Economics 380: Homework 2

23 February, 2004

1. Consider Hotelling's model of product differentiation. Two firms first choose their product locations and then simultaneously set their prices. How would the locations compare to the product positioning where one firm has two products and chooses the locations to maximise joint profits?

2. Empirical evidence suggests that, during the 1970s, a firm with an IBM 1400 was as likely to purchase a new IBM as a firm who did not previously own an IBM. In contrast, a firm with an IBM 360 was more likely to purchase an IBM as a firm who did not previously own an IBM. Software from the IBM 1400 could not run on succeeding generations of IBMs, while software from the IBM 360 could run on succeeding generations. How do you interpret these results.

3. First time subscribers to The Economist pay a lower rate than repeat subscribers. What kind of price discrimination is this? Why would this be desirable? Will this work?

First time subscribers to Premiere pay a higher rate than repeat subscribers. Why would this be desirable? Will this work?

4. A monopolist has a costs $c(q) = cq + F$ and a demand curve $p(q) = 1 - q$. What is the optimal quantity sold?

5. Cement in Belgium is sold at a uniform delivered price throughout the country (including transport costs). Is this an example of price discrimination?

6. Coca–Cola announced that it is developing a "smart" vending machine that can change the price depending on the temperature outside. Half the time, temperature is high and demand is $p(q) = 6 - q$. Half the time, temperature is low and demand is $p(q) = 4 - q$. The cost of a can of coke is $c \leq 2$.

(a) Suppose Coca–Cola uses the old vending machines, that can only charge a single price. What should this price be? What are their profits?
(b) Suppose Coca–Cola uses the "smart" vending machines. What should prices should they charge? What are their profits?
(c) How much should Coca–Cola be willing to pay for the "smart" vending machines?

7. India recently introduced a new welfare policy. In order to receive benefits equal to one days pay for a manual labourer, one has to turn up to one's local unemployment office and do nothing for the entire day. Why is this a better policy than giving benefits to those who request them? How does it relate to second–degree price discrimination?

8. You have just built a 1000 room hotel. In the summer the hotel is full; in the winter there is at most demand for 500 rooms. Your manager suggests you should divide the price of building the hotel equally between all customers, whether they come in summer or winter, since they all occupy one bedroom. Is he correct?