

## **China's virtual SO<sub>2</sub> emission transfer embodied in interprovincial trade: a multiregional input-output analysis**

Topic:

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Currently, China is deeply troubled by its severe domestic regional air pollution. The natural spread of atmospheric pollutants across administrative boundaries has received wide attention. However, attention should also be paid to the flows of pollutant emissions embodied in interregional trade given the closer interregional economic connections. Different from existing researches which based on the model of bilateral embodied emission in trade, this study analyzes the emissions embodied in interprovincial trade based on multiregional input-output model of 30 provinces in China to capture the complicated production linkages among provinces and track the direct and indirect embodied emissions in the entire production process of the final products. Empirical study is carried out on embodied SO<sub>2</sub> emissions in 2002 and 2007 in China. The preliminary results show that the embodied SO<sub>2</sub> emissions in interprovincial trade accounted for 27.58% of the total SO<sub>2</sub> emissions in China in 2002 and 35.25% in 2007, exhibiting an increasing trend over time. Inner Mongolia, Shanxi and Guizhou were the major embodied emission-exporting regions, and were mainly from the power, nonmetal mineral production, chemical and metal smelting sectors; and the emissions exported mainly ended up in rich regions including the Yangtze River Delta region, Beijing, Tianjin and Guangdong due to their consumptions in the sector of construction, food products and transport equipment. Furthermore, rich provinces had a pollution terms of trade less than one. Given that they were net importers in interprovincial trade, this trade pattern may result in pollution leakage which is unfavorable for the reduction of pollution emissions.