



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

As of 1800 Hours (Eastern) on Friday, May 8, 2020

This is the seventh Ecosystem Assessment focused on national freight systems. This document assesses the national freight systems that connect demand and supply networks for many critical commodities in order to understand strategic risk and, potentially, offer recommendations.

Consensus Assessment: The new normal is 'disruption' as [epidemiologists](#) anticipate continued waves of the virus. The operating environment as we knew it has undergone radical changes. **Supply chains will have to incorporate even more flexibility and diversity in order to manage demand and supply volatility.** Outbreaks that occur in clusters of supply with close worker proximity have had cascading effects across the network, as seen most recently by the impact of sick workers in the meat processing industry. This has companies rethinking how they prioritize investments in automation. **Shocks to the freight system started at trucking and have made their way to ports, as U.S. ports and marine terminals seek federal help.** Reefer freight volume increases show that produce supply is flowing, but the demand generated is not enough to match the available truck supply. **Small carriers and truckers are speaking out about the need for federal assistance with rates,** evidence that some have reached a breaking point. **Loss of small businesses equates to a loss of agility and resilience, which the supply chain requires to counter this new normal of disruption.**

Force on Target: Transmission of COVID-19 poses a direct risk to all, including essential supply chain workers and soon to be non-essential workers as states lift restrictions. Unprecedented shifts in shipper demand among essential and non-essential businesses will continue to challenge freight system agility.

Geography Targeted: This document focuses on supply chains in the Contiguous United States (CONUS). It is difficult to assess risks spanning national demand and supply networks for an economic sector. Instead, this document assesses national-level risks for freight services that connect network nodes for any supply chain.

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: **Consumer spending dropped 7.5% in March, the biggest one month drop since 1959.** There are some signs that a [slight increase in spending](#) accompanied states reopening, but it is still too early to tell. [Spending may still be inhibited](#), and has been seen in Germany, Denmark, and Sweden. [Global trade](#) continues to be impacted by the pandemic as well. U.S. imports on the West Coast and East Coast were back up at 2019 levels this past week, attributed to final supply pushes from mid-February orders. **However, blank sailings, which signal [sustained future demand troughs](#), continue to be a concern. Demand shifts, some seasonal and some due to COVID-19 disruptions, can be seen in truck volume (mostly reefer) across the country.** [Examples](#) include Mothers' Day flowers (Southern Florida) and produce season (West Coast, Southern Florida and Texas, coastal Georgia) increases, automotive suppliers starting up, and lower than normal meat production. Meat processors are still [struggling to maintain operations](#) amid outbreaks among their workforce. [Meat supplies for retail grocery stores could shrink almost 30% by Memorial Day](#), leading the grocery industry to [allocate available products to customers](#) in an attempt to prevent panic buying. [Prices have been impacted](#) and are expected to rise.

Operating Environment: The impact of eased restrictions may mean positive changes for consumer spending, **but more operational complexity for the logistics sector.** If predicted waves of the virus are realized, businesses will be left to contend with varying levels of restrictions that will continue to change across states. [Associations, organizations,](#) and [agencies](#) are working to provide clarity for supply chain operators that span multiple jurisdictions. [Dwell times](#) at many warehouses continue to be very long as stringent guidelines slow processes,

as will new procedures within warehouses that incorporate social distancing. A Peerless Research Group survey showed that only 4% of order fulfillment operations (picking and packaging) are highly automated, while [49% of operations were primarily manual](#). Companies are [stepping up investments](#) aimed at simplifying and [speeding up their logistics operations](#) in order to maintain throughput, while increasing social distancing and safety. Although Amazon warehouses are fairly automated compared to meat processing plants, both **facilities still need people to function** as witnessed by Amazon's call to hire 100,000 more warehouse employees. **The reality is that many (meat processing) facilities still remain closed, and those that are reopening could be forced to run lines at a slower pace due to social distancing measures and absenteeism.** In a recent [survey](#) by the Material Handling Equipment Distributors Association (MHEDA), **25% of respondents have reduced their workforce.** With [unemployment](#) reported at 14.7%, McKinsey developed the [Talent Exchange](#), which matches workers impacted by COVID-19 to new job opportunities. This may provide a way for businesses impacted by high absenteeism to bolster their workforce. Lastly, a new council was formed by Consumer Brands Association, known as the [Critical Infrastructure Supply Chain Council](#). **This is a coordinated effort of 35-plus trade associations, which aims to advance polices – such as company protection from COVID-related [liabilities](#) - that bolster U.S. supply chains and ensure the timely flow of critical items.**

