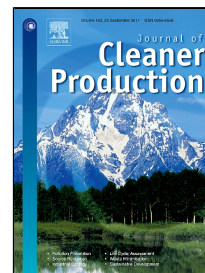


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CO₂ Emissions in Beijing: Sectoral Linkages and Demand Drivers

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Abstract: Cities contribute to most of the CO₂ emissions. And the economic system at city level is much complex due to various linked sectors. This paper aims to analyze the sectors and households to CO₂ emissions in Beijing (China) by utilizing a semi-closed input-output model integrated with a modified hypothetical extraction method. Results show that, compared with 2005, in 2012 (1) interprovincial export caused the largest amount of CO₂ emissions [135.5 Mt] with the main contributions arising from manufacturing (42.1 Mt); transportation, storage, and post (TSP in short, 29.1 Mt); and households (23.6 Mt); (2) across the intermediate input-output system, real estate activities accounted for the largest amount of embodied CO₂ intensity (0.07 kg per yuan) and more sectors outsourced CO₂; (3) tracing the integrated sector network, CO₂ linkages pointed to manufacturing and TSP dominating the internal linkages, manufacturing prominent in mixed linkages, secondary industry leading the net forward linkages, and tertiary industry dominant in terms of net backward linkages, helping control CO₂ according to its origin; (4) CO₂ emissions induced by household strikingly affected total CO₂ emissions in Beijing, mainly coming from income-oriented affects, with a large rural-urban disparity and a similar sectoral distribution pattern. Finally, we propose suggestions on carbon reduction in terms of technological interlinkages, final demand and household participation.

Keywords: CO₂ emissions; Semi-closed input-output model; Modified hypothetical extraction method; City; Beijing

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