

Economic uncertainty abounds as effects of the coronavirus escalate

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The COVID-19 pandemic is changing our daily lives in unprecedented and unexpected ways. Beyond the fear of exposure to the novel

coronavirus, employers have to figure out how to keep their employees safe while staying in business. At the same time, the workforce is adjusting to doing its job off-site. Teachers have to develop plans to conduct their classes virtually, and students have to adjust to learning at home.

And provisions are in short supply. While most of us have experienced the scarcity of milk and bread during periods of inclement weather, today's shortages are on a much larger scale, and the recovery will be much longer, said Jeff Smith, Ph.D., professor and chair of the Department of Supply Chain Management and Analytics at Virginia Commonwealth University.

Here, Smith talks about what to expect—and to beware of—as supplies dwindle while demand escalates.

How is the pandemic disrupting manufacturing operations and supply chains?

In a nutshell, it is causing significant disruption from normal activities within the supply chain environment. Given the unexpected nature of such an outbreak, companies were not able to predict the scale, so they were behind from the start. In other words, it took a very small amount of time to exhaust current supply, and production levels could not be increased at a fast enough rate to meet needs. What this all means is that certain product availability will be less or prices for those products will increase—sometimes significantly.

Has there ever been a pandemic of this scale affecting global supply chains?

The difficult thing to really grasp is the total reach of a supply

chain—especially in today's connected world. From a historical perspective, you could look at the black plague, which halted all trade in Europe—which could be considered a proxy for a "global" supply chain. In that case, companies and countries refused to let ships dock for fear the plague would spread. If you look at the long-term impact, it altered society's trajectory toward advancement. Personally, I do not think the current situation will reach that scale, but it will have long-term ramifications in terms of availability and costs.

Which is affecting the system more: that consumers are buying up all of the disinfectants and antibacterial products or that the production of these items has been slowed or halted by the pandemic?

When you look at the potential behaviors, consumer actions will cause potential shortages, but the bigger issue will likely come from the aggregation that happens with industrial buyers. For example, if a powerful firm chooses to stockpile certain products, say a [face mask](#), then the total supply available will be less for other firms to purchase. This will likely result in even less available to the general consumer. These stockpiling behaviors will cause wider variation in the nature of product flow along the supply chain resulting in higher prices and stockouts. Of course, the manufacturer could choose to control the distribution, but it is likely looking to meet all the demand it faces.

From a manufacturing perspective, it can also have the spillover effect on other products. Here, a firm could shift production to try to meet the immediate demand, which means that firm would have to halt production of another product that uses similar base materials. Think back to the medical face mask and the company that makes the cloth for that. What if that fiber is also used in other important products, then production of the latter would be stopped so the former could be made. This is only one item, but when you look at the entirety of how materials cross over into multiple product categories, you can start to see the

impact on direct and indirect products.

Is there a danger of hospitals running out of crucial items? Are there any safeguards in place to prevent this?

Simply, yes! Hospitals and their suppliers are very good at understanding needs when instances like this happen, but with scale comes additional risks. When all this is coupled with the inability of manufacturers to produce and deliver, the likelihood increases. From a control standpoint, many hospitals and the associated suppliers will install special protocols to ensure the supplies are allotted correctly.

How long do you think manufacturing and supply chains will be affected? What will the ripple effects be?

This is tough to predict, as it will depend on how long and widespread the pandemic is. If it continues to spread rapidly, you will start to see complete isolations (think about Italy) and facility shutdowns since it will potentially not be safe to go to work. Even if the virus "runs its course" in a month, the recovery time would take several months to return to its normal equilibrium given the long time span that it takes raw materials to flow through the production and distribution network to finally be available as end products.

What else do we need to know?

I think the biggest piece is around opportunism. There are too many nonethical entities that see the potential for profit who are willing to bend the rules or even break the law. In this case, you will see several

products appear that claim to be able to kill the virus (when not everything can) or that are impervious to the virus (when many are not). These products appear for both the industrial and consumer markets so extra care needs to be taken to ensure the products do what they portend to do.

Along those same lines, thefts tend to rise as well. I have already heard of one medical entity that had boxes of surgical masks stolen from the storeroom, which will only increase as supply levels shrink.

Provided by Virginia Commonwealth University

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