

# Exercise Sheet 3

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1. Read the following set of data into EViews:

<i>Date</i>	<i>Food</i>	<i>Income</i>
1959	99.7	479.7
1960	100.9	489.7
1961	102.5	503.8
1962	103.5	524.9
1963	104.6	542.3
1964	108.8	580.8
1965	113.7	616.3
1966	116.6	646.8
1967	118.6	673.5
1968	123.4	701.3
1969	125.9	722.5
1970	129.4	751.6
1971	130.0	779.2
1972	132.4	810.3
1973	129.4	865.3

where *Food* is real US expenditure on food and *Income* is real US disposable income.

- (a) Estimate the regression

$$Food_t = \alpha + \beta Income_t + u_t$$

and give an interpretation of the estimated regression coefficients. Are the coefficients significant?

- (b) Form the variables  $LF = \log(Food)$  and  $LY = \log(Income)$  and estimate the regression

$$LF_t = \gamma + \delta LY_t + u_t$$

and give an interpretation of the estimated coefficients. Are the coefficients significant?

- (c) Can you identify a major problem with the specifications of the regression functions in (a) and (b)? How might you improve the specification? Further data is available in Appendix B (Tables B1 and B2) of ‘Introduction to Econometrics’ by C. Dougherty. (The data is also available in the EViews file DATAB12.WF1).

2. Read in the file EJCON.WF1. This file includes annual observations for the UK on

*RC* real total consumers’ expenditure  
*PC* nominal total consumers’ expenditure  
*Y* real disposable income

- (a) Form the variables  $LC = \log(RC)$  and  $LY = \log(Y)$  and also form a variable that is a measure of inflation - *INF*. Form *INF* as the first difference of the logarithm of the consumers’ expenditure deflator and check by graphing that this is almost equivalent to a measure of inflation formed by dividing the change in the price level by the previous period’s price level.
- (b) Form an intercept and estimate the model

$$LC_t = \beta_1 + \beta_2 LY_t + \beta_3 INF_t + u_t$$

- (i) From your estimated model obtain an estimate of the income elasticity. Also obtain a 95% confidence interval estimate for the income elasticity.
- (ii) Carry out a test of the hypothesis

$$H_0 : \beta_2 = 1$$

against

$$H_1 : \beta_2 < 1.$$

Can you give an interpretation of  $H_0$ ?