

## STATISTICAL MODELING FOR WHOLESALE PRICE INDEX IN SRI LANKA

**R.M.S.P. Ratnayake**

Postgraduate Institute of Science, University of Peradeniya, Peradeniya, Sri Lanka

High volatility and unpredictable fluctuations of inflation in Sri Lanka are resulting in unstable social cost. Therefore, it is fairly important to model inflation measures. Unfortunately most of popular inflation measures such as Colombo Consumer Price Index (CCPI) and Colombo District Consumer Price Index (CDCPI) are just a result of a few selected samples. Therefore, they do not address practical inflation issues. Although Wholesale Price Index (WPI) is a more realistic inflation measure, it is given a very low attention. WPI shall be calculated based on real market prices. Therefore the major objective of this study is to model and analyse WPI. Descriptive analysis, Correlation analysis, Principal Component analysis, Factor analysis, Time series analysis and GARCH modelling have been used for this study.

Monthly WPI data from 2003 to 2013 were collected from Central Bank Annual Reports. Initially explanatory analysis was carried out to understand the nature of the WPI. Based on the boxplots, it was noted that during last 10 years the mean value of WPI was scattered around 300. Correlation analysis revealed that WPI has a high positive and direct correlation with domestic and consumer items at 5% significant level. The Time series analysis showed an increasing trend in WPI and other variables. Multiple ARMA models were also evaluated against AIC and BIC. Principal Component Analysis was used to identify the most important variable to model WPI. Factor analysis results indicated appropriate grouping model WPI. Finally the GARCH model was used to model the variance of a time series.

The aforesaid results are used to identify practical approaches to make the inflation more stable. Therefore country can benefit as it reduces interest rate risk, improving the transparency of the pricing and reduce distortionary impact on economic behaviour of tax.