COVID market disruptions were tougher on small firms spread up and down supply chain, study finds

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While diversification may be universally lauded for reducing risk in your retirement savings and improving your diet, not all diversification is equally advantageous for small businesses. According to a new study from the University of Wisconsin–Madison, small businesses need to diversify in the right direction to avoid risk and remain resilient during tough times.

UW–Madison economist Andrew Stevens and graduate student Jim Teal examined how the shock of the COVID-19 pandemic affected the fortunes of more than 200 small companies in the agricultural and food sectors. They wanted to know whether diversification made the businesses more resilient in the face of supply and labor disruptions.

"Going into this research, there were two competing hypotheses about diversification," says Stevens, a professor of agricultural and applied economics. "The easy one to wrap your head around is: 'Don't put all your eggs in one basket.' That is, if your business is doing more varied things, when the world falls apart, some of those things will keep working out. That's a pro-diversification story."

The other hypothesis is that diversification is dangerously inefficient. It stretches resources and drags down productivity, which can put firms in a more precarious position and make them less resilient to a big shock like a pandemic.

"Both of those stories make sense. And there is empirical evidence for both of those hypotheses," Stevens says. "What we find in our study is that both are true, but it differs by the dimension of diversification. Are you diversified vertically or horizontally?"

Vertical diversification is participating in many different links of the supply chain—for example, working in both production and retail by operating a farm that grows vegetables and a shop that sells vegetables directly to customers. Horizontal diversification means spreading efforts across a single link in the supply chain, such as stocking your store with food and fresh-cut flowers and a selection of wine.

Stevens and collaborators surveyed leaders of nearly 900 businesses—firms in agricultural production, food processing and manufacturing, grocery wholesaling, food and beverage retailing and restaurant dining—in California, Florida, Minnesota and Wisconsin during the spring of 2021 and sorted them by the extent and dimension of their diversification.

The differences in business approach and effects of the pandemic's market disruption were easiest to compare among 221 small companies with—on average—annual revenue just under $2 million and about eight employees.

"Those qualities are relevant to a large piece of the agrifood economy—over half of the economic activity in that space," says Stevens, whose work is supported by the U.S. Department of Agriculture. "The vast majority of businesses in the agriculture supply chain are of that size. Most farms are of that size."

According to the researchers' findings, published recently in the *American Journal of Agricultural Economics*, the vertically diversified firms who participated in the survey were roughly four times more likely to have closed during the first year of the pandemic than undiversified businesses. The horizontally diversified firms were only half as likely to have closed as undiversified companies and less likely to experience labor shortages. While there were large differences in resiliency, neither the horizontally nor vertically diversified businesses were less likely to have laid off employees during the pandemic.

The risk of vertical diversification may be that it doesn't actually spread metaphorical eggs across more than one basket. A vertically diversified business may still be reliant on one input and suffer at all levels if one part of the supply chain is disrupted.

"A vertically diverse firm may be taking a single product along several steps of the supply chain themselves," Stevens says. "If the market disruption affects that product in particular, that's concentrating risk. Just because you produce and distribute and sell that product doesn't mean you are necessarily in any other baskets."

Horizontal diversification, on the other hand, appears to be a broader foundation on which to build.

"One potential explanation is that specific knowledge and skills are more transferable within one part of the supply chain," Stevens says. "If a grocery store sells dry goods and meat and fish and floral and the supply chain is broken or the demand dries up for one of those, you can still reallocate your effort to selling the rest."

"I think we unlocked the puzzle about our two competing hypotheses. Diversification can be a risk management strategy, but not all diversification is created equal," Stevens says. "This should be helpful for these small and medium firms as they think about the pros and cons of how to organize themselves and which ways to grow."

The results could also help agencies like USDA and the Small Business Administration make the most efficient use of grants and loans to small firms.

More information: Andrew W. Stevens et al, Diversification and resilience of firms in the agrifood supply chain, *American Journal of Agricultural Economics* (2023). DOI: 10.1111/ajae.12398

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