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A Study on the Relationship between Economic Growth and CO₂ Emission: A Comparative Study on Selective Countries

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Abstract

The relationship between economic growth and CO₂ emission has been a widely researched topic in the global context. This paper intends to shed light on the relationship between economic growth and CO₂ emission in selected group of countries with special comparison between Sri Lanka and each country since it is the research gap identified by the researchers. The objective of this paper is to investigate the relationship between economic growth and CO₂ emission in Sri Lanka in comparison with the reference countries. Examining the impact of the size of urban/rural population, GDP growth rate and electric power consumption on CO₂ emission are specific objectives. The group of countries selected for this study are Sri Lanka, India, Norway, and the United States of America. This study uses secondary data for each country collected from the World Bank database for the period of 1994-2018. A period of 25 years with 20 cross sections draws 500 total observations. The Fixed Effect Panel Regression (FEPR) method is applied by using SPSS software as the analytical tool of the study. As expected, the p values of the study showed that there is a high impact of economic growth on CO₂ emission in Sri Lanka and USA. Further, the study found that the economic growth of India and Norway have less effect on CO₂ emission compared to Sri Lanka and USA. The study also found that the size of urban and rural population has a direct impact on CO₂ emission in selected countries while GDP growth rate and electric power consumption has no impact into CO₂ emission. The study concludes that the overall population of selected countries has significant impact on CO₂ emissions since the increase in both urban and rural population has led to higher CO₂ emission. Further, the research confirms the Environmental Kuznets Curve analysis since the results show that the countries with higher GDP growth rate and electric power consumption are contributing to lower CO₂ emission. Finally, the research suggests that the Sri Lankan policy makers to implement a suitable program to lower the environmental degradation within the country. Developing or importing appropriate and advanced technology can minimize the environmental impact on developing process.

Keywords: Economic growth, CO₂ emission, Urban/rural population, GDP growth rate, Electric power consumption