America's broken supply chain

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Supply chain woes are threatening American companies' bottom lines, causing higher prices and broader inflationary pressures, and making holiday shoppers increasingly nervous. Shipping containers are piling up at ports across the country, which has led to long delays for idling ships and higher shipping costs, with some companies unwilling or unable to obtain the goods (or even the containers) they need. Importers and retailers are especially reeling.

Home Depot, Costco, and others have chartered their own ships, while the Columbia Sportswear Company, Whirlpool, Peloton, and Apple have warned about rising prices and potential shortages. Worse, many import-reliant small businesses that lack the big players' financial resources have been forced to choose between folding up shop or paying many times the typical shipping rate for things that might arrive in months, not weeks. The disruption is so bad that the American Apparel and Footwear Association urged consumers to start Christmas shopping in the summer. The White House has established a "task force" and "bottleneck czar" to address the situation, while still warning the public of not only higher prices but also holiday "things that people can't get" at any price.

Logistics and supply chain management problems have gone from an esoteric, niche field to front-page news and federal government priority, and for good reason. Automobile and other manufacturers have idled plants waiting for key parts such as semiconductors; prices of energy and other basic necessities have climbed, pressuring not only family budgets but also inflation-spooked politicians (and thus President Joe Biden's economic agenda); and major brands are now warning that the smartphones, video games, bicycles, and other goodies we expected to see on holiday shelves just might not be there. Such problems were mostly acceptable in mid-2020, but now, we're told they could last well into next year.

There are some signs that the worst of the crisis is behind us: Ocean shipping rates, for example, have declined from September peaks. But most experts believe that troubles will persist until at least early 2022, stemming from a cascading confluence of near- and long-term problems — few of which, unfortunately, are quickly or easily solved.

Most obviously, the pandemic has scrambled the typically predictable global supply-and-demand patterns on which complex production and logistics networks have long been based. As the

United States reopened this summer, for example, demand for imported industrial inputs and consumer goods skyrocketed, but many major exporting countries, especially in Asia, were still mostly closed-down. Muted consumer demand from these same countries also dented their typical purchases of U.S. products, such as farm goods. The result was a major imbalance in the usual shipping container flows to and from the U.S. This was then amplified by temporary closures at specific ports and factories because of isolated COVID-19 outbreaks.

Another serious mismatch has arisen between total available shipping capacity and abnormally high worldwide demand. Some of that demand is the natural result of the post-COVID reopenings, as vaccinated consumers make up lost time and companies restock depleted inventories, aided by Americans' increasing comfort with e-commerce. However, some of the mismatch is likely owed to psychology: Just as consumer hoarding of toilet paper and other essentials emptied store shelves last year, now, economic uncertainty and a fear of running out have pushed retailers and other large importers into stockpiling and panic-buying.

This has created a self-fulfilling "bullwhip effect" that has pushed others to do the same. Lean, "just-in-time" inventory management has been replaced by a "just-in-case" approach that's seen some buyers, especially in the U.S., double or even triple their inventory levels. Shipping capacity just can't keep up: Logistics firm Flexport estimates, for example, that global demand for ocean cargo space is 20 to 30 percentage points higher than available capacity, even though ocean carriers have deployed every ship they have, including ones "not even designed to carry containers."

The pandemic's supply-demand imbalances then spilled into the United States's logistics infrastructure, creating bottlenecks that have exacerbated the original problem. This starts with the ports: As Flexport noted in June, effective ocean freight capacity was 25% lower than what was technically deployed "because so many vessels are caught up in record bottlenecks at ports." The situation deteriorated further over the summer, with record numbers of waiting ships at the ports of Los Angeles/Long Beach, Oakland, New York/New Jersey, Savannah, and Charleston. The worst of it, however, has been reserved for the LA/Long Beach port complex, which is the busiest port in the U.S., handling around 40% of total cargo volumes each year. Yet now, ships there have been forced to take the unprecedented step of just drifting offshore because all port space and contingency anchorages were filled. Many speculate that these ships' anchors caused the recent oil spill off the California coast.

Other chokepoints and simple coordination problems have added to U.S. port woes. Shipping containers, for example, have been stacked up at port, thus preventing additional boxes from being quickly unloaded. This is because there is insufficient truck and freight rail service available to pick them all up. Those backlogs, in turn, are reportedly due to a shortage of intermodal chassis — what shipping containers sit on when trucks move them across the country — and warehouse space. Without a nearby place to put their orders, U.S. importers have left their containers at the ports, using them as de facto warehouses (and paying high "demurrage" fees to do so). Truckers also report that preexisting port rules on hours of service, appointment times, and "dual transactions," which require trucks to drop empty containers in order to pick up full ones, have limited their ability to clear port backlogs. And nobody, it seems, can find enough workers.

