Homework 3

Eco 5316 Time Series Econometrics
Spring 2016
Due: Tuesday, February 23, 11.59pm

Please see the following instructions how to submit your homework.

Problem 1

Choose one time series from each of the following categories:

category A:
- Industrial Production: Total index FRED/IPB50001SQ
- Real personal consumption expenditures per capita FRED/A794RX0Q048SBEA
- Real Gross Private Domestic Investment FRED/GPDIC1

category B:
- Dow Jones Industrial Average YAHOO/INDEX_DJI
- Shanghai Composite Index YAHOO/INDEX_SSEC
- NYSE Composite Index YAHOO/INDEX_NYA

category C:
- 10-Year Treasury Constant Maturity Rate, FRED/DGS10
- 3-Month Treasury Bills Secondary Market Rate, FRED/TB3MS
- Yield on BAA Corporate Bonds, FED/RIMLPBAAR_N_M

For each of the three time series you choose determine whether to transform it using logartihm, plot the original and transformed time series, plot first differences of either orignal or log-transformed time series. Peform ADF and KPSS tests on time series. For difference stationary series also perfom these tests for diffferenced series.

Problem 2

Consider the monthly time series for Civilian Unemployment Rate, FRED/UNRATE. Test it for nonstationarity using ADF and KPPS tests. Follow the Box-Jenkins methodology to build a time series model based on the data until the end of 2014. After you check the model for adequacy use it to produce and plot a forecast until the end of 2016.

Problem 3

Consider the monthly time series for Consumer Price Index for All Urban Consumers: All Items Less Food and Energy, FRED/CPILFENS. Use it to construct the time series for 12 month inflation rate. Test this inflation rate for nonstationarity using ADF and KPPS tests. Follow the Box-Jenkins methodology to build a time series model based on the data until the end of 2014. Check the model for adequacy and use it to produce and plot a forecast until the end of 2016.