

Economics 380: Suggested Solutions 2

23 February, 2004

1. In the Hotelling model there are 2 effects of moving towards the middle. Firstly, you steal business from your opponent (the “direct effect”). Secondly, price competition becomes more intense (the “strategic effect”). See Cabral for more discussion. If transportation costs are quadratic e.g. cd^2 , then one can show the firms will choose maximal differentiation (see Tirole). Next, suppose there is one firm with two products. The socially optimal positioning is $(1/4, 3/4)$, which maximises the coverage of the line. A firm with two products will similarly place its products in these positions since it creates the most social surplus. They can then set the price in order to extract as much of the social surplus as possible.
2. This evidence suggests that people develop skills specific to a certain type of software that induces switching costs.
3. This is third degree price discrimination. The Economist’s strategy is desirable if they think repeat customers have more inelastic demand. But it is unlikely to work: a repeat customer can always pretend to be a new customer. Premiere’s strategy is desirable if they think repeat customers have more elastic demand. It is also good if you want to encourage loyalty, or if you would like to soften price discrimination (see Brandenburger and Nalebuff). Since a new customer cannot pretend they are a repeat customer, this kind of discrimination can work.
4. If they produce they should sell $q = (1 - c)/2$ yielding profits $(1 - c)^2/4$. If $F > (1 - c)^2/4$ they should produce nothing.
5. Yes. The markup if you live a long way from the factory is lower than the markup close to the factory. Presumably it would be seen as unfair to charge higher prices to those living a long way from the factory. However, a uniform markup seems to be economically more sensible since it would also soften price competition with competitors.
6. (a) assuming they serve both markets, profit is $(p - c)(6 - p) + (p - c)(4 - p)$. Maximising yields price $p = (5 + c)/2$. Substituting, profit becomes $1/2(5 - c)^2$. One can verify that if $c \leq 2$ then the firm is better off serving both the high and low markets. This will not be true if c is high enough.
(b) When the temperature is low they should charge $p = (4 + c)/2$ yielding profit $1/4(4 - c)^2$. When the price is high they should charge $p = (6 + c)/2$ yielding profit $1/4(6 - c)^2$.
(c) Comparing profits, the gain from investment is $1/2$.

7. This policy works because one has to waste a day in order to get benefits. Therefore people who are working do not falsely claim benefits. This is the same principle of self-selection as in second-degree price discrimination.

8. Your manager is wrong: you should fire her immediately. In terms of capacity, the marginal cost of the 500th customer in the winter is zero. To see this, suppose there were no winter customers. Since the 1000th room was built purely on the back of summer demand, the management would again choose to build 1000 rooms. Thus the introduction of winter customers has no affect on the capacity choice, and their marginal cost, in terms of extra capacity, is zero. Hence winter customers should not be asked to pay for the cost of the hotel rooms. For more, see the slides from week 6.