FORECASTING HOMEWORK 5

A) For the log of the Unemployment series, use the ACF, PACF and AIC_C to identify an ARIMA model (perhaps including a constant term).

B) Estimate the parameters. Are they all statistically significant? Do you think that a constant should be included in the model?

C) Write the complete form of the fitted model. (For example, $x_t = .3x_{t-1} + .2x_{t-2} + \varepsilon_t + .4\varepsilon_{t-1} - 2.351$).

D) Examine the Ljung-Box statistics for lack of fit. Does the model seem to be adequate? The model is declared to be inadequate if "Chi-Square" in the Minitab output exceeds the 95'th percentile of a chi-square distribution with DF degrees of freedom, that is, if the corresponding p-value is less than .05.

E) Plot the residuals from the fitted model, as well as the ACF and PACF of the residuals. Do these plots indicate any inadequacies in the model?

F) Obtain forecasts and 95% forecast intervals for lead times 1 to 30.

G) Plot the data, forecasts and forecast intervals on a single plot.

H) Do the forecasts seem reasonable? Do the forecast intervals seem excessively wide?