Problem Sheet 3: Cointegration and Error Correction

Exercise 1

Use the data on Y = long term interest rates and X = short term interest rates in INTERESTRATES.XLS.

a) Use Dickey-Fuller tests to verify that Y and X have unit roots.
b) Run a regression of Y on X and save the errors.
c) Carry out a unit root test on the residuals using an AR(1) model.
d) Carry out a unit root test on the residuals using an AR(2) model.
e) Carry out a unit root test on the residuals using an AR(3) model.
f) What can you conclude about the presence of cointegration between Y and X?

Exercise 2

Use the data from Exercise 1. Assume (perhaps incorrectly) that Y and X are cointegrated.

a) Estimate an error correction model. Begin with a model containing a deterministic trend and p=q=4 and then carry out statistical tests to find an appropriate ECM.
b) Discuss your results. Pay particular attention to your estimate of λ and discuss what it tells you about the speed of adjustment to equilibrium.