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Modeling and forecasting inflation in Sri Lanka using VAR models

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Inflation is one of the key macroeconomic variables of the country's economy since maintaining economic and price stability is the core objective of the Central Bank of Sri Lanka (CBSL). It is essential to know about future inflation since there is a transmission lag of monetary policy actions. Quantitative inflation forecasting methods will give helpful information on future developments in the economy. Therefore, the development of accurate forecasting models that can be used to describe the dynamic movements of the economy is important in an inflation-targeted regime. Empirical studies have shown that low and stable inflation helps the growth of most economies. The main objective of this study is to model and forecast inflation in Sri Lanka using both the monthly Colombo Consumer Price Index (CCPI) and National Consumer Price Index (NCPI) from January 2009 to December 2020. This study examined the short-term and the long-term forecasts by using both univariate and multivariate models. A descriptive analysis and time series analysis were employed to model and forecast inflation in Sri Lanka. Historical data were obtained from CBSL and the Department of Census & Statistics (DCS). R-studio and E-Views statistical packages were used to develop the models. According to the time series analysis using CCPI, results revealed that there is a short run and long run significant relationship among CCPI, Money Supply (MS), and Gross Domestic Product (GDP). Similarly, forecasting inflation using NCPI, results show that there is a short run and long run significant relationship among NCPI, MS, GDP and Rice Price (RICEP). In this analysis, two models were obtained for CCPI and NCPI. According to the finding of the study, VAR (3) which gives the lowest Root Mean Square Error (RMSE), is the best model to forecast short run as well as long run inflation for Sri Lanka. All roots have modulus less than one and lie inside the unit circle. Therefore, the estimated VAR (3) is stationary. Moreover, the residuals are normally distributed. By incorporation of NCPI to forecast inflation, the accuracy of the results has been further increased in the NCPI than in the CCPI.

Keywords: CCPI, Inflation, NCPI, Time Series Analysis, VAR model