

Keeping consumption within planetary boundaries without hurting the poor

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The disparity in environmental impacts across different countries has been widely acknowledged. However, ascertaining the specific responsibility within the complex interactions of economies and consumption groups remains a challenging endeavor. Using a comprehensive expenditure database that includes up-to 201 consumption groups across 168 countries, we investigate the global distribution of six environmental footprint indicators and assess the impact of specific consumption expenditures on planetary boundary (PB) transgressions. We show that 31%-67% and 51%-91% of the PB breaching responsibility could be attributed to the global top 10% and 20% of consumers, respectively, from both developed and developing countries. By following the effective mitigation pathway, the global top 20% consumers could adopt the consumption levels and patterns which have the lowest environmental impacts within their quintile, yielding a reduction of 25%-53% in environmental pressure. In this scenario, actions focused solely on the food and services sectors would reduce environmental pressure enough to bring the land system change and biosphere integrity back within their respective PBs. Our study highlights the critical need to focus on high-expenditure consumers for effectively addressing PB transgressions.