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學術論文

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題目：Comparative analysis of CO<sub>2</sub> emission linkages of construction between China and the United States using structural path analysis

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論文摘要：

Structural Path Analysis (SPA) and the Hypothetical Extraction Method (HEM) are both established methods for studying CO<sub>2</sub> emissions. However, their combined application to investigate emission linkages in specific sectors, such as construction, is relatively novel. This research integrates SPA and HEM to explore the CO<sub>2</sub> emissions linkages within the construction sectors of China and the United States, providing a comprehensive understanding of how these emissions are interlinked. The findings show that construction sector of United States and China is the largest production-based CO<sub>2</sub> emissions of construction sector in the world, but the consumption-based emissions of construction sector in China contributes 29.81% of total CO<sub>2</sub> emissions, compared to 5.63% in the U.S. This suggests that the carbon footprint of the construction sector is a significant consideration, irrespective of whether it is assessed from the standpoint of production or consumption dynamics. Meanwhile, the development of construction sector has driven the electricity, gas, steam, and air conditioning supply sectors to emit a large amount of CO<sub>2</sub> emission in both countries. By analyzing the differences in the main emission linkages and pathways of the construction sectors between China and the U.S., this study provides insights for reducing CO<sub>2</sub> emissions in the construction sector and assists policymakers in developing future strategies.

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