Homework 2

Eco 5316 Time Series Econometrics
Spring 2016
Due: Tuesday, February 9, 11.59pm

Please see the following instructions how to submit your homework.

Problem 1

Consider the quarterly Real Personal Consumption Expenditures, FRED/PCECC96. Construct the time series with log changes in Real Personal Consumption Expenditures $y_t = \Delta \log c_t = \log c_t - \log c_{t-1}$ where c_t is the original quarterly Real Personal Consumption Expenditures. Build an AR model for y_t and check it for adquacy. Afterwards build an MA model for y_t and check it for adequacy.

Problem 2

Consider the weekly price for Brent Crude Oil, FRED/WCOILBRENTEU. Follow the Box-Jenkins methodology to build a time series model for log-change in the price:
- examine the plot of the original data and for the log-change in the price
- plot the ACF and the PACF for the log-change in the price
- diagnose residuals for estimated model(s), if there are several competing specifications use AIC, BIC, Q statistics to compare their properties

Problem 3

Consider the monthly time series for Housing Starts (New Privately Owned Housing Units), FRED/HOUSTNSA. Note that the data is not seasonally adjusted. Follow the Box-Jenkins methodology to build a time series model based on the data until the end of 2013. After you check the model for adequacy use it to produce and plot a forecast until the end of 2016. If there are several competing specifications for the model compare their forecasting accuracy.