

**IMPACT OF RAINFALL AND FUEL PRICE ON WHOLESALE PRICE OF  
UPCOUNTRY VEGETABLES**

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Econometric models and panel data analysis are commonly used methodologies for quantifying relationships among economic variables for predicting outcomes and informing policy decisions. The objective of this study was to develop a Vector Autoregression (VAR) model to statistically assess the impact of rainfall and fuel prices on the wholesale prices of three major upcountry vegetables in Nuwara Eliya. Monthly wholesale price data were obtained from the Hector Kobbekaduwa Agrarian Research and Training Institute (HARTI) for the years 2020 to 2024. Monthly rainfall data for Nuwara Eliya over the same period was collected from the Department of Meteorology, while fuel prices were sourced from the Ceylon Petroleum Corporation. Granger causality tests indicated that changes in wholesale prices were significantly influenced by rainfall variations. The absence of autocorrelation among the model variables suggested that the model effectively captured the temporal dependencies in the data. This indicated that the model was well-specified, providing a reliable foundation for accurate predictions. VAR model coefficients showed that fuel prices have a negligible impact on vegetable prices, with increases of 0.00014, 0.000023, and 0.000011 in rupees per kilogram for carrots, leeks, and cabbage, respectively. In contrast, rainfall has a significant negative impact on prices, -15.08819 for carrots, -13.072 for leeks, and -13.078 for cabbage. These results showed that fuel prices had a negligible impact on wholesale prices due to their low magnitude. This analysis provided insight into how variations in rainfall and fuel prices affected the price. However, the VAR model assumes linear relationships and constant coefficients, which may not fully capture the complexities of real-world economic dynamics.

**Keywords:** Dynamic model, Granger causality, Supply chain, Temporal dependency, Vector autoregressive model