

Research finds 'buying local' not all positive for dairy supply chain

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Researchers found that if the supply chains for fluid milk products in five northeast states were reconfigured so that the milk consumed in those states was also produced and processed there, it would increase the total distance traveled by the fluid milk and other dairy products, total supply chain costs, and emissions of greenhouse gases. Credit: Nate Bevans



Buying local might be appealing for individual local restaurants and businesses, but research conducted by Chuck Nicholson of the Penn State Smeal College of Business revealed surprising effects on supply chains for fluid milk products if there are large increases in local purchases in the Northeast.

Nicholson, a clinical associate professor of <u>supply chain</u> management at Smeal, collaborated with four Cornell University researchers: Miguel I. Gomez and Elaine Hill in the Dyson School of Applied Economics and Management, and Xi He and H.O. Gao from the School of Civil Environmental Engineering.

The researchers found that if the supply chains for fluid milk products in five northeast states were reconfigured so that the milk consumed in those states was also produced and processed there, it would increase the total distance traveled by the fluid milk and other <u>dairy products</u>, total supply chain costs, and emissions of greenhouse gases.

The study also concluded that the additional employment and economic activity generated in the region from the reconfiguration would be modest.

"When considered as a system based on a limited resource like farm milk that can be allocated to the manufacture of different dairy products, we find that localizing food systems can have unexpected impacts," Nicholson said. "The 'global' effects of scaled-up 'localization' can be counterintuitive."

The study found that supply chain reconfiguration to support within-state regional consumption of fluid milk in the Northeast would increase total distances traveled by dairy products by 7 to 15 percent, with similar magnitude impacts on emissions of greenhouse gases and particulate matter. Total supply chain costs would increase 1 to 2 percent for the



region.

Reconfiguration would generate about four new jobs in the Northeast region and about \$1 million per month in additional economic activity. However, the effects of localizing fluid milk in the Northeast were not limited to that region. The average distance traveled by other dairy products increased up to 150 miles in the southeastern U.S. as a result of changes in milk allocation due to reconfiguration required elsewhere in national supply chains.

"Our study does not indicate that local food is a bad idea, but it suggests that careful analysis of <u>food systems</u> may be required to achieve the desired economic, social, and environmental objectives.

The researchers' work was supported in part by a grant from the USDA National Institute of Food and Agriculture and is part of a larger research project called "Enhancing Food Security in the Northeast through Regional Food Systems." The EFSNE project engages more than 40 individuals at multiple universities, non-profits, and government agencies to examine whether greater reliance on regionally produced food could improve food access in low-income communities, while also benefiting farmers, food supply chain firms, and others in the food system.

The study was recently published in the journal *Environmental Science and Technology*.

Provided by Pennsylvania State University

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