ANALYZING INFLATION RATE AND ECONOMIC GROWTH RATE OF SRI LANKA: TIME SERIES APPROACH

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Declaration

I hereby certify that this dissertation entitled "Analyzing Inflation Rate and Economic Growth Rate of Sri Lanka: Time Series Approach" is entirely my own work. It has not been accepted for any degree or diploma in any university and to the best of my knowledge and belief or it is not being submitted for any other degree.

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Abstract

Inflation rate (INR) and Economic growth rate (EGR) are two main economic indicators for any country. These measurements are mainly represents the economic condition of the country, living condition of the people and total production of the country by agriculture, industry and service sectors. As a developing country, these indicators are most important to evaluate the current achievement of development and controlling the economy. In particular forecasting INR and EGR is immense useful for decision makers in policy implementation. Thus yearly data on INR and EGR during 1952-2006 of Sri Lanka is analyzed to forecast those values and to find the association between these two series. Result found that ARIMA (1,1,1) was the best fitted model for INR series. It was found that the errors of fitted model are white noise. The percentage error for the observed data (1952-2006) varies 0 to 17%. The model predicted the INR during 2007 and 2008 as 12.58 and 13.26, and the corresponding percentage errors are 10.1% and 16.6% respectively. ARIMA (1,1,0) was identified as the best fitted model for EGR series. It was found that the errors of fitted model are also white noise and the percentage error for the observed series (1952-2006) varies 0 to 23%. The predicted values for the EGR for 2007 and 2008 are 7.25 and 7.37, and the percentage errors are 6.58% and 22.8% respectively.

There was a significant correlation coefficient between INR and EGR ($r = 0.447$ $p = 0.001$). The Granger Casualty test confirmed that the INR Granger causes with EGR. The order of the VAR model was decided by the minimum value criteria of sequential modified LR test statistic, Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SIC) and Hannan-Quinn information criterion (HQ). The best fitted VAR model identified is: $INR_t = 0.526868*INR_{(t-1)} + 0.557582*EGR_{(t-1)} + 1.454656$ ($R^2 = 0.46$, $p < 0.05$). It was not able to improve the model. Further more errors were found as random. The percentage errors of predicted values of INR for 2007

and 2008 using univariate ARIMA model much lower than that of from the VAR model.

Therefore it is recommended to use the above ARIMA model to forecast INR values for planning purposes. As this study was limited only for the two variables, it is suggested that the investigation to be carried out to improve the models by using other external variables such as exchange rate and borrow sum. Another drawback of this study is that both best fitted models got the positive percentage errors confirming that the fitted models always tend to over forecast. Therefore, it is also recommended to explore the possibility of improving such models as well.

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