

Inter-regional CO₂ Emissions Transfer in China's Domestic Value Chains

Topic: Tracing Carbon Emissions in Global Value Chains II

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This paper aims to trace regional CO₂ emissions in China's domestic value chains. To this end, we apply the newly proposed decomposition methodology by Meng, Peters and Wang (2014) to China's 2007 and 2010 multi-regional Input-Output tables. This methodology allows both value-added and emissions to be systematically traced at the region, sector, and bilateral levels by various value chain routes. The main findings show that 1) a region's CO₂ emission level highly relates to its degree of participation and position in domestic value chains. China's developed regions (the East Coast, South Coast and North Municipalities) are mainly located in the downstream of domestic value chains with less intra regional CO₂ emissions, but inducing massive emissions in their upstream regions which are mainly developing regions (the Northwest and Central); 2) developing regions enhanced their degree of participation in domestic value chains through providing more intermediate goods to developed regions. This in turn makes them become the net emissions "exporters" since their relatively high carbon intensity when producing intermediate goods; 3) although, the carbon intensity has been decreased for most Chinese developing regions between 2007 to 2010, the absolute level of territory emissions for fulfilling their own final demands (defined as self-responsibility based emissions) has increased rapidly due to their large economic size and high economic growth rate. All these facts clearly implies that the key for reducing China's total CO₂ emissions depends on if we can have better control on both the quickly increasing domestic emission outsourcing across regions and the self-responsibility based territory emissions for most developing regions during the process of the so-called industry upgrade and transformation pushed by both policy and non-policy (e.g. labor cost) related powers.