## Energy Related Carbon Dioxide Emissions in Pakistan: A Decomposition Analysis Using LMDI

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**Abstract :** The unprecedented increase in anthropogenic gases in recent decades has led to climatic changes worldwide. CO2 emissions are the most important factors responsible for greenhouse gases concentrations. This study decomposes the changes in overall CO2 emissions in Pakistan for the period 1990-2012 using Log Mean Divisia Index (LMDI). LMDI enables to decompose the changes in CO2 emissions into five factors namely; activity effect, structural effect, intensity effect, fuel-mix effect, and emissions factor effect. This paper confirms an upward trend of overall emissions level of the country during the period. The study finds that activity effect, structural effect and intensity effect are the three major factors responsible for the changes in overall CO2 emissions in Pakistan with activity effect as the largest contributor to overall changes in the emissions level. The structural effect is also adding to CO2 emissions, which indicates that the economic activity is shifting towards more energy-intensive sectors. However, intensity effect has negative sign representing energy efficiency gains, which indicate a good relationship between the economy and environment. The findings suggest that policy makers should encourage the diversification of the output level towards more energy efficient sub-sectors of the economy.

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