

STATISTICS FOR ECONOMISTS

Class Exercise 6

These questions are about simple linear regression. See Barrow ch 7 for more.

1. The data below shows consumption of margarine (in ounces per person per week) and its real price, in pence per 8 ounce pack, for the UK.

Year	Consumption	Price
1970	2.86	125.6
1971	3.15	132.9
1972	3.52	126
1973	3.03	119.6
1974	2.60	138.8
1975	2.60	141.0
1976	3.06	122.3
1977	3.48	132.7
1978	3.54	126.7
1979	3.63	115.7
1980	3.83	104.2
1981	4.11	95.5
1982	4.33	88.1
1983	4.08	88.9
1984	4.08	97.3
1985	3.76	100
1986	4.10	86.7
1987	3.98	79.8
1988	3.78	79.9

- a) Estimate the regression line and calculate the R^2 . Think carefully which variable is X and which is Y. Do the calculation by hand – you'll have to know how to do this by hand for the exam!
- b) Interpret the values of the intercept and slope.
- c) How does the value you obtain for the R^2 compare to the correlation coefficient you found in exercise 5 q1 using this data?
- d) Using the formulae in Barrow calculate the standard errors of the slope coefficients and test the hypothesis that it is not different from zero. Is demand inelastic?
- e) Test the overall significance of the model and comment on your results.
- f) Paste the data into Excel and check your results.
- g) Predict price at a consumption level of 4 ounces per person per week.
- h) Predict margarine consumption per person per week given a price of 70p per 8 oz pack.