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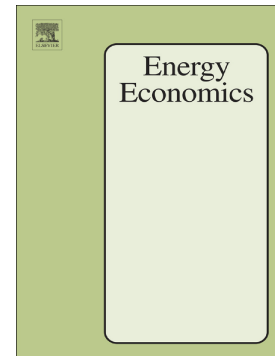
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Uncovering household indirect energy-saving responsibility from a sectoral perspective: An empirical analysis of Guangdong, China

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Abstract: Household indirect energy consumption (HIEC) is a major part of household energy consumption. It is critical to uncover energy-saving responsibilities associated with regional HIEC for China to respond climate change. In this study, we investigated the HIEC of Guangdong Province in 2012 from a sectoral perspective, using environmentally extended input-output analysis. Structural path analysis and sensitivity analysis were used to assess the key paths of the different production layers (PLs) for total, urban, and rural HIEC. Our results show that: (1) There are significant differences between urban and rural HIEC. (2) The "*Electricity and Steam Production and Supply*", "*Transport, Storage, Postal and Telecommunication Services*", and "*Residential Services*" sectors are the main drivers of both urban and rural HIEC. Furthermore, sectors with large hidden energy-saving responsibilities deserve more attentions. (3) Urban HIEC is more complicated than rural HIEC, and the first four PLs (PL⁰, PL¹, PL² and PL³), especially PL⁰, are the most important contributors to HIEC. (4) For PL⁰, only 11, 11 and 9 paths result in significant energy-saving for total, urban and rural HIEC, respectively. (5) Energy management for high-order PLs is sector-dependent and should consider the formation, length, and magnitude of the key paths.

Keywords: Environmentally extended input-output analysis; Household indirect energy consumption; Energy-saving responsibility; Structural path analysis; Guangdong Province

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