BPUB 250 Joel Waldfogel
Managerial Economics Spring 2002

Problem Set 5

Due at the start of class Wed., Apr. 3rd

1. ***NOTE*** This problem will take some time and a clear head. Two firms produce a somewhat differentiated product. Demand for firm 1 is described by $Q_1 = A - BP_1 + CP_2$, and firm 2's demand curve is $Q_2 = D - EP_2 + FP_1$. Both firms have zero marginal costs.
    a. Find general expressions for the prices and outputs of the two firms if they behave as Bertrand duopolists. Find expressions for profits at each of the firms? (Suggestion: derive the general expressions, then create a spreadsheet for calculating the particular values)
    b. Calculate prices, quantities, and profits for the following combinations of demand parameters for Nash solutions. For each one, try to provide some intuition for why the results change:
        i. A=D=100, B=E=3, C=F=2
        ii. A=D=100, B=3,E=2, C=F=2
        iii. A=100, D=200, B=E=3,C=F=2
        iv. A=D=100, D=E=3, C=2,F=3
    c. Calculate general expressions for P and Q's if they collude.
    d. Calculate prices, quantities, and profits for the following combinations of demand parameters for Cooperative solutions. For each one, try to provide some intuition for why the results change. When do the firms have strongest incentives to collude?
        i. A=D=100, B=E=3, C=F=2
        ii. A=D=100, B=3,E=2, C=F=2
        iii. A=100, D=200, B=E=3,C=F=2
        iv. A=D=100, D=E=3, C=2,F=3
    e. Construct the payoff matrix for the firms pricing decisions when A=D=100, B=3,E=4, C=F=2 What will each firm do?
    f. What consequences might the firms face if they collude? Why? How else might they accomplish their objectives?

2. Suppose Ford Motor Company wanted to merge with General Motors. Suppose further that Ford accounts for 25 percent of cars sold in the US and that GM accounts for 30 percent. What factors would antitrust regulators take into account in deciding whether to allow the merger?

3. Economists have observed that oligopolists are reluctant to change their prices. Give a brief analysis of why this might be so.

4. It is generally believed that Internet retailing has reduced the costs that shoppers must bear to learn about prices. Using economic theory, what effect would you expect this development to have on the distribution of online and offline prices?