

Well-off countries need trade to cut environmental woes

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A new study shows international trade can improve a developed nation's Sustainable Development Goals, but sometimes at the expense of less developed countries. This ship moves through the Panama Canal. Credit: Sue Nichols, Michigan State University

International trade wins and losses don't just show up in the stock market, but also on a nation's environmental sustainability scores, a new

study in *Nature Sustainability* shows.

In a first analysis of its kind, scientists at Michigan State University's Center for Systems Integration and Sustainability (CSIS) and in China examine how international [trade](#) affected seven of the 17 United Nations Sustainable Development Goals (SDGs) in countries trading both with other countries at a distance, as well as countries with which they shared borders.

Their study shows these environmental measures reflect a common problem between haves and have-nots. Trading internationally was generally good developed countries like the United States, Canada and most of Europe, but resulted in environmental losses for developing countries such as Russia and part of East Asia struggling to make gains in their SDGs scores.

It also showed not only was international trade an environmental plus for developed countries—it's an environmental savior. Using an innovative analysis, the researchers found the SDGs scores of developed countries would sink lower than those of developed countries after excluding the function of international trade in the current world.

"A nation's sustainability progress is not only dependent on deliberate actions within the nation, it also can become a victim of unintended, and often hard-to-see consequences," said Jianguo "Jack" Liu, MSU Rachel Carson Chair in Sustainability and CSIS director. "Clearly, everyone wants to make positive economic progress, but we can only make crucial environmental improvements by being very clear-eyed about how one action affects another, even if these actions take place over hundreds or thousands of miles. Sustainability is a complicated business."

The group assessed the impacts of international trade starting in 1995 on nine environment-related SDG target likely affected by trade and for

which there are clear quantitative metrics—goals that address sustainable water use, energy, economic growth, industrialization, forest management, and consumption and production; and combating climate change. They compared these impacts with a scenario of what each country would be like were there no international trade in today's world.

It's been known that trading goods and services can help save local resources that are essential for production but can also transfer production burdens to the countries that become exporters. For example, if the United States decides to buy wooden furniture from southeast Asia that saves forests in the States but can cause biodiversity loss and deforestation in southeast Asia.

But the extent of impact on environmental sustainability has not been fully revealed. At the national level, international trade improved the SDG scores of 70% of the evaluated developed countries but reduced the SDG scores of over 60% of the evaluated developing countries.

An example can be carbon emissions. International trade has displaced 16 Gt of carbon dioxide from developed to developing countries from 1990 to 2008, which largely stabilized the carbon emissions of developed countries but doubled the [carbon emissions](#) of developing countries, the paper notes.

Using the framework of metacoupling (human-nature interactions within as well as between adjacent and distant places), the researchers also found that distant trade offered more environmental benefit, partly because there was more trading to customers further away, and partly because close neighbors likely also shared the same constraints that spurred distant trade in the first place.

"Many critics of trade have raised the concerns that trade can generate negative spillover effects such as enlarging the social and environmental

inequality between developed and developing countries," said Yingjie Li, a Ph.D. student at MSU CSIS and a lead author. "But national policymakers may not be aware that international trade can play a big role in their efforts towards achieving the UN SDGs."

Findings in "Impacts of International Trade on Global Sustainable Development" offer an opportunity for policymakers to view international trade beyond financial balance sheets.

"This is the first study about how [international trade](#) affects SDG targets," said co-lead author Zhenci Xu, a former MSU-CSIS Ph.D. student and now research associate at University of Michigan. "As the countries connected with each other more in the globalization era, understanding how trade shapes progress toward national and global sustainable development can provide useful information for policy making aiming at achieving SDGs together."

More information: Impacts of international trade on global sustainable development, *Nature Sustainability* (2020). [DOI: 10.1038/s41893-020-0572-z](#)

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