

MASTER 1

**MARKETS AND ORGANIZATIONS**

(durée 1h30)

Lundi 7 janvier 2013 ~ 9h00 -10h30

P. SEABRIGHT

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Answer at least two questions (some extra credit will be given for answering more than two questions, but it is better to answer two questions fully than to give incomplete answers to three or more).

**Question 1 :**

Within five years, three-dimensional printing technology is expected to make it possible for any owner of a printer to produce sophisticated handguns at low cost using designs downloaded from the internet. However, ammunition for these guns cannot be produced by such methods since it requires explosive materials. What would you expect to be the impact of this printing technology on a) the market for handguns, b) the market for ammunition, c) the level of violence in society and b) overall social welfare?

**Question 2 :**

Two firms are in a duopoly position on a market. Each is trying to choose between setting a high or a low price for its product. Prices are set simultaneously once per year and cannot be changed until the following year. If both set low prices they will each make annual profits of €200m, while if they both set high prices they will each make annual profits of €400m. If one of them, however, sets a low price while the other sets a high price, the firm with the low price will capture a large market share and make €600m. The profit for the firm with the lower market share in this case would be €100m if it is firm 1 and zero if it is firm 2. The two firms have discount factors of  $\gamma_1$  and  $\gamma_2$ , which are not necessarily the same. The firm

a) Calculate the lowest values of which would enable the outcome in which both firms set a high price to be sustained as a sub-game perfect equilibrium of an infinitely repeated game by the threat that if either firm sets a low price, its rival will set low prices for ever, starting in the following year.

b) Would your answers be different if, each year, firm 1 first set its price and then firm 2 could observe this price before deciding which price of its own to set?

c) Suppose that each firm has a subjective probability equal to  $p$  that its rival will set a high price in the current year, and  $(1-p)$  that it will set a low price. Calculate, as a function of  $p$ , the values of  $\gamma_1$  and  $\gamma_2$  at which the two firms will be just indifferent between setting a high price and setting a low price,

assuming that, if both firms set a high price this year, they will do so for ever in the future.

d) Why do you think the two firms might have different discount factors?

In what respects do religious and charitable organizations behave like firms, and in what important respects are they different?

**Question 3 :**

The only two bidders in a first-price sealed-bid art auction have private valuations of a painting drawn from a uniform distribution between zero and €100,000.

- a) Define a Nash equilibrium.
- b) Show that for each to bid one half of his/her true value is a Nash equilibrium in this auction.
- c) What is a common values auction and how does it differ from a private values auction?
- d) Does the “winner’s curse” imply that participants in a common value auction expect to make losses on average?
- e) Does a political prediction market behave more like a private or a common values auction?

**Question 4 :**

Many people believe that trade in certain kinds of goods or services should be forbidden even between consenting adults. Others believe that such trade should be permitted but morally discouraged. For any ONE of the following types of goods and services, please explain why trade between consenting adults should be permitted, or permitted but morally discouraged, or forbidden. Please try to give full consideration to the arguments for an opposing point of view and explain why you think these arguments are mistake.

The types of goods and services concerned are

- a) Hard drugs such as heroin or cocaine ;
- b) Body organs such as kidneys for transplantation ;
- c) Sexual services ;
- d) Agreements to vote for a particular candidate in an election.

**Question 5 :**

Define precisely a « two-sided market », giving one example of a two-sided market and one example of a market that is not two-sided. Is it fair to say that competition is less important for social welfare in a two-sided market than in a standard market ?