Freight Systems: After [canceled sailings](#), TEU capacity is down 21% in May (YoY), 20% (YoY) in June and 9% (YoY) in July. **If monthly capacity cuts stay high at 20% (or more), [the implications for the U.S. economy could be dire.](#)** [Rates on the West Coast and East Coast have gone up](#) due to blank sailings and a temporary surge in imports; essential goods and online sales are largely responsible for this volume. **Capacity cuts and the high cost of PPE are now impacting U.S. ports and marine terminals, which are [seeking federal help in the way of \\$1.9 billion.](#)** The anticipated loss in volume could trigger the direct loss of up to 130,000 jobs. Additionally, as blank sailings increase, [container imbalances](#) continue to be of concern, particularly for Europe. Most orders from China to Europe are sitting in warehouses, with the expectation that these containers will not be available for use anytime soon. The Federal Maritime Commission issued new guidance on [detention and demurrage fees](#) to ensure that fees are used as incentives for the pickup and return of containers, but do not charge cargo owners for delays outside of their control (i.e. congestion, reduced terminal operating hours). East Coast imports heavily rely on trucking to move freight (vs. rail). Imports from India have collapsed in the last week, which could disrupt the supply of pharmaceutical products to the U.S. as well as trucking volume. **Although total load availability for trucking saw a significant bump, it [remains historically weak at just 55% of the five-year average.](#)** Capacity, which consisted of fewer trucks going into 2020 than 2019, is still more abundant than it was this time last year due to the lack of volume. The shedding of capacity that occurred last year may mean that it will take longer before additional capacity loss is realized, especially as some carriers are looking for merger and acquisition opportunities. **[A four percent reduction in capacity](#) is seen as more carriers sideline their equipment until rates improve.** A [survey](#) from April 27 shows that 33% (132 out of 405) owner-operators have parked their trucks. Small carriers and truckers are speaking out about the need for [federal assistance with rates](#), which still **largely remain unprofitable.**

*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.*

Contract volumes were slightly up this week, but down 7.6% compared to last year. DAT's spot market Load-To-Truck ratio (Figure 1 and 2) has hit an inflection point and has started to come back up. This is in part due to truck posts being down, most likely due to small carriers / owner-operators parking their trucks. Dry van rates (Figure 3) have bottomed out, but remain largely unprofitable for most carriers who will not be able to operate for very long at the current rates. Reefer rates (Figure 4), which received the biggest boost compared to all other equipment types, are showing signs of a quick rebound driven by produce. **The reopening of non-essential**

businesses could have a positive impact on rates going forward, but effects from positive gains may be delayed since rates often take the ladder up and the chute down.

Figure 1:

DAT Dry Van Load-to-Truck Ratio; Source DAT [(c) DAT Solutions, LLC.]

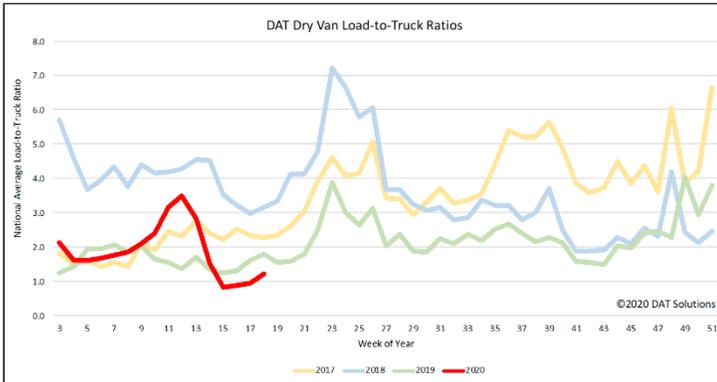


Figure 2:

DAT Reefer Load-to-Truck Ratio; Source DAT [(c) DAT Solutions, LLC.]

