

STATISTICS FOR ECONOMISTS

Class Exercise 5 Solutions

These questions are about correlation. 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) Draw an XY plot, by hand, of the data and comment.
- b) From the chart, would you expect there to be a positive or negative correlation coefficient? Does it match what you would expect in theory?
- c) Calculate the correlation coefficient between consumption and price.
- d) Test the hypothesis that the result is not significantly different from zero. What conclusions do you draw?
2. What would you expect the correlation coefficient to be between the following pairs of variables?
- a) nominal consumption and nominal income
- b) GDP and the imports/GDP ratio
- c) Investment and the interest rate
- d) individual's alcohol and cigarette consumption
3. Using the data in question 1 on margarine, calculate Spearman's rank correlation coefficient. How does it compare with the ordinary correlation coefficient you calculated in Q1? Test the statistical significance of the Spearman rank correlation.