document builds on previous assessments of freight movement for the CONUS (Contiguous United States) and focused assessments of grocery supply chains for metropolitan or regional markets. The national scope makes it difficult to assess risks for supply chains in specific sectors of the economy that are now essential. However, it will identify national-level risks for an essential service sector that connects the network nodes for all supply chains.

Population Targeted: The entire CONUS population of over 300 million is a potential host for COVID-19.

The assessment begins with a synthesis of "sentinel indicators" regarding freight movement. Sentinels are individuals with experience and insight regarding flow, operating context, and system performance.

Demand and Supply Networks: COVID-19 has shifted consumer demand patterns due to a combination of anxiety-induced behaviors and business closures. **Since March 24, contract tender volumes from shippers have dropped 20% and lost all of the gains realized since February.** Over the last two weeks, there has been a complete turnaround in the spot market (10-30% of the overall freight market depending on conditions). Load posts cratered while carrier searches surged, cutting the load-to-truck ratio by more than 50% (see data below). Essential businesses are being inundated by brokers as they have the only consistent freight moving. Speculation regarding the depth and timing of the freight volume decline aligns with uncertainty of the overall economic recession, as does the nature of the recovery once mitigation measures are relaxed. **April is normally a time of volatility for freight markets as commodity flows such as agricultural products enter the market, but atypical movements in demand and supply networks have exacerbated the volatility.** Shipments from China to the U.S. had increased as [China's manufacturing began to bounce back in March](#). The production surge may not continue; the [Federal Reserve's Weekly Economic Index](#) continued to drop due to the sustained surge in

unemployment claims. Further economic decline combined with volatility in shipment plans for essential and non-essential companies will continue to put pressure on freight systems.

Operating Environment: Conditions for freight velocity persist, as Non-Pharmaceutical Interventions continue to [limit traffic and increase truck speeds](#). Delays at facilities remain higher. One large broker reported 8% higher dwell times overall since early March, with notably higher delays for loads labeled by the shipper as COVID-19 relief under the Federal Motor Carrier Safety Administration (FMCSA) emergency declaration. Other delays have been attributed directly and indirectly to virus control measures as conditions [vary by jurisdiction](#). **Workplace safety remains a high concern across the supply chain.** Last week, the Owner-Operator Independent Drivers Association (OOIDA) highlighted the need for truckers to be protected, tested, and have a place to quarantine if sick. The CDC provided a one page, [high level guidance for truck drivers going to/from NYC](#) and [OSHA has issued general industry guidance](#). Industry organizations are collaborating and publishing best practice documents for jobs that are common across the supply chain in an attempt to fill gaps (examples include [The Shippers Group](#), [FMI](#), [IWLA](#), [WERC](#), [GCCA](#)). Safety concerns will persist as gaps remain for essential workers regarding standardized safety guidance and access to PPE and tests. Despite these challenges, some driver conditions have stabilized. The three major travel center proprietors, [Pilot Flying J](#), [Loves](#), and [TA](#) offer parking, showers and food in most locations, following health department regulations. The Federal Highway Administration (FHWA) removed restrictions at federally funded rest areas, which now permit food trucks to sell food to commercial truck drivers. While some states prohibit food sales at rest areas, [AZ](#) and [PA](#) have relaxed restrictions on rest area operations.

Freight Systems: The freight market continues to adapt to unprecedented volatility in demand and supply networks and constrained operating conditions, as indicated by the dramatic shift in the spot market over the past week (see data below). Further adaptation may be required, as [freight accumulates](#) in West Coast ports due to closed or at-capacity distribution centers for non-essential goods. This raises the potential that [containers and chassis equipment may also be tied up](#). While [an increase in canceled sailings](#) may keep rates competitive, lower vessel capacity and rerouting will make container and equipment repositioning more challenging. **Worker absenteeism is starting to impact some carriers (specifically in the Northeast) as the number of positive COVID-19 cases within their driver base and drivers' families are increasing.** With increased unemployment, driver training classes remain full, though the path forward for new drivers is unclear in dozens of states that have [closed driver licensing agencies](#). Prior to COVID-19, the freight market's capacity had reduced due to declining Class 8 truck orders ([down 45% since February and 51% lower y/y](#)), electronic logging device (ELD) rules, and some notable carrier bankruptcies in 2019. **Further downward economic trends put carriers of all sizes at financial risk**, with higher risk among carriers focused on non-essential businesses (e.g. automotive) or biased to the spot market. Less-than-truckload (LTL) carriers, with important specialty and last mile services, face distinct financial and worker safety challenges. [Insurance selectivity](#) and rising premiums increase operating risk. The history of freight markets indicates that capacity recovers more slowly than demand. Starting 2020 with leaner capacity may support rates as volume drops, but it could also be detrimental if significant carrier capacity exits the market.