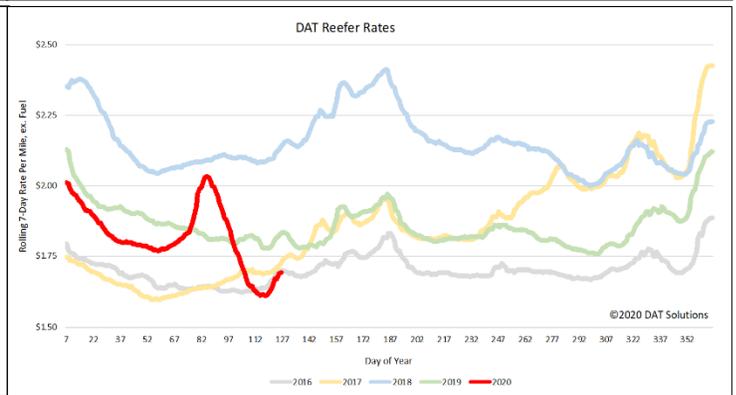
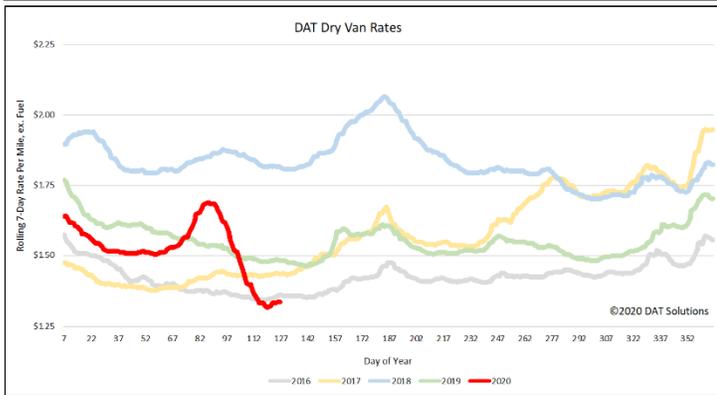
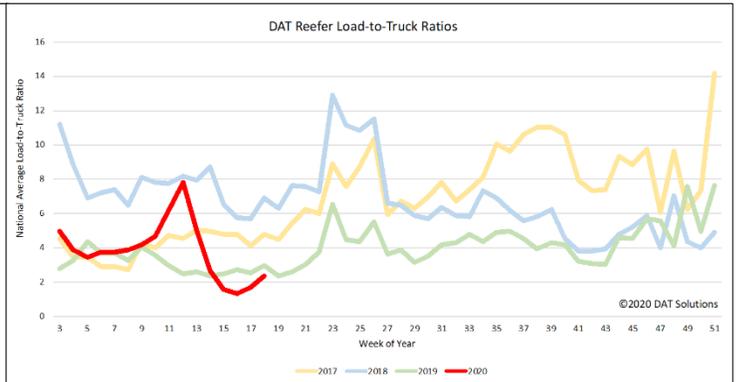


Figure 3:

DAT Dry Van Spot Market Rates; Source DAT [(c) DAT Solutions, LLC.]

Figure 4:

DAT Reefer Spot Market Rates; Source DAT [(c) DAT Solutions, LLC.]

Figure 5 displays DAT's Reefer [Market Condition Index](#) (MCI) by region on May 5. The MCI considers several factors including: Load-to-truck ratio, historical trends, load searches, truck searches, and overposting detection. 'Hot or Tight Markets' (higher index value) indicates that trucks are in demand, higher rates, and tends to favor carriers. 'Cool or Loose Markets' (lower index value) indicates lower demand for trucks, lower rates, and tends to favor brokers.

The map to the right shows that last week's prediction that the produce season was heating up has come to fruition. The FreightWaves Reefer Outbound Tender Volume Index tells a similar story for most contract markets, but also displays the decline in volume in the Mid-West due to multiple meat and poultry processing plant closures.

