The Relationship between Logistics Performance and Carbon Emissions Using Gaussian Mixture Regression

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Abstract. The Logistics Performance Index (LPI), which is published by the World Bank, is a great way for countries to compare and evaluate their performance in the global logistics. The performance of logistics is a key part of green supply chain management, which is a key part of protecting the environment. The purpose of this study is to investigate the association between LPI and CO2 emissions in 14 different countries and to develop an analytical framework for promoting logistics to improve the LPI score of certain countries. In order to construct the model, the research makes use of two different types of regression: linear and Gaussian Mixture Regression. The findings of the study provide insightful information into the nature of the relationship when compared across countries. The study's results also show that LPI can be used as a useful tool by policymakers to both improve logistics performance and lower a country's carbon emissions.

Keywords: Logistics Performance Index, CO2 emission, Gaussian Mixture Regression