Lesson 2

Estimating Regressions

2.1: Introduction

In this section we shall learn how to estimate different regression models.

You will require the following techniques:

- Creating intercepts
- Creating new variables based on logarithmic transformation of existing variables
- Creating lagged variables

2.2: Ordinary Least Squares

Open the file wine.fit and save it to the folder that you use. This problem is from Maddala, page 357 (Table 9.2) that you have created.

The data first has to be transformed into logs.

Using the process editor create the new values. You can create all the values together by typing:

```
lq=log(qt);
lpw=log(pw); …
ls=log(st)
```

and clicking on the Go button.

Create the intercept term (naming it: int) and save the file.

Now click on the Univariate Menu. Choose OLS.

The screen gives the Estimation window where you have to type the model and run the regression command. Note that at top left the period of regression is given. The variable list is also stated alongside.

The command to run regression is stated in the Window itself. In our case it will be:

Lq int lpw lpb la ly.

Click on Go. The Results Window will come up where you can see the regression results. Compare them with the results given in Maddala (pp. 358) – they should tally exactly. Note the different statistics given in the window. Try to interpret them and understand their use.

Click on close. You will get another screen giving alternative options. For the moment choose option 4: Saving/Fitting/Listing Predicted/Actual values. You can save residuals or fitted values, plot them or list them. You can try these as an exercise.

Then click on cancel, repeat this until the estimation window reappears. Note that at the top white bar the Estimation process is stated. This was the OLS. Now let us try another estimation technique.

2.3: Instrument Variable Method

Click on Univariate/Generalised IV Method. The estimation Window wil again pop up, but now the Estimation process is different.

We want to estimate the earlier model – but using ls as the instrument for the endogenous variable lpw. The earlier model should have remained on your scren. If not, retype:

Lq int lpw lpb la ly.

Click on Go. Another screen will emerge prompting you for the instruments. You will find that on the screen the following instruments are listed:

int lpw lpb la ly

In our case, ls is the instrument for lpw. So delete lpw and type ls in its place. The screen should read:

int ls lpb la ly.

Click on Go to get the Estimation results of the IV Model.

Note that the instruments are stated as: ls lpb la ly, but the regression coefficients are for lpw lpb la ly. Look at the other test statistic and compare with results. Again they should tally with the results stated in Maddala (pp. 358).

Finally, estimate the other IV Models with alternate instruments for Lpw and comapre the results with that given in Maddala (pp. 358).