

Restructuring Regional Economic Structure to Reduce Greenhouse Gas Emissions using an Interregional Input-Output Mode

Topic: Environmental input-output modeling XI

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China promises to decrease carbon intensity by 40% -45% of its 2005 level by 2020. We use an Energy-Carbon-Economy Interregional Input-Output (ECEIRIO) table to examine industry adjustment to this goal. Our model makes each region interrelated to others on production and consumption, connected to energy used and embodied as carbon emissions, within the integrated China's economy. With the aim of maximizing national GDP, an input-output table yields an optimal industry structure and assigns industry emissions tasks across regions to meet a national carbon target. Our results suggest decreasing GDP share of energy industry (i.e. production of thermal power, heat, and gas by 1.1%) and heavy industries (i.e. Nonmetal Mineral Products by 2.3%) in the North Coast, allocating carbon emissions reduction by 6.4% and 37.2% in these industries, while increasing the GDP share of high-tech in the South Coast and selected services (i.e. Real estate finance and Others services by 1%) in most regions. A slower growing economy puts ever more pressure on carbon emissions reduction and requires more industry adjustments, especially in the Central. The energy mix improvement, such as developing renewable energy, can lessen the carbon reduction pressure of heavy (half in Nonmetal Mineral Products) and energy industry in the Central.