



THE EFFECT OF SUPPLY CHAINS

E-Commerce and State Taxes

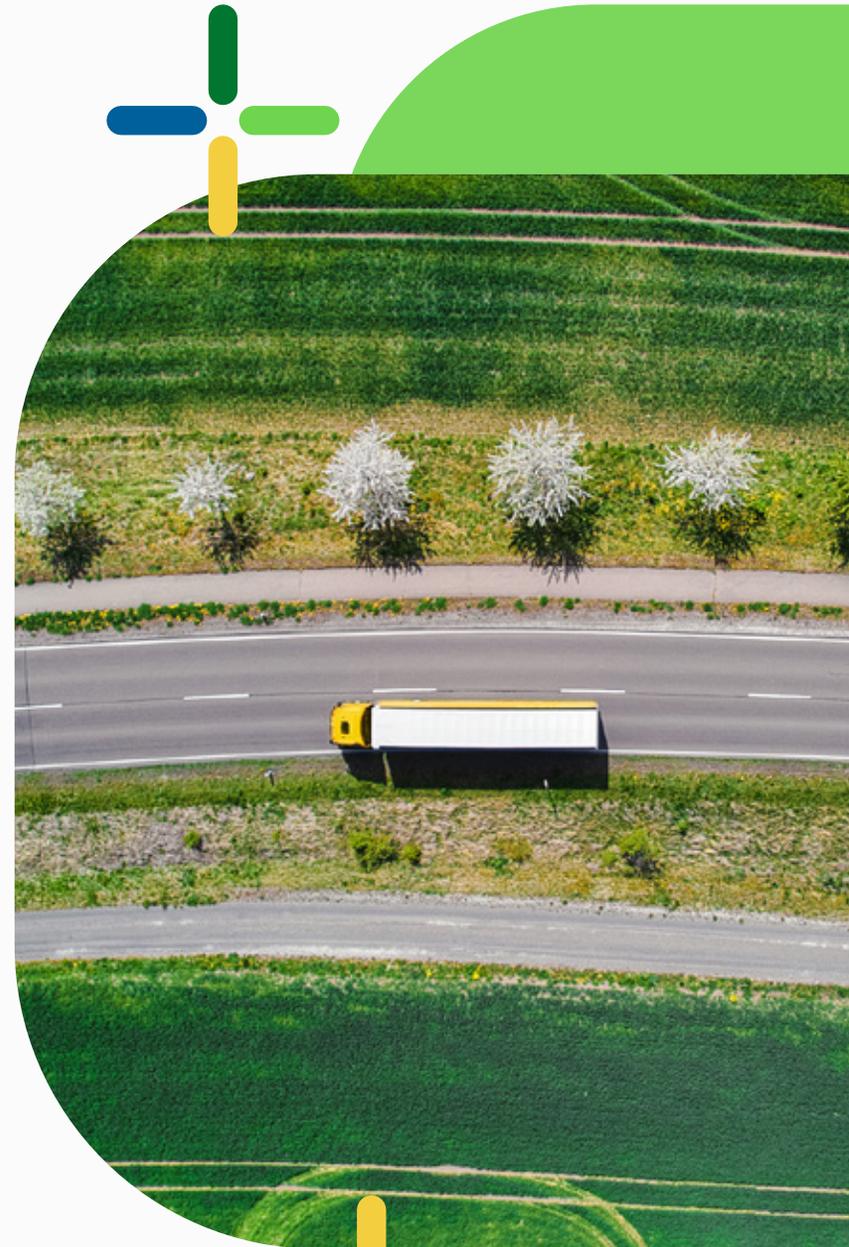
Supply chains and commerce have been intertwined for thousands of years, and disruptions in the flow of goods have always been a concern.

E-commerce adds a new – and fast-moving – layer to that mix that highlights how fragile our supply chains can be. Natural disasters, political instability, pandemics, materials shortages and more can cause disruptions that affect the bottom line for companies and government tax revenue for years.

When supply chains fail, manufacturers are under more pressure thanks to the faster pace of e-commerce. Recovering from those disruptions poses an interesting question for the market: Rebuild the disrupted supply chain networks, or re-architect for resilience?



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The E-Commerce and Supply Chain Relationship

Supply chains may seem mundane, but they're the foundation of civilization. Transporting raw materials for manufacturing, and finished products to market, dates back to 3000 BC.

While Mesopotamian merchants didn't have the technologies we take for granted, they did share the same supply chain concerns businesses face today.

Brick-and-mortar stores still account for the majority of sales, but e-commerce is rapidly changing how consumers shop. It's also changing their expectations about how, and when, they buy. Consumers look globally when they shop online, not just the store down the street.

George Salis, Principal Economist and Tax Policy Advisor at [Vertex](#), described the current state of e-commerce: "When you talk about e-commerce, you're not only talking about a special brand that's coming from France, Spain or Italy. You're also talking about that domestic steak you order from Texas, or that coat you ordered from New Hampshire."

From a supply chain perspective, that presents interesting challenges. Instead of managing the logistics of getting products just to physical stores, now that also includes getting products directly to consumers.

“When you have digitalization at the level that we have in a digital economy, the kind of integration you need is no longer linear,” Salis added. “It’s now a digital network, and not just a linear supply chain from beginning to end.”

