

ECON 4820 Strategic Competition Spring 2008

Seminar set 4 – 13 March 2008

Question 1

- (a) Explain the concepts English auction and sealed-bid second-price auction. Explain why, under a certain set of conditions, the two auctions give the seller the same profit.
- (b) Consider a sealed-bid first-price auction with n bidders. With valuations independently and uniformly distributed on $[v_l, v_h]$, the optimum bid for a risk neutral bidder with valuation v is:

$$b(v) = \frac{v(n-1) + v_l}{n}$$

- (i) Use the general formula (Lecture 9, slide 9) to verify this result.
- (ii) Check that $b(v) < v$ for all $v > v_l$. Explain why it is optimum for a bidder to shade his bid in this way.
- (iii) A risk averse bidder would bid higher than a risk neutral one. Why is that?

Question 2 (modifications of an exam question in 2004)

Until 2004, the stated objective of Norwegian competition law was to ensure economic efficiency. In the 2004 law, a paragraph was added that emphasises the interest of consumers. The change of objective may have implications for how the competition authorities treat market developments, such as mergers.

Consider the following market model. Demand is linear and given by $p = 1 - Q$, where p is market price and Q is total supply. There are two firms, 1 and 2. Output q_i of firm i is produced at constant unit costs, denoted c_i , $i = 1, 2$. For simplicity, let:

$$c_1 = 0 \quad \text{and} \quad c_2 = c < \frac{1}{3}.$$

- (a) Assume first that the two firms compete in a Cournot fashion. Derive the following equilibrium values for profits, market price and consumer surplus:

$$\pi_1^D = \frac{1}{9}[1+c]^2, \quad \pi_2^D = \frac{1}{9}[1-2c]^2, \quad p^D = \frac{1}{3}[1+c], \quad CS^D = \frac{1}{18}[2-c]^2.$$

The sum of producer and consumer surplus becomes (you do not need to show this):

$$W^D = \pi_1^D + \pi_2^D + CS^D = \frac{1}{18}[8 - 8c + 11c^2]$$

- (b) Assume next that the two firms operate as a single entity. Derive the following equilibrium values for profits, market price and consumer surplus:

$$\pi_{1+2}^M = \frac{1}{4}, \quad p^M = \frac{1}{2}, \quad CS^M = \frac{1}{8}$$

The sum of producer and consumer surplus becomes

$$W^M = \pi_{1+2}^M + CS^M = \frac{3}{8}$$

(c) Compare the two outcomes above and discuss the merit of a merger between the two firms (hint: $W^M < W^D$ if $c < \frac{5}{22}$ and *vice versa*). Does the conclusion depend on to what extent consumer interests are taken into account?

(d) Discuss how the above conclusions might be affected by different assumptions regarding (i) economies of scale, (ii) number of firms, (iii) entry (or exit) following a merger, and (iv) capacity constraints. Does a consumer-welfare standard always lead to a more restrictive policy towards mergers than a standard based on total welfare?