Industrial Organization

Problem Set #1

Universidade Nova de Lisboa
Faculty of Economics
Fall 2008

Instructor: Vasco Santos
Grader: David Henriques

Instructions

1. Due date: October 3, 6:30 p.m., mailbox #141 (David Henriques).
2. This is **individual work**. Each student has to deliver a solution. The best, and perhaps the only, way to ensure that you understand the material taught in class is to solve these exercises under "exam conditions". One of the advantages of solving these exercises is that they provide a good preparation for the exams.
3. PLEASE **write on the front and back** of each sheet of paper that you use to solve this problem set. It's a waste of paper to write only on one side.

---

1 Concentration and Volatility Measures

a. In 2000, the diaper industry in Portugal consisted of 5 firms producing identical diapers. However, in 2006, other firm(s) entered the market, obtaining a market share of 11%.

Year	Firms						Concentration Index		
	1	2	3	4	5	Other(s)	C_4	$\inf H$	$\max H$
2000	40%	15%	15%	15%	15%	0%			
2006	45%	11%	11%	11%	11%	11%			

Showing your computations, fill-in the missing items in the table above. Then, according to each concentration measure that you have studied, find out in which year the industry is more concentrated. Explain and calculate the Adelman's equivalent number. Compute the volatility index.

b. In 2008, the Portuguese diapers industry is characterized by the existence of 8 firms producing identical diapers. Let s_i denote the market share of firm i, $i = 1, 2, ..., 8$. It has recently been observed that the market shares are given by,

Firm i	1	2	3	4	5	6	7	8
s_i	60%	10%	5%	5%	5%	5%	5%	5%

(i) Compute the concentration measures C_4 and H for this industry.

(ii) Suppose now that firms 2 and 3 merge and become a single firm labeled $\overline{23}$. Compute the post-merger concentration measures $\hat{C}_4$ and $\hat{H}$.

(iii) Compute the change in concentration resulting from this merger, $\Delta C_4 = \hat{C}_4 - C_4$ and $\Delta H = \hat{H} - H$.

(iv) Suppose now that the merger between firms 2 and 3 did not work out, such that the firms remain separated. Suppose that firms 6, 7, and 8 now merge. Compute the post-merger values of $\bar{C}_4$ and $\overline{H}$.

(v) Compute the change in concentration resulting from this merger, $\Delta C_4 = \bar{C}_4 - C_4$ and $\Delta H = \overline{H} - H$.

(vi) The Portuguese Competition Authority suggests that a merger should *not* be challenged if the post-merger Herfindahl-Hirschman concentration index and its change due to the merger are such that:

i. $H < 0,1$,

ii. $0,1 \leq H < 0,18$, and $\Delta H < 0,01$, or

iii. $H \geq 0,18$ and $\Delta H < 0,005$.

Use these guidelines to determine whether any of the above mergers is likely to be challenged by the Portuguese regulator.