

A Time Series Analysis to Forecast Monthly Producer Price Indices of Manufacturing Sector and Textile Manufacturing Subcategory of Sri Lanka

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The producer price index (PPI) is a group of indices that represents the average movement in selling prices from domestic production over time. PPI covers major sectors of a country's economy, and it is used as an objective tool for adjusting prices in long-term purchasing agreements. A selected number of bivariate analyses have been done with consumer price indices. The purpose of this study was to fit a suitable bivariate time series model to forecast the manufacturing PPI of Sri Lanka using the PPIs of the textile subcategory with the use of 81 observations from January 2014 to September 2020. The preliminary analysis identified a strong positive correlation of 0.9127 among the series. Further, ensuring stationarity with differencing (I(2)) and analyzing the cross-correlation plots of the prewhitened time series, a vector auto regression of order 8 model was fitted with lag selection based on minimum Akaike– information criterion (AIC). The model indicated significant coefficients with an R-squared value of 0.6837, claiming that almost 68% of the manufacturing PPI can be forecasted with past values of textile manufacturing PPI adhering to assumptions of residual diagnostics except for the normality. The results of the Granger causality test revealed one-sided causality among the two original series but the VAR (8) model failed to indicate causality among the two I(2) series. Further, the presence of cointegration confirmed with the Johansen cointegration test revealed long-run equilibrium. Hence a vector error correction model (VECM) was fitted which adhered to assumptions of model residuals including serial correlation, heteroscedasticity, and normality.

Keywords: *Cointegration, Producer Price Index, VAR model, VECM model*

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