The Institute of Development Economics

Research Papers

Titles: Comparative analysis of CO2 emission linkages of construction between China and the United States using structural path analysis

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Abstract:

Structural Path Analysis (SPA) and the Hypothetical Extraction Method (HEM) are both established methods for studying CO2 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 CO2 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 Untied States and China is the largest production-based CO2 emissions of construction sector in the world, but the consumption-based emissions of construction sector in China contributes 29.81% of total CO2 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 CO2 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 CO2 emissions in the construction sector and assists policymakers in developing future strategies.

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