Chinaâ€™s emissions embodied in trade: How regional and firm size heterogeneity matter

Topic:
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The rapid growth of Chinaâ€™s foreign trade (international trade) and interregional trade (domestic trade) has increased the pressure on carbon emission reduction and the disparity among regions. It also makes an urgent request to coordinate regional trade development and carbon emission reduction. Small and medium-sized enterprises (SMEs) are the underlying executive bodies of domestic and international trade, and their distribution is significantly imbalanced across regions. However, existing studies ignored the heterogeneity among different firm size categories, which may distort trade embodied carbon emissions across regions. Given this, this study constructs a new interregional input-output model that captures both Chinaâ€™s regional heterogeneity and firm size heterogeneity (IRIO_LMS) for eight regions in the years 2007, 2012, and 2017. Based on the novel model, we develop a â€œmulti-levelâ€• method to analyze the characteristics and flows of trade embodied carbon emissions by firm size categories and regions. Therefore, the IRIO_LMS model gives more accurate accounting on the regional environmental loss due to foreign trade and interregional trade and thus is important for establishing effective emission mitigation policies.