The popularity of smartphones and other mobile devices has helped drive and accelerate e-commerce growth, and the COVID-19 pandemic helped increase it even faster. Brick-and-mortar stores either turned to online sales or expanded their online presence to keep revenue flowing during pandemic lockdowns. In fact, e-commerce sales continued to increase even after lockdowns were lifted and stores reopened. According to data from a [Reuters and Blue Yonder](#) report, online sales increased more than 120% in 2021, showing that consumers are now much more comfortable shopping from their computers and smartphones.





Disrupting the E-Commerce and Supply Chain Cycle

Supply chain systems have grown more complex as trade moved from domestic to international to global. Once the internet enabled online sales, global supply chain systems faced even more demand. E-commerce drives a need to create more resilient supply chain systems, especially as markets are forced to deal with ongoing disruptions such as economic downturns, natural disasters, the pandemic, and the Russia-Ukraine war.

Since supply chains, e-commerce and the economy are intertwined, the effects of disruptions aren't limited to a single part of the system. Over the past few years, two financial downturns, followed by the pandemic, have shown how brittle supply chains can be—and how the problems caused by earlier events compound in later events.



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When the pandemic became an issue, shipping was scaled back, production facilities were shut down and in-person shopping wasn't an option. Cargo ships lined up waiting in ports for days or weeks to offload products, too, creating another supply chain bottleneck.

"We had to do away with personal economies, personal retail, shopping, production, distributions and deliveries," Salis said. "When so much was shut down, the economy fell like a waterfall. And when you disrupt supply chains, you destroy parts of those supply chains."

Businesses definitely felt the effect from pandemic-related supply chain shutdowns. A [study by Accenture](#) found that 94% of Fortune 1000 companies were affected by those disruptions, and 75% dealt with negative effects to their business. As elements in the supply chain broke down, the issues compounded throughout the system, ultimately leaving consumers with limited availability for the products they wanted to buy.



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Nature-related events affect supply chains, too.

The increasing number of wildfires and stronger hurricanes, for example, can block road and rail shipping routes, causing delivery delays – or completely preventing goods and materials from reaching their destination.

Man-made events break supply chains, too. Most recently, sanctions against Russia over the war in Ukraine have limited the goods and raw materials available to other countries. Oil exports from Russia have been cut back, too, causing some European manufacturing centers to face the prospect of no fuel to operate their factories, or petroleum for manufacturing.

For example, the world's largest chemical manufacturer, Germany-based BASF, is in a precarious position thanks to the potentially reduced availability of natural gas. The company uses natural gas as a raw material and fuel. If Germany suffers an extremely cold winter, the government will prioritize hospitals and homes over businesses, which would shift the reduced amount of natural gas away from the company. Without that, BASF may have to temporarily shut down its manufacturing, leaving other companies without the plastics, chemicals, and other materials it produces, significantly affecting supply chains and commerce.

Taxes, E-Commerce and Inflation

Supply chain disruptions lead to product scarcity, which increases demand and drives up prices. Those price increases help fuel inflation, affecting states' tax revenue. States aren't, however, necessarily facing a shortfall from lower sales numbers.

The short-term COVID-19-related economic effect on states so far has been relatively minimal. Recovery funds from the federal government, along with breaks from the federal bank, are keeping states relatively flush with cash. Some states are even working to scale back sales tax collection, and reduce tax bases, to help lower product prices for consumers.



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The longer-term implications of supply chain disruptions and e-commerce as those federal funds are spent has already been realized with a spike in inflation and a potential recession.

That, in turn, will trigger an expansion of the tax base. How that plays out, and the effect it has on taxes, can be guided by the states through the policy decisions of state budget and revenue directors. Through their analyses, states can forecast economic changes that can trigger changes in the tax base, inflation, and recession.

Ultimately, the goal for states is economic recovery and growth. “Whenever you go through any kind of economic recovery, you have a comparative analysis of the economic impacts of that crisis,” Salis said. “That leads to policy and economic retrenchment where prices, taxes, rates and production are curtailed, and also a plan for the measures to move on to a growth phase.”

For current and future economic crises, that should include plans for dealing with supply chain issues from a global perspective driven by consumers’ growing comfort with e-commerce. Since supply chains affect state tax prices and tax bases, along with e-commerce, there’s an increasing need to create a more resilient system for the flow of commerce nationally and internationally.

Building a Better Supply Chain

The complexity of global supply chains requires systems that are less prone to disruption from natural and man-made crises. Instead of reconstructing current systems after a disruption, supply chain networks should be re-architected to better adapt to crises. For that, focusing on the supply chain structure instead of disruption is key.

Re-architecting supply chain networks includes building resilience by removing single points of failure. If a part or product isn't available from China, for example, there should be an alternate source, say, in Canada or Mexico. Products ready for delivery to customers need to be available in multiple shipping warehouses, too. If one warehouse is cut off because of a flood or fire, for example, an alternate warehouse – or even the manufacturer – should be ready to handle the shipment instead.



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Salis summed up supply chain resilience: “People think of resilience as robust. For me, resilience is the elastic economic agent that’s responsible for the entire supply chain flow from beginning to end. From production and materials, all the way to delivery to the end consumer. In order to do that, we have to know that e-commerce is going to continue to grow. We need to have the kind of solutions and logistics that can prepare us for future crises without disruptions.”

As e-commerce continues to gain popularity, the strain on supply chain networks will continue. The effect of disruptions to that network affect local and global economies, as well as the tax bases states rely on. Eliminating failure points by creating resilient supply chains capable of withstanding stresses from economic downturns, climate and natural disasters, and political situations benefits everyone along the network, from raw materials suppliers to end consumers.



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