



The Institute of Development Economics

Research Papers

Titles: Correlation Effects, Driving Forces and Evolutionary Paths of Cross-Industry Transfer of Energy Consumption in China A New Analytical Framework

Abstract:

This paper constructs a modified hypothesis extraction method (MHEM)–structural decomposition analysis (SDA)–structural path decomposition (SPD) analytical framework and employs the 2018–2022 Chinese input–output tables to discuss sectoral consumption correlations, driving forces of consumption, and the transmission paths of carbon energy (CE), oil and gas energy (OGE) and electric energy (EE). The results of the study indicate that energy-exporting sectors are primarily energy production or conversion industries, while energy-importing sectors are mainly in the construction sector. China’s energy consumption has shown consistent year-on-year growth, with the primary driving force being the intensity of energy consumption and the secondary factor being per capita demand. The consumption of all three types of energy is primarily directed toward domestic consumption and capital formation. Regarding energy consumption transmission paths, the first-order path with the largest overall impact on CE is “electricity, gas, and water supply sector → domestic consumption” , while higher-order paths are primarily subpaths of “electricity, gas, and water supply sector → capital formation” . For OGE, the main supply and transfer path is “coke, refined petroleum, and nuclear fuel sector → domestic consumption” , along with its subpaths. In contrast, EE transmission is more balanced, with a high demand for electricity across all sectors.

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