Carbon Inequality of Chinese Households

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Author: Mo Li

Demand-side emissions reductions necessitates changes in individual lifestyles and consumption habits. However, high levels of inequality can hinder efforts to implement effective mitigation strategies. The impact of socioeconomic and sociodemographic inequalities on consumption patterns and, consequently, carbon emissions is particularly significant for the middle class in rapidly developing economies. Despite this, the relationship between household-level carbon emissions and inequality in China has not been thoroughly examined. This study employs an environmentally extended input-output model and consumer expenditure survey data (CFPS) to analyze how various social inequalitiesâ€”such as income level, urbanization, aging, and household sizeâ€”affect the carbon footprint (CF) of Chinese households.

The findings reveal that, in absolute terms, the carbon footprint of the top 20% income group (6.9 tons, accounting for 38% of the total) is 3.6 times higher than that of the bottom 20% (8% of the total). The disparity in per capita CF is even more pronounced than that in expenditure. Households with elderly members tend to have a smaller CF, particularly in smaller households. Additionally, the urban-rural divide in China further exacerbates disparities in household CF. The study also highlights how carbon inequality reinforces existing social inequalities, layering it on top of economic inequality. These findings underscore the importance of designing climate policies that address carbon inequality and promote equitable transitions in lifestyles and consumption patterns.