Decomposition of Fuel Based CO_2 Emissions for Turkey

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Abstract
Decomposition analysis was first applied to energy consumption around 1980s and then extended to energy related CO_2 studies since the beginning of 1990s. In this study, CO_2 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 CO_2 emissions of five sectors: electricity production, manufacturing (specifically focusing on dirty industries namely iron and steel, non-ferrous 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 occured in the Turkish economy. We will be able to differentiate the change in CO_2 emissions due to change in fuel composition, sectoral economic activity, energy intensity.

Keywords: Decomposition analysis, CO2 emissions, LMDI, Turkey
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