

Analysis of Global CO₂ Emissions: China's Impacts by Two Stage Least Squares and Threshold Model

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Abstract - As the “Going Out” strategy was rolled out after WTO accession, the vigorous booming of China's outward foreign direct investment (OFDI) and international trade have been reported to pose a significant global environmental issue. On that basis, the present study exploits the fixed effects-two stage least squares (FE-2SLS) to delve into China's impacts (e.g., its overseas investment and foreign trade) and economic and institutional distance with China on CO₂ emissions per capita of 146 countries & regions (2003 to 2016), which is achieved based on instrumental variables. Subsequently, the threshold regression model with fixed effects is adopted to capture how those China's overseas economic activities will impact global air pollution at various phases of economic or institutional distance by taking it as structural breaks or threshold regimes. Consequently, given sustainability and global emission reduction, first, assessed results of the FE-2SLS empirically support that China's overseas investment should proactively focus on high-value-added sectors, while the marginal amount in local polluting industries should be controlled. Moreover, China should continue to optimize the trade structure to make its imports more environmental-friendly. Second, as overall suggested from the tests of threshold effect and results of threshold regression with the geographic distribution of different threshold regimes, the Chinese government should enhance its government effectiveness and creditability of the legal system, as an attempt to enhance the political proximity with developed countries. Furthermore, Chinese multinationals are required to attempt to proactively develop more economic cooperation with developed markets in a high degree of administration and environmental standards; political claims in the mentioned process should be limited.

Keywords: CO₂ emissions per capita; China; Two Stage Least Squares; Threshold Model; Political Proximity