

Global inequality under planetary boundary

Topic:

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Disproportionate income distribution between and within countries had led to severe consumption and consumption-based environmental footprints inequality. Unsustainable development has pushed resource demand and environmental impacts even over the planet's limits. Here we combined the input-output analysis and the detailed global expenditure data to reveal the environmental impacts and the inequality of different income groups from a consumption perspective, and the global and national sustainability by comparing each income group's impacts to six planetary boundaries. Results show that severe inequality coexists with serious environmental consequences from almost all the income groups' consumption, which had already exceeded most of the per capita planetary boundaries. Inequality and the over-boundary impacts of different income groups' carbon, nitrogen, and phosphorus footprints are more severe than other factors at the national and global levels, even for lower income groups. Meanwhile, higher and relatively more equal income countries show less environmental inequality but much greater over-limit impacts on the global environment, except for the United States. To achieve sustainable and equitable development, all income groups must make an immediate and significant shift toward sustainable consumption.