The assessment continues with "data indicators" regarding freight movement based on indices that draw on an array of industry data feeds and aggregate data provided by individual companies.

The Tender Volume Index (TVI) was established on March 1, 2018, at a national level of 10,000. The national index reflects overall tender growth (e.g. 12,000 would indicate 20% growth). Tender volumes indicate shipper needs and are tracked by inbound and outbound movements for each freight market.

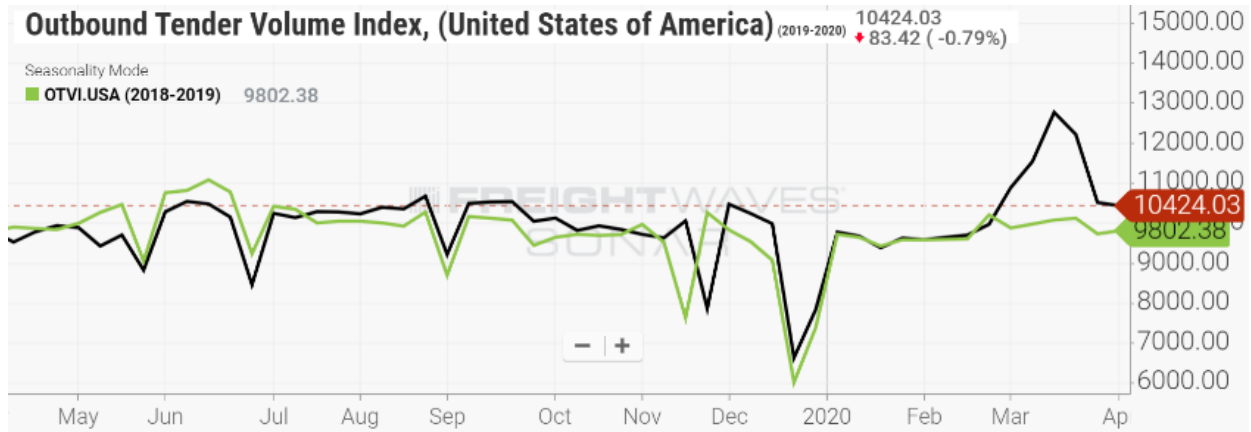


Figure 1: Outbound Tender Volume Index (Freight Waves SONAR)

Figure 1 shows U.S. tender volumes for the most recent 12 months (black line), and last year's tender volumes (green line). At its peak in March, with COVID-related panic buying, U.S. tender volumes had surged 20% from mid-February and were the highest in three years. **In the past two weeks, the TVI has since lost all recent gains and is close to 2019 levels.** Industry experts and economists disagree regarding the “bottom”, though projections are mostly at or below typical holiday dips.

Changes in tenders by equipment type can reflect larger sector volumes. Temperature controlled (aka reefer) volume, which makes up ~20% of total freight and is more volatile, has dropped ~40%. This may indicate a leveling of food and grocery volume to align with consumption. Flatbed has also seen a sharp decline, which may reflect lower demand from non-essential businesses like construction.

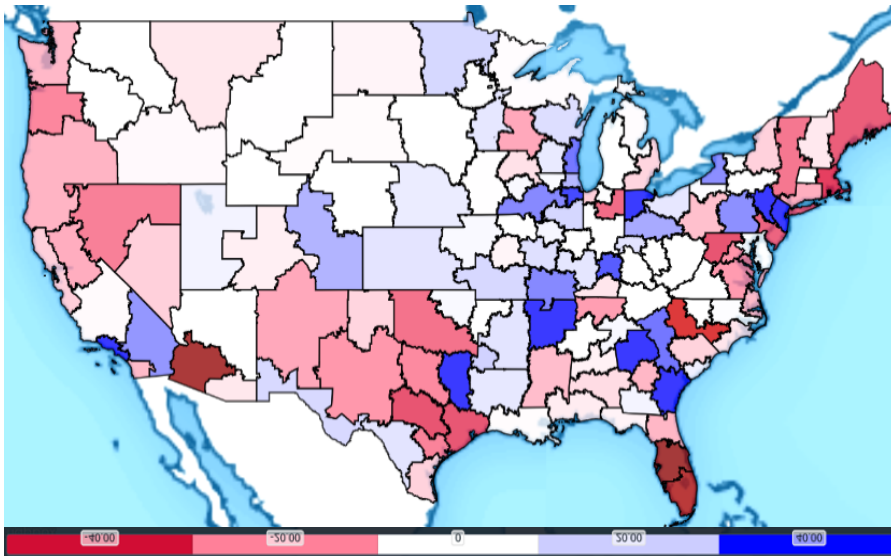


Figure 2: Headhaul Index for April 8 (Freight Waves SONAR)

The Headhaul Index reflects the difference between outbound and inbound tender volumes. Figure 2 maps this gap for the past day. Blue areas have more tenders for outbound than inbound, or “tight” capacity; dark red areas have more inbound tenders than outbound, aka a “loose” market. This index has remained fairly stable. Markets in eastern Pennsylvania with large distributors remain tight in support of mid-Atlantic

metro areas, which are colored red. One

notable change from last week indicates that the Los Angeles market is seeing more outbound flows, most likely coming from an increase in imports from Asia. However, L.A. outbound volume is still 34% lower than it was one month ago and this time last year.

