

The Impact of Global Unequal exchange of Land on Food security and Biodiversity

Topic: Input-Output Analysis: Trade and Global Value Chains policies (6)

Author: Ruicheng Liang

Co-Authors: Chao Feng, Jun Yang, Klaus Hubacek, Prajal Pradhan, Ruoqi Li, Xinmin Zhang, Yuli Shan, Yuqi LIU

Abstract

Global trade enables high-income economies to appropriate land resources from lower-income economies, exerting pressure on local agricultural production and ecosystems, yet these impacts have rarely been quantified. Here, based on Eora database we use an environmentally extended multi-regional input–output (EEMRIO) model to trace four types of land embodied in international trade (that is, land used for the production of imports and exports) from 1990 to 2021 and evaluate the unequal impacts of embodied land exchange on food security and biodiversity across income groups. We find that although high-income countries account for only one-quarter of the global population, they consistently act as net appropriators of resources and consume more than 60% of land embodied in trade. In contrast, lower-income countries serve as major net exporters of embodied land. Retaining this land for domestic production could contribute to alleviating already fragile food-insecurity conditions in these countries. The net outflow of embodied land imposes disproportionately severe biodiversity losses on lower-income countries. To safeguard agricultural production and ecosystem integrity in lower-income countries, a more sustainable and equitable framework for global land governance is urgently needed.