ECO 650: Final Exam 2020 (2 hours)

December, 16, 2020

1 Entry and Switching costs (14 pts)

Consumers of mass 1 are uniformly distributed over a segment $[0, 1]$. We consider a two-period model (no discount factor).

- In $t = 1$, only an incumbent firm I is located in 0. We assume that a share $0 < K1 \leq 1$ of consumers buy from I in $t = 1$.
- In $t = 2$, an entrant E may enter at a fix cost F and locate in 1. A consumer located in x incurs $-x$ as a desutility to purchase at I and $-(1 - x)$ to purchase at E. Prices set by I and E are respectively denoted p_I and p_E. Among the two periods, consumers redraw their type and a consumer who purchased from I in $t = 1$ has to incur an additional switching cost z in $t = 2$ to purchase from E.

Assume E has entered.

1. Determine the demand in $t = 2$ of consumers who did not purchase from I in $t = 1$. (1 pt)

2. Determine the demand in $t = 2$ of consumers who purchased from I in $t = 1$. (1 pt)

3. Assume that $\hat{x} < 1$ (small switching costs), determine the total demand and profit for firm I and E and the corresponding Nash equilibrium in prices and profits in $t = 2$. (3 pts)

4. Assume that $\hat{x} > 1$ (large switching costs), determine the total demand and profit for firm I and E and the corresponding Nash equilibrium in prices and profits in $t = 2$. (3 pts)

5. We now solve the game in $t = 1$. Assume that a non strategic firm I, i.e. an incumbent who does not anticipate the entry of E in $t = 2$ would set $K1 = \frac{1}{2}$, say, in $t = 1$. How should a strategic I who anticipates the potential entry of E should modify its investment $K1$?

   (a) When switching costs are small ($\hat{x} < 1$). (3 pts)

   - To deter E's entry?
   - To accomodate $E's$ entry?
   - What is the name of this strategy in the Fudenberg-Tirole taxonomy? Explain.

   (b) When switching costs are large ($\hat{x} > 1$). (3 pts)

   - To deter E's entry?
   - To accomodate $E's$ entry?
   - What is the name of this strategy in the Fudenberg-Tirole taxonomy? Explain.

2 Bundling (8 pts)

Two consumers A and B have the following valuations for Sport tickets:

Consumers	5 Basket	5 Tennis
Type A	90	50
Type B	70	40

On an annual basis, SPORT 24 offer annual supscription for basketball and Tennis games. Each game costs 5 euros to the Company. Sport 24 cannot discriminate among consumers. To simplify, consider that there is 1 consumer of each type (A and B).

Questions:

1. Determine the best pricing strategy for SPORT 24 if it offers an annual card fee per sport type? (2 pts)

2. Determine the optimal price for SPORT 24 if it offers only a Gold card membership (Full access to all games- pure bundling)? (2 pts)

3. Consumers now have the following valuations:

Consumers	5 Basket	5 Tennis
Type A	90	50
Type B	40	70

   Answer to the same questions (1) and (2). (2 pts)

4. In which case bundling is the most profitable? Explain. (2 pts)