

4 Price Discrimination and Cournot Oligopoly

Practice Question 9 (Two-part Tariff). Assume a monopoly faces two customers in a market. Customer 1 has an inverse demand of

$$p = 70 - q_1$$

and costumer 2 has an inverse demand of

$$p = 90 - q_2$$

The marginal cost of production is constant and equal to 25. The monopoly uses a lump-sum fee and a per unit charge as a pricing scheme.

- Consider the following statement: "If the monopoly is able to offer each customer a separate scheme (the scheme offered to customer 1 may differ from the scheme offered to customer 2), then the monopoly will charge a cheaper per-unit price to customer 1 since her demand is more elastic than the demand of customer 2." Is this statement true, false or uncertain. Explain.
- Suppose now that the monopoly cannot discriminate between the two customers, the same scheme must be offered to both customers. Write the objective of the monopoly as a function of