

Practice problem set 14

Non-price competition

This problem set constitutes recommended material for the relevant lab. The choice of tasks to be presented instructionally in every lab is in the discretion of the individual teacher. Students are expected to work on practice problems, however, are not required to submit written solutions. It is non-negotiable policy in this course to not provide hand-outs with the solutions of practice problem sets.

1. Customers are uniformly distributed with density S on a line of length one. Each consumer buys one unit of a brand product. In addition to the money price, consumers incur linear transport costs: cost t per unit of distance travelled. There are two firms, one located at the left-hand end of the line, and the other at the right-hand end. Unit production costs are zero.
 - (a) Compute the equilibrium.
 - (b) Suppose that a third firm decided to enter in at the middle of the line. Its unit costs are also zero, but it has to pay a fixed entry cost F . Under what conditions would entry occur? Comment.

UoL: 2002 za #5 / 2009 za #5a

2. Let two pubs, A and B, sell the same beer at zero marginal cost in Smalltown. Smalltown consists of a single straight road of length 1, the Avenue, on which the pubs must locate. There is a continuum of consumers living in the Avenue and each consumer wishes to buy one pint of beer. Consumers have a reservation value v . A consumer located at x , who buys the beer at a pub located at y , has to pay additionally to the price of the beer a travel cost $t = (x - y)^2$. Suppose that the price of beer is fixed by the government at p^* per pint, where $p^* < v$.
 - (a) Derive and illustrate where the two pubs would choose to locate. Explain their choice.
 - (b) How would your answer change if there were three pubs in Smalltown?
 - (c) Briefly discuss how and why your answer to i. would change if the two pubs were allowed to set the price of beer.

UoL: 2008 za #5a

3. 'Firms which produce identical products choose to locate next to each other'. Discuss this statement, with reference to the literature on horizontal product differentiation.

UoL: 2008 zb #4a

4. Two ice-cream vendors are looking for the best location at a beach. The beach is a straight line 100 meters long. Sun-bathers are uniformly distributed along the beach. The ice-cream of the two vendors is homogeneous and their prices are equal. Therefore, the customers will prefer to buy from the closest vendor. Find the NE location(s) for the two vendors in this game.

Module 1 Test – 2014

5. Consider a linear preference domain of consumers with length 1 and density 1. Each consumer can consume up to one unit of the good. When buying the good, each consumer has to incur the price of the good plus a linear cost $t \cdot x$, where $t > 0$ and x is the distance between his location and the location of the good on the preference domain. There are two firms that can provide a good differentiated in such a way that it can be located anywhere on the domain.
 - (a) Find the equilibrium positions of the two firms on the domain.
 - (b) According to your answer in (a), what is the view of the two firms on the profitability of differentiation and why?
 - (c) Under what circumstances the two firms can deter a potential entrant?

End of 2nd Module Examination – 2013

6. Near campus there are 3 flower shops scattered across Shabolovka street. The first is at Shabolovka 30, right outside the metro station, and it is the most expensive one. The second is at Shabolovka 20, located at a basement, in one of the back alleys of Shabolovka, not easily visible from the street. This one has substantially cheaper prices. The third one is at Shabolovka 10, inside a shopping center and its prices are medium in comparison to the other two. Explain what modifications are necessary to the linear location model to explain the pricing decisions of the three competitors.

End-module 3 test – March 2016

7. A linear city of length 1 and uniform density is served by vendors who sell the same product at a fixed price and will select their permanent positions simultaneously.
- (a) Explain what will be the NE positions if there are 2 vendors.
 - (b) Explain what will be the NE positions if there are 3 vendors.

End-semester 1 exam – December 2015

8. In a small town in Greece there are two souvlaki restaurants: i and j . The restaurants are located next to each other in the central square of the town. It is a fact that souvlaki has to obey the following identity: $t \equiv 1 - h$, where $t \in [0,1]$ is increasing as the souvlaki becomes tastier and $h \in [0,1]$ is increasing as the souvlaki becomes healthier. In that town consumer preferences are uniformly distributed on the line $t = 1 - h$, such that every point on that line contains a single consumer. Restaurants will choose t_i and t_j to maximize their profits, while consumers derive a cost (disutility expressed in monetary terms) from not being offered the souvlaki with the exact combination of t and h they desire. That cost is given by $\min \{(y - t_i)^2, (y - t_j)^2\}$, where y is the position of each consumer on the preference line. Assume that prices are fixed to p for both restaurants and production costs are zero.
- (a) Derive the demand for each restaurant.
 - (b) Derive the optimal t_i and t_j that maximize the profit function of each restaurant.
 - (c) In just one sentence explain the intuition of your result.
 - (d) Explain if the optimal combination of t_i and t_j you derived is a NE.

End-semester 1 exam – December 2014