Multinational enterprises mitigate carbon inequality across Chinese cities

Topic: Input-Output Analysis: Trade and Global Value Chains policies (4)
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Reducing carbon inequality has become a central challenge under the carbon-neutrality agenda. However, the increasing role of multinational enterprises (MNEs) in shaping regional inequality remains unclear. In China, MNEs are typically characterized by more advanced technologies, cleaner production processes, and more sophisticated managerial practices. Besides, they often impose stricter green supply chain requirements on their suppliers, thereby enforcing upstream compliance. Moreover, the profile of MNEs in China is undergoing a profound structural transition. Foreign investment is increasingly gravitating toward service sectors such as wholesale and retail. The shift to service activities implies a decoupling of economic value creation from energy-intensive industrial processes. By absorbing a growing share of value added in low-carbon service sectors, MNEs serve as a pivotal mechanism for lowering regional emission intensities. However, whether MNEs in China help mitigate interregional carbon inequalityâ€”or instead transpose â€œpollution havenâ€• dynamics from the international sphere into the domestic spatial economyâ€”remains an open empirical question.
Using newly developed Inter-City Inputâ€“Output Tables that distinguish MNEs activities, this paper quantifies MNEs-induced carbon footprints and value added across Chinese cities, traces the interregional transfers they generate, and evaluates their effects on inter-city carbon inequality. Results show that MNEs induce substantial but spatially uneven emissions and economic gains. The counterfactual simulations indicate that MNEs significantly mitigate the escalating inter-city carbon inequality during 2002â€“2017. Structural decomposition analysis reveals that this equalizing effect is driven primarily by technology spillovers and cleaner supply-chain structures, whereas scale effects tend to exacerbate disparities. These findings deepen our understanding of how foreign investment shapes interregional carbon inequality and highlight the potential for strategically leveraging MNEs activity to promote greener and more regionally balanced development in large emerging economies.
This study makes four primary contributions. First, we uncover the mechanisms through which MNEs shape spatial carbon inequality. By integrating a structural decomposition analysis (SDA) into the inequality framework, we disentangle the opposing forces of scale effects and technique and structural effects. This provides novel theoretical insights into how foreign investment can serve as a â€œgreen coordinatorâ€• by overriding the adverse effects of scale expansion through technology spillovers and supply chain optimization. Second, we shift the analytical focus from the national to the city level and concentrate on inter-city carbon inequality, a dimension characterized by substantial heterogeneity and strong policy relevance. Third, we integrate economic output and carbon emissions within a unified analytical framework, enabling a systematic assessment of how MNEs shape regional carbon inequality amid Chinaâ€™s widening spatial disparities in emissions. Fourth, we identify pathways through which major emitters can mitigate interregional carbon inequality via multinational enterprise activity. Our findings also provide practical insights for developing countries seeking to leverage foreign investment for green structural transformation while balancing economic efficiency with environmental equity. Against the backdrop of widening North-South divides in environmental governance, these findings carry significant implications for advancing inequality reduction and supporting broader sustainable development objectives.