

Competition Policy: Exercise II

HEC Lausanne

Academic Year 2017-2018, Semester 2

Question 1

Consider n identical firms which produce a perfectly homogenous good at constant marginal cost c . The market demand is given by $p = a - Q$, where Q is the total output produced in the industry. The strategic variable of the firms is output

- (a) Find the equilibrium output and profits at a pre-merger situation, that is where all the n firms are independent competitors.
- (b) Consider now a merger between $m + 1$ firms. Note that – since the products are homogenous and the absence of capacity constraints – this amounts to having m firms less in the industry. Find equilibrium output and profit for each independent firm.
- (c) Show that outsiders always gain from a merger.
- (d) Show that a merger to monopoly is always profitable for the merging firms.
- (e) Let $n = 10$ and show that a merger is profitable, only if $m + 1 \geq 9$.

Question 2

Consider an industry with three identical firms each selling a homogenous good and producing at a marginal cost $c > 0$ and no fixed cost. Industry demand is given by $p = 1 - Q$. Competition in the marketplace is in quantities.

- (a) Find the equilibrium quantities, prices and profits.
- (b) Consider now a merger between two of the three firms, resulting in a duopolistic structure of the market. The merger gives rise to efficiency gains, in the sense that the firm resulting from the merger produces at a cost $e \cdot c$, where $e \leq 1$ (while the outsider still has cost c). Find the post-merger equilibrium quantities, prices and profits.
- (c) Under what conditions does the merger reduce prices?

Question 3

Consider a vertical structure with one manufacturer and $n > 1$ identical retailers. The manufacturer incurs marginal cost of production $c > 0$ and chooses the wholesale price w . The retailers downstream compete in quantities and each incur a unit distribution cost d on top of the wholesale price w they have to pay to the manufacturer per unit. Demand is given by $q = a - p$, where $a > c$.

- (a) Show that the double marginalization problem still exists, even if there are two or more retailers downstream.
- (b) Show that the double marginalization problem vanishes, as $n \rightarrow \infty$.
- (c) Suppose now that the n downstream firms compete in prices rather than in quantity. Show that the double marginalization problem already disappears for $n \geq 2$.