The Institute of Development Economics

Research Papers

Titles: A novel assessment framework for colored-water footprint inequality in China
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Abstract:
This study establishes a novel model capable of diagnosing the inequality of China's colored-water footprint (CWF) allocation through a multi-dimensional perspective for the years 2012, 2015, and 2017. The results indicate the following: (1) The grey water footprint (WFgrey) exceeds both the blue water footprint (WFblue) and the green water footprint (WFgreen). Provinces with higher CWF values are primarily located in the central, eastern, and southern geographical regions of China. (2) Provinces with substantial CWF outflow are primarily those with high GDP or extensive agricultural production, such as Jiangsu, Guangdong, Shandong, Henan, Zhejiang, and Sichuan. The sectors contributing most to net CWF outflows are agriculture and industry. (3) Although the Gini coefficients for CWF and socio-economic factors all remain below the warning threshold of 0.4, the Imbalance indices deviate significantly from the absolute balance line in most provinces, except for the WFgreen-population. Additionally, the Gini coefficient of water stress index (WSI) (0.608 ~ 0.703) is substantially higher than that of CWF (0.000 ~ 0.327). (4) The CWF Primacy Index for all provinces is significantly below the ideal level, indicating a polycentric spatial structure for CWF distribution across China. These findings offer valuable scientific insights for informing equitable CWF distribution strategies.

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