ELECTRICITY AND CARBON EMISSIONS: A CROSS STATE ANALYSIS

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Abstract

The urban population in India is expected to reach around 60% of the total population by 2050. The rapid levels of urbanisation taking place causes growth in electricity demand by different sectors of the economy as there is a change in the pattern of energy use not only within households but at a sectoral level as well. Large cities now account for more than 66% of global energy consumption and more than 70% of carbon emissions as a result of changes in energy use patterns brought on by the growing demand from metropolitan areas. With electricity being a significant generator of carbon emissions, because of the sector's dependence on coal, the relationship between urbanisation, electricity and carbon emissions becomes one of great consequence. The majority of literature examining this relationship uses the STIRPAT methodology and finds a significant connection between the three variables. This paper investigates the impact of urbanisation on the level of carbon emissions associated with electricity generation also accounting for the regional differences in electricity consumption and urbanisation in India. This is done by creating a panel dataset of all the states and union territories of India for a period of 2011-2023 which was then used for analysis. The STIRPAT method is utilised for analysis in this paper as well. The results of this study are in line with existing literature and they indicate that there is a positive nonlinear relationship between urbanisation and emission levels in India.

Keywords: *Urbanisation, Electricity Consumption, Carbon Emissions, STIRPAT*

JEL Codes : C13, Q40, Q56, R00, R11