

New study finds investing in nature improves equity, boosts economy

June 26 2023



Credit: Pixabay/CC0 Public Domain

A new study shows that current trends in environmental degradation will lead to large economic losses in the coming decades, hitting the poorest countries hardest. But there is hope: investing in nature can turn those losses into gains.

Researchers from the University of Minnesota and Purdue University

published their findings in *Proceedings of the National Academy of Sciences*. The team developed a first-of-its-kind, global earth-[economy](#) model to capture interactions between the economy and the environment. Crucially, these interactions include how nature benefits humans by pollinating crops, providing timber, storing carbon, and providing catch for marine fisheries, and how those benefits end up affecting the economy overall.

"We have long thought of the economy and the environment as working against each other," said Justin Johnson, an assistant professor of Applied Economics at the University of Minnesota. "Investing in nature does not stifle the economy, it boosts the economy. But it has been difficult to model those interactions until recently."

The researchers found:

- Policy options for investing in nature resulted in annual gains of \$100–350 billion (2014 USD), with the largest percentage increases in GDP occurring in low-income countries. The [policy options](#) examined in this study include removing agricultural subsidies, financing research into improving [crop yields](#) and international payments from wealthy countries to poorer countries to support conservation.
- Continued trends in [environmental degradation](#), on the other hand, would result in \$75 billion losses annually, with the low-income countries suffering from 0.2% losses in GDP year on year.

The researchers combined a global general equilibrium [economic model](#), GTAP (developed at Purdue University's Center for Global Trade Analysis), with a suite of ecosystem service models, InVEST (developed at Stanford University's Natural Capital Project). GTAP and InVEST are both widely used across the world by governments, non-governmental

organizations and the private sector, but putting them together was a significant undertaking.

"Traditional economic models of this kind almost completely neglect the fact that the economy relies on nature," said Tom Hertel, a distinguished professor of Agricultural Economics at Purdue University. "This new study required a detailed understanding of how and where land use patterns change as a result of economic activity, with enough spatial detail to understand environmental consequences of these changes. It is a huge achievement."

The results from this research highlight how [public goods](#) and services provided by the environment are often most important for the world's poorest, who have less access to alternative options when the environment is degraded. Consequently, investing in nature tends to make the world a more equitable place. This research only looks at a small subset of the ways in which the economy and the environment interact, nevertheless finding strikingly large effects.

"Of course nature provides much more than pollinators, timber, carbon and fish," said Johnson. "Our future work will incorporate many more [ecosystem services](#), leading to much more informed decision-making. This is just the beginning: we hope to make this kind of analysis a standard tool in a policy-maker's toolbox."

More information: Johnson, Justin Andrew et al, Investing in nature can improve equity and economic returns, *Proceedings of the National Academy of Sciences* (2023). [DOI: 10.1073/pnas.2220401120](https://doi.org/10.1073/pnas.2220401120)

Provided by University of Minnesota

Citation: New study finds investing in nature improves equity, boosts economy (2023, June 26)
retrieved 27 April 2024 from
<https://phys.org/news/2023-06-investing-nature-equity-boosts-economy.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.