Regardless of which link in the chain really is the weakest, these strains are having a collectively big effect. West Coast backlogs have also pushed shippers to use East Coast ports (via the Suez Canal), adding to their backlogs. Thousands and thousands of containers full of items Americans have ordered are effectively out of use while they wait days, even weeks in California, for a spot at U.S. ports. They then spend several more days awaiting pickup. It's worth reiterating: Fewer containers in use means higher shipping prices and more stress on the domestic and international supply chain systems. And all of this eventually redounds to U.S. companies and consumers.

Unfortunately, there's no White House "task force" or "bottleneck czar" that can fix this situation. Ports plan to expand, retailers plan to build more warehouse space, and shipping companies plan to boost capacity. But you can't just build more ships or add more port or warehouse space overnight. These and other domestic constraints, combined with a general national shortage of labor, have limited the efficacy of any quick fixes, such as the extended hours at LA/Long Beach gates pushed by the Biden administration. Resolving these problems will take time.

Furthermore, some of them may not be fixable at all — at least not without far more political will than has been on display. The U.S. system has been warped by long-standing policies that have decreased port efficiency and unnecessarily stressed our inland supply chain infrastructure. Most notably, longshoreman unions have leveraged their ability to shut down U.S. ports (and thus much of the economy) during contentious labor negotiations to win contracts that decrease port productivity. This includes provisions and practices that inflate salaries, limit work hours and job flexibility, and prohibit efficiency-enhancing (but union job-threatening) automation. Unions have also fought ports' efforts to supplement their union workforce with nonunion workers, even ones employed by the state.

As a result of these and other efforts, unionized port workers can make upward of $200,000 per year, while U.S. ports rank among some of the least efficient in the world. The recent experience of one of the most automated (though still not fully) ports in the country, the Port of Virginia, shows just how much this all matters for the current shipping crisis: That semi-automated marine terminal was one of the few in the country free of major backlogs, despite record volumes.

Another long-term, structural problem is legislative. The Merchant Marine Act of 1920 (aka the "Jones Act"), which requires U.S.-built, -crewed, and -flagged ships to move all freight between U.S. ports, has made coastwise shipping prohibitively costly and therefore put additional pressure on alternative inland transit such as trucks and trains. In practice, this means badly needed rigs that could be servicing U.S. ports currently are instead stuck on I-95 ferrying oranges from Florida to New York. Perhaps even worse, the combination of the Jones Act and the Foreign Dredge Act, which requires barges transporting dredged material to be Jones Act-compliant, has significantly inflated the cost of dredging U.S. ports, deterring expansions that could accommodate more and bigger ships. It's no surprise, then, that major U.S. ports handle a fraction of the ships that their foreign counterparts do, and that there's been only one significant U.S. container terminal expansion, in Charleston, since 2009.

Finally, there's U.S. trade policy. In particular, the United States just imposed 221% "trade remedy" duties on imports of intermodal chassis from China, which is by far the largest producer

of such products. With chassis supplies exhausted at ports and rail terminals across the country, and with insufficient non-China chassis production to meet current demand, the new U.S. duties are discouraging importers and freighters from bringing new capacity online and further raising shipping costs. And the laws authorizing these taxes — which are widely supported in Congress, by the way — expressly prohibit administering agencies from reducing, delaying, or terminating the duties due to consumer or other economic harms. Thus, we get chassis tariffs enacted in the middle of a national shipping crisis caused, in part, by a chassis shortage — tariffs that the White House itself can't remove, even though port directors are begging them to do so.

These factors, along with the practical impediments, make quick fixes to the U.S. logistics crunch all but impossible. Sclerotic American ports can, for example, join their Asian and European peers and move to 24/7 operations, but that won't do much good if they're still not expanded or automated, if longshoreman contracts remain inflexible and costly, or if downstream trucking, rail, and warehouse systems aren't set up to work the new hours (or are busy handling "Jones Act" freight). The system evolved over decades to reflect not only stable supply and demand patterns and lean inventory management practices, but also U.S. labor and trade policies that decrease the systemwide efficiency and flexibility that's now so needed.

It will take months, maybe years, for the system to evolve. And that's if Washington will even let it.

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