Economics 101 Winter 2012
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Problem Set #3

Due in class February 7th.

Part 1: Look over all the questions and problems in Baye Chapters 7-9. Write out and turn in your solutions to:
Problems 2, 3, 4, 17 of Chapter 7;
Problems 4, 7, 17 of Chapter 8; and
Problems 2, 4, 5, 10 of Chapter 9.

Part 2: Answer the following questions. When information is insufficient, please write down a reasonable assumption and proceed.

1. You are the manager in a US firm that produces semiconductors, and are considering a merger with a rival domestic firm. A junior investigator from the Dept. of Justice tells you that the DOJ may decide to block the merger because it raises the Herfindahl-Hershman index to 1,700. What sort of argument might convince him that the index overstates concentration in your industry?

2. You have been hired as a consultant by a firm that produces a new, irreplaceable office gizmo (with no close substitutes) exclusively under a patent. The firm has two factories, one in Santa Cruz, the other in San Jose. The managers of the two factories have an ongoing dispute over what the company should do. The Santa Cruz manager argues that the San Jose plant should be closed because leasing and other fixed costs are much higher in San Jose and it makes no sense to produce at such an expensive facility. The SJ factory manager counters that the Santa Cruz plant should be closed because even though the factory lease is cheap, Santa Cruz workers are less productive. When the surf is big, they all call in sick and this reduces the plant's productivity.

Your research shows that inverse demand is $P=100 - Q$, where $Q = Q_{SC} + Q_{SJ}$. Costs at the San Jose factory are $C_{SJ} = 75 + 2\ Q_{SJ}^2$, and are $C_{SC} = 25 + 3\ Q_{SC}^2$ at Santa Cruz. Assume that you can't alter these cost functions.

(a) With both plants operating, how should production be allocated between the two plants? What are the profits for the firm at this level of joint production?
(b) Given the arguments of the two managers, what is your recommendation? Explain. What are the profits of the firm if they follow your recommendation?

Part 3: Using the data collected from the in-class oligopoly game (now posted on the class website), answer the following:

(a) Use appropriate models (e.g., Cournot, Stackelberg, Bertrand, etc) to predict the total output and the price each period.
(b) Write down the actual total output and price each period.
(c) Comment on the discrepancies between (a) and (b).

Note: To receive bonus points for your profits in the classroom experiment, you must turn in your record sheet with this problem set.