Innovation linked to international exports for both rural and urban firms

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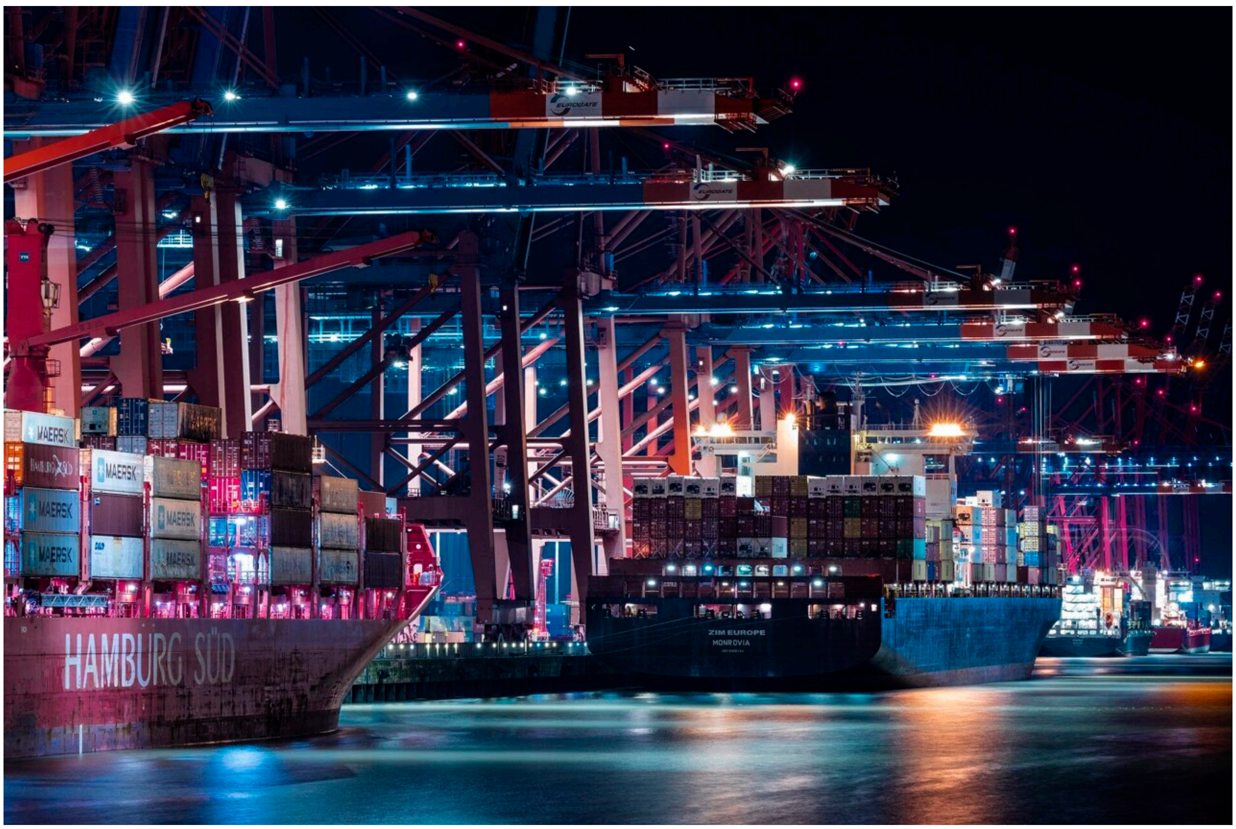

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A new study led by Penn State researchers finds that U.S. firms actively engaged in creating innovative products or processes are more likely to expand into international markets. The findings, which apply to both rural and urban companies, could inform efforts to boost U.S. exports.

The team—led by Luyi Han, a postdoctoral researcher at Penn State's College of Agricultural Sciences—examined the effect of several factors on a firm's decision to engage in international trade, including innovation activities, owner characteristics, and firm characteristics.

They found that firms, or for-profit commercial enterprises, that are more innovative are more likely to engage in exports, as are older and larger firms or those with multiple owners.

"Our previous work identified key factors that appear to foster innovation within firms. In this study, we wanted to know whether innovation, in turn, might also foster export behavior after controlling for other factors that contribute to export decisions," Han said. "Our study is the first to examine this question using firm-level data in the U.S., and it provides some much-needed context about the U.S. firms that are active in non-farm export markets."

The U.S. currently imports more than it exports, resulting in what is known as an international trade deficit. According to the researchers, the U.S. trade deficit has been a perennial concern for the U.S. economy, which has some policy makers calling for ways to increase exports of goods and services.

Han and his colleagues utilized two confidential data sets from the Penn State Census Research Data Center. The 2018 Annual Business Survey, administered jointly by the National Center for Science and Engineering Statistics and the U.S. Census Bureau, collects firm-level information on innovation activities, firm ownership details, and firm characteristics.

The Longitudinal Firm Trade Transactions Database contains import-export transaction records that can be linked to individual firms by unique firm identifiers. The researchers merged the two, identifying roughly 30,000 U.S. exporting firms, and then conducted statistical analyses aimed at how these firms differed from the 430,000 non-exporting firms in the dataset.

The study examined the effects of four types of innovation activity: new-to-market innovation, which results in new products not yet seen on the market; new-to-business innovation, which results in a new or significantly improved product that was already available from competitors in the market; process innovation, which results in new or significantly improved methods of manufacturing, logistics or distribution; and marketing innovation, which results in new packaging, product promotion strategies, sales channels or pricing methods.

They found that all types of innovation activity exerted a strong influence on the likelihood of exporting, with new-to-market product innovation having the strongest effect.

"It stands to reason that innovative companies are more likely to participate in export markets because being innovative typically puts companies at a competitive advantage," said co-author Timothy Wojan, an Oak Ridge Institute for Science and Education fellow at the National Center for Science and Engineering Statistics (NCSES) within the U.S. National Science Foundation.

"For example, innovators might produce a unique or higher quality product than what's already available, which would be more attractive to markets beyond the U.S., or they may develop economies of scale that allow them to increase production or lower costs, which would position them to expand their market more easily," Wojan said.

Firms with manufacturing operations were also more likely to engage in exports, which is not unexpected as manufactured goods are highly exportable, whereas products from health care, personal services, or real estate typically are not.

According to co-author Stephan Goetz, professor of agricultural economics and regional economics at Penn State and director of the Northeast Regional Center for Rural Development, the findings have implications for the economic health of rural areas.

"Being competitive in the global market is of national importance, but especially so for rural areas where manufacturing accounts for a much larger share of employment than in urban areas," Goetz said. "We found that the influence of innovation was just as strong among rural firms as among their urban counterparts, which suggests that fostering innovation may be one way to enhance export activity among rural firms."

Han emphasized that the study is exploratory in examining the association between innovation and exporting. The study does not establish causality—that promoting innovation will necessarily increase exports—but the strong association provides incentives to develop study designs that may more definitively establish that link.

The findings are published in the journal *Economics Letters*.

More information: Luyi Han et al, How export performance is mediated by innovation, owner characteristics, and location, *Economics Letters* (2024). DOI: 10.1016/j.econlet.2024.111657

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