EXERCISE 4

Part 1

Get the data file named CONS95.CSV save open Excel and read in then save as an Excel file.
The data consist of:
CE: Consumers Expenditure in current prices
RCE: Consumers Expenditure in 1995 prices
RDE: Expenditure on Durables in 1995 prices
PDI: Personal Disposable Income in current prices
RPDI: Real Personal Disposable Income in 1995 prices
C: A variable with the value one for each observation

Create the following variables
LC=log(RCE-RDE)
GC=LC-LC(-1)
LY=log(RPDI)
GY=LY-LY(-1)
LP=log(CE/RCE)
GP=LP-LP(-1)
Z=LC-LY
What do these series measure?

Graph LC LY over time and against each other
Estimate the correlation coefficients between LC LY GC GY
Run a regression with RCE as the dependent variable and C and RPDI as the independent variables, **using only the data for 1950 to 1980.** Note and interpret the regression results.

Part 2

Run the following regressions using OLS, on the **sample 1950 1980**, the first variable is the dependent variable, the rest the independent ones. In each case interpret and comment on the main features of the regression results, diagnostic tests A to D, the plot of actual and predicted values and the plot of the residuals.

1. LC C LY

Test whether the coefficient of LY is significantly different from zero and then from one, at the 5% level.

2. GC C GY

After estimating the equation conduct a variable addition test to see whether LC(-1) and LY(-1) are jointly significant using the F statistic and individually significant using the t statistics

3. GC C GY GP

Repeat as for 2 and comment on the significance of the lagged values.

4. LC C LY LY(-1) LC(-1)

5. GC C GY LY(-1) LC(-1)

Compare the results for 4 and 5 in terms of coefficients, standard errors, log-likelihoods, and the sum of squared residuals. What is the relationship between them.

6. GC C GY LY LY(-1) LC(-1)

Explain what happens when LY is added to 5

7. GC C GY LY(-1) GP LP(-1) LC(-1)

Calculate the long run elasticities of consumption with respect to the price level and income. What does economic theory predict about the coefficient of LP(-1). Test this prediction.

8. GC C GY GP Z(-1)

Test 8 against 7. Is this a well specified equation. Explain the economic interpretation of 8. What is the long run elasticity of consumption with respect to prices and incomes in this model.

9. GC C

Interpret this model and carry out a variable addition test for the significance of LY(-1) and GY(-1). Interpret the result.

Reestimate equation 1 assuming AR(1) disturbances, test this against 3, using a likelihood ratio test.

What problems arise in testing 4 against 8?
Which of the models you have estimated are restricted versions of 7?
What are the restrictions in each case?

Construct a tree showing the relationship between this family of models and the test statistics.