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Decomposition of Fuel Based CO₂ Emissions for Turkey

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ABSTRACT

Decomposition analysis was first applied to energy consumption around 1980s and then extended to energy related CO₂ studies since the beginning of 1990s. In this study, CO₂ emissions of Turkish economy are decomposed at the industry and fuel level for the 1990–2011 period using Greenhouse Gas Inventory Reports of Turkey. Log Mean Divisia Index (LMDI) method is used to decompose the changes in the CO₂ emissions of five sectors: electricity production, manufacturing (specifically focusing on dirty industries namely iron and steel, nonferrous metals, chemicals and petroleum refineries) into five components; changes in activity, activity structure, sectoral energy intensity, sectoral energy mix and emission factors. This analysis enables us to distinguish the causes of the change in CO₂ emissions in the study period in which important structural changes occurred in the Turkish economy. We will be able to differentiate the change in CO₂ emissions due to change in fuel composition, sectoral economic activity, energy intensity.

KEYWORDS Decomposition analysis; CO₂ emissions; LMDI; Turkey

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