

Année universitaire 2017-2018

Session 1 - Semestre 6

Licence 3 mention Économie

ÉPREUVE : TOPICS IN MODERN ECONOMICS

Date de l'épreuve : **Lundi 30 Avril 2018**

Durée de l'épreuve : 1h30

Liste des documents autorisés : aucun

Liste des matériels autorisés : calculatrice, dictionnaire

Nombre de pages : 3

Questions on a (fake) merger case (7 points)

You should be precise and concise.

We consider the merger between two competing online platforms that connect real estate agents to consumers interested to rent or buy an apartment or a house: *to-rent.com* and *logic-estate.com*. This market is composed by three important players: the two merging firms and their main competitor *good-corner.com*. The three platforms have the same pricing strategy: they charge real estate agencies a price per ad while they do not charge anything to consumers.

- 1) Using your knowledge of the theory of two-sided markets, how do you explain the pricing strategy of the platforms?
- 2) Is it a horizontal or vertical merger?
- 3) Define synergies (in general). Would you expect synergies from the merger? Justify briefly.

An empirical study estimated the following cross-price elasticities of ad posting between the three competitors:

Table 1: Cross-price elasticities across platforms.

	good-corner	to-rent	logic-estate
good-corner	-6.2	0.01	0.02
to-rent	<u>0.14</u>	-2	1.68
logic-estate	0.13	0.89	-3.1

Reading notes: The figure underlined is interpreted as follows “when *good-corner*’s price increases by 1%, the number of ads in *to-rent* increases by 0.14%”.

- 4) Abstracting from synergies and from the consumers side, do you think the competition authority should allow the merger? Justify.

Problem 1: Collusion (8 points)

We consider a market of a homogenous good with n firms. The marginal cost is identical for all firms and equal to 0. The demand for the product is:

$$D(p) = 1 - p$$

- 1) What is the equilibrium price and total quantity produced if the firms form a cartel? What is the individual profit of each firm assuming they share equally the cartel profit?

We now look at tacit collusion in a repeated game setting. We assume firms compete for an infinite number of periods. Each firm maximizes the discounted sum of future profits:

$$\sum_{t=0}^{+\infty} \delta^t \Pi_t$$

where $0 < \delta < 1$ is the discount factor. We consider that once a firm deviates, firms compete for all the subsequent periods as punishment.

We denote by Π^c the profit of collusion, Π^d the profit of deviation and Π^p the profit of punishment.

2) Show that the collusion is sustainable when

$$\delta \geq \frac{\Pi^d - \Pi^c}{\Pi^d - \Pi^p}.$$

We first assume that under punishment, firms compete à la Bertrand (i.e. in prices).

3) What are Π^d , Π^c and Π^p in this setting? Determine the condition on δ for collusion to be sustainable. How does the number of firms affect sustainability?

We now consider Cournot competition (i.e. in quantities).

4) Under collusion what is the quantity produced by each firm?

5) What is the deviation profit? *Hint: here you need to compute the optimal strategy of the firm that deviates when the other $n - 1$ firms produce the cartel quantities.*

We obtain that, under Cournot, collusion is sustainable when

$$\delta \geq \frac{1}{1 + \frac{4n}{(n+1)^2}}.$$

6) Is collusion easier to sustain under Cournot or Bertrand? Explain. *Hint: $\sqrt{3}/3 \simeq 0.57$.*

Problem 2: To build or not to build a pool (5 points)

We consider the decision to build a pool individually or by group.

The utility of each individual is:

$$\begin{cases} u(x, 0) = x & \text{without a pool} \\ u(x, n) = \frac{4x}{n} & \text{if the pool is shared by } n \text{ members} \end{cases}$$

Where x is the consumption of private good. Each individual is endowed with a wealth $k = 8$.

The cost of the pool is 6 and we assume that if it is built, the cost is equally shared across individuals, so that each individual pays

$$c_n = \frac{6}{n}.$$

1) Show that the utility of having a pool with n members is:

$$U(k - c_n, n) = \frac{4}{n} \left(k - \frac{6}{n} \right).$$

2) Under which condition an individual prefers a pool shared by n members over no pool?

3) Under which condition an individual prefer a private pool over a pool shared by n others?

4) What is the size of the pool at the equilibrium. Explain.