The data above mostly represents contracted fleets. With continued shipper departure from contract plans, we also consider changes in the spot market. They reflect unanticipated changes in demand as shippers seek last minute capacity and often point to where contract rates are headed. Volume and rate information for the spot market provided by DAT and FTR/Truckstop.com aligns with the volume decreases for contract carriers shown above. As seen in Figure 3, the load-to-truck ratio (load posts/truck posts), which provides an indication for how tight the market is, decreased by just over 55% for both dry van and reefer. **This ratio is now on par with last year's load-to-truck ratio and signals a challenging environment for carriers.** Both specialized and flatbed have fallen below last year's numbers according to [FTR's recent spot market update](#).

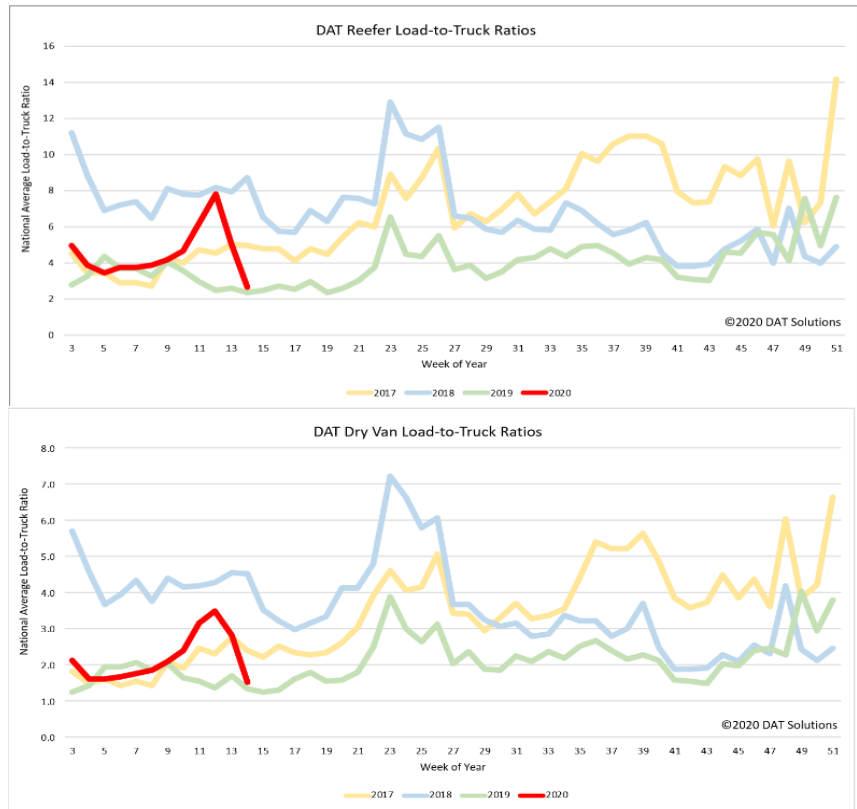


Figure 3: DAT Dry Van & Reefer Load-To-Truck Ratio

SCAN is intended to answer two questions:

1. Are key demand and supply networks failing?
2. If so, when, where, why, and with whom can FEMA engage to be most effective in reversing failure?

As in previous freight assessments, industry input and data indicate that national **demand and supply networks continue to shift dramatically but are not failing**. A precipitous drop in contract tender volume from March's peaks is, at least initially, fulfilling fears of a "freight cliff". The spot market turned quicker than many freight analysts expected as trucks now chase loads. Financial stress is now certain for most carriers and acute for those serving non-essential sectors. Dramatic shifts in ocean freight have created uncertainty in the positioning of equipment such as containers and chassis. Risks of worker absenteeism remain high while constraints on adding new drivers persist. **The economic and operating stress on the freight system has notably increased this past week.** Future impact on freight capacity depends on depth and timing of the freight volume decline and the ability to stabilize the operating environment. Freight capacity has historically adapted well to economic volatility, albeit with some delays. However, the current combination of accelerated economic decline and operational constraints is unique. **The freight system may require targeted support to continue serving demand and supply networks rather than encumber economic recovery.**