

Analyzing Carbonaceous Aerosol Emissions in Asia using Endogenous Structural Path Analysis

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Asian countries use a large quantity of fossil fuels in the production of goods and services, generating harmful substances that are a major cause of air pollution. The fine particulate matter (PM2.5) emitted by the production activities in China causes some serious environmental and health problems domestically and internationally through the transboundary air pollutants transport. Some previous studies have so far examined the driving forces of anthropogenic air pollutant emissions by sectors and regions, using environmentally extended input-output table (EEIOT) in the context of footprint exercises (Guan et al., 2014). As in Takahashi et al. (2014), however, residential emissions, usually treated as an exogenous sector, are much larger than industrial emissions in China, suggesting that household especially in rural areas is one of the largest emission sources of air pollutants in China. With this background, this study incorporates the household sector into intermediate input-output system as an endogenous sector using the China's inter-regional input-output database of 2007, and analyzes the environmentally-important paths with a focus of the residential PM2.5 emissions in 30 provinces of China originated from the flows of economic transactions, considering the provincial differences in income and consumption patterns and emission intensities. From the results, I found that the consumption activity in a major city of China, Beijing and Shanghai have contributed to significant air pollutants from residential sector in interior provinces through the income distribution in those provinces.