Econ 327 – Spring 2010
Introduction to Econometrics
Dr. R. Pete Parcells
Assignment Four
Due Tuesday April 20, 2010

Go to the Econ class folder. Under Econ327s10 in the subfolder "assignmentfour" is an Eviews databank file with all the data for the first part of this assignment. The name of the databank is "cars." The second part of this assignment will use the databank "cable."

There are also text files named "cars.txt" and "cable.txt" which have a description of the data for this assignment.

The assignment is as follows:

Both serial correlation and heteroskedasticity will be tested for, corrected for (if necessary), and an explanation of the problem and solution will be discussed.

The data consist of a quarterly time series from 1959:01 to 2002:03 for the following variables:

spendcar = spending on cars in the USA
cpi = consumer price index
dpi = disposable personal income
date = the date of the observation

The basic model is that spending on automobiles ought to depend of the general level of price, and personal income

$$spendcar_t = \beta_0 + \beta_1 cpi_t + \beta_2 dpi_t + \mu_t$$

1) Use Eviews to estimate the model. Interpret the results. Do they make any economic sense?

2) Interpret the Durbin Watson statistic for the model. Also, plot the residuals against time and the fitted values and the actual values against time. How well does the model fit the data? The theory?

3) Correct for autocorrelation (if it appears to exist). What order is your correction? Interpret your results. Do they make any more economic sense? Did the correction for autocorrelation solve the autocorrelation problem?

Use the Breusch-Godfrey LM test to test for 4th order serial correlation (as might exist for quarterly data) in the original model. Comment on your findings. If you find higher order autocorrelation, correct for it. Plot the residuals against time and comment.

The data consist of a cross sectional observations (40) for the following variables:

subp = % of homes passed by the cable system that have subscribed to the service
relp = the price of a cable subscription relative to income (price/per capita income)
age = age of systems

The basic model is that % of homes subscribed depend on the price of a subscription and the age of the system.

$$subp_i = \beta_0 + \beta_1 relp_i + \beta_2 age + \mu_i$$

4) Use Eviews to estimate the model. Interpret the results. Do they make any economic sense?

5) Use the eyeball test for heteroscedasticity. Plot the residuals against the fitted values. Does there appear to be heteroskedasticity in the model?

6) Test for heteroscedasticity using the Park, Goldfeld-Quandt, Breusch-Pagan, and the White test. Report your results.

7) Re-estimate the model using FGLS (feasible generalized least squares). Make sure you describe the steps in the process. Report your results and comment on the differences between the OLS estimates and the FGLS estimates. Did the correction for the problem give you "better" results?