

## **Factors Affecting Carbon (CO<sub>2</sub>) Emissions in Selected South Asian Countries: A Panel Data Analysis**

W.M.T.J. Wanigasuriya\*

*Department of Economics and Statistics, Faculty of Arts, University of Peradeniya*

*\*Corresponding Author E-mail: tharangizzzz@gmail.com, TP: +94714586150*

Industrialization, increase in the population growth and trade liberalization is playing a critical role in environmental pollution. Greenhouse gas emission and carbon emission are outcome of those activities. The causal relationship between economic activities and carbon dioxide emissions has received global attention in recent decade. At present this issue has become a political and economic choice. Many researchers have addressed this issue in internationally. But in Sri Lankan context a limited attention was given to this issue. Therefore, the Aim of this article is to empirically analyse the factors affecting for carbon emission across selected South Asian countries namely, Sri Lanka, Bangladesh, Pakistan, India and Nepal which was selected using simple random sampling method. This article incorporated annual time series data stemming from 1960 to 2019 and employed panel unit root test, Pedroni test of co-integration, panel Fully Modified Ordinary Least Squares (FMOLS), and Ordinary Least Squares (DOLS) and panel Vector Error Correction Model (VECM) to explain the factors affecting for carbon emission. From the panel co-integration test result, found a long-term relationship between the carbon (CO<sub>2</sub>) emissions, GDP, trade openness and population. According to the FMOLS, it shows that all the three variables are significant to explain the carbon emission. Further, it shows that trade openness also leads for more carbon emission. Since that, the trade liberalizations should make efficient to reduce the carbon emission. Therefore, the findings suggest that carbon emission should be reduced by introducing low carbon technologies to gain a sustainable economic growth.

**Keywords:** Carbon Emission; Economic Growth; Trade Openness; Sustainable Development