

Exercise Sheet 1

Econometrics B203

1. A company in Taiwan needs to decide on a pricing policy for its memory chips. It enjoys a strong market position and consequently faces a downward sloping demand curve (rather than being able to sell as much as it wants at a fixed price, as a competitive firm would). For an optimal pricing policy it needs to know the demand curve it is facing. The firm decided to carry out some experimentation with the price: Over eight months it charged different prices and observed the amount it would sell each time. The table below shows the results it obtained

Experiment	Price			Quantity Sold
1.	10			23.39
2.	20			20.32
3.	8			24.74
4.	22			22.2
5.	28			14.81
6.	30			12.63
7.	33			13.03
8.	38			12.17

- a. Plot the data on a Scatter diagram.
 - b. Using your own judgement (no Maths) fit a straight line through the observations. Calculate the slope and intercept of the line you drew. Verify that the slope is negative.
 - c. If the straight line is supposed to be the underlying demand curve how do you interpret the discrepancies between the line and the actual observations?
2. Repeat the exercise above using STATA.
 3. Compute the correlation coefficient between price and quantity.
 4. Profit maximisation implies that a monopolist will always price so that the price elasticity of demand is -1 or less (i.e. -1.1 , -1.5 , -2 etc.). Using the line that you drew can you find the range of prices that would satisfy this?
 5. An extra bit for those who would like to remind themselves of the logic behind Question 4: Take profits to be $\Pi = pQ - cQ$. Suppose the demand curve is $Q = a + bp$ where $b < 0$. Substitute out Q from the profit function and find the price that maximises profits. With some manipulation you will get that the elasticity has to be less than -1 for the result to make sense.