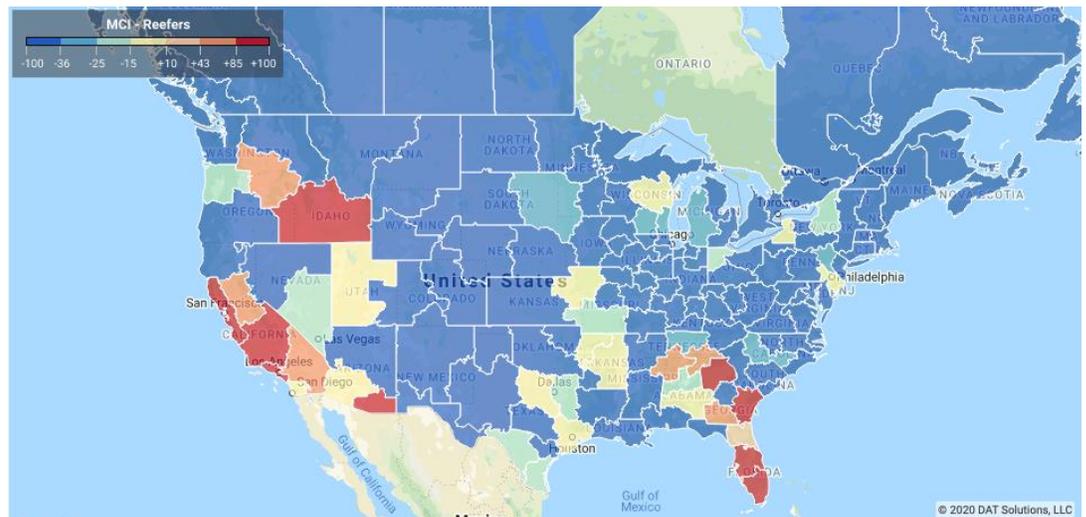


Figure 5: Reefer Market Condition Index; Source DAT [(c) DAT Solutions, LLC.]

Manufacturing at a Glance						
INDEX	Apr Index	Mar Index	% Point Change	Direction	Rate of Change	Trend* (months)
PMI®	41.5	49.1	-7.6	Contracting	Faster	2
New Orders	27.1	42.2	-15.1	Contracting	Faster	3
Production	27.5	47.7	-20.2	Contracting	Faster	2
Employment	27.5	43.8	-16.3	Contracting	Faster	9
Supplier Deliveries	76.0	65.0	+11.0	Slowing	Faster	6
Inventories	49.7	46.9	+2.8	Contracting	Slower	11
Customers' Inventories	48.8	43.4	+5.4	Too Low	Slower	43
Prices	35.3	37.4	-2.1	Decreasing	Faster	3
Backlog of Orders	37.8	45.9	-8.1	Contracting	Faster	2
New Export Orders	35.3	46.6	-11.3	Contracting	Faster	2
Imports	42.7	42.1	+0.6	Contracting	Slower	3
Overall Economy				Contracting	From Growing	1
Manufacturing Sector				Contracting	Faster	2

*Number of months moving in current direction.
Manufacturing ISM® Report On Business® data is seasonally adjusted for the New Orders, Production, Employment and Inventories indexes.

Commodities Reported

Commodities Up in Price: Caustic Soda; Disinfectants & Soaps; Freight; Personal Protective Equipment (PPE); PPE — Gloves (2); PPE — Masks; and Precious Metals.

Commodities Down in Price: Aluminum (3); Copper (3); Corn; Crude Oil (3); Diesel Fuel (2); Distillates; Gasoline; Natural Gas (5); Scrap (3); Steel — Hot Rolled (3); Steel — Stainless; and Steel Products.

Commodities in Short Supply: Capacitors; Disinfectants & Soaps; Electrical Cable; Hand Sanitizer (2); Isopropyl Alcohol (2); N95 Masks; PPE — Gloves (2); PPE — Masks (2); and Resistors.

Figure 6: Manufacturing Index; Source Institute for Supply Management

In the previous week's National Freight Ecosystem assessment, we reported that both the [Empire State Manufacturing Index](#) and the [Purchasing Managers Index](#) (PMI) posted their lowest reading in history for April. This week we hone in on the PMI, now known as the Manufacturing Index, to provide a more complete picture of supply chain and economic indicators. The [Manufacturing Index](#) measures manufacturing activity based on a monthly survey of purchasing managers at more than 300 manufacturing firms. A reading above 50 indicates that the manufacturing economy is generally expanding; below 50 indicates that it is generally contracting. The index recorded its lowest level at 41.5 since April 2009 (39.9). Of the 18 manufacturing industries represented in the index, only Food, Beverage & Tobacco Products expanded. The five industries reporting growth in imports in April were: Apparel, Leather & Allied Products; Petroleum & Coal Products;

Textile Mills; Nonmetallic Mineral Products; and Food, Beverage & Tobacco Products. For the second month in a row, all of the PMI sub-indices show a strong negative impact due to the ongoing coronavirus pandemic.

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?

Data continue to indicate that **demand and supply networks are not failing** while further revealing that not only the links between supply and demand (truckers) are feeling the financial impact of the pandemic, but so are the nodes (ports). Seasonal supply and demand appear to have provided some relief for the trucking industry over the past week, but if consumer demand does not pick up coming out of stay-at-home orders, this may only be temporary. **The new normal may very well be constant volatility that sends shocks through the system, that in turn, must be met with constant adaptation.** Reduced demand will inevitably lead to a reduction in supply, out of which a new freight system emerges; **one with less agility and responsiveness to future shocks**, such as hurricanes, earthquakes, or waves of infection. Emergency managers may need to incorporate this new normal into their previous scenario planning for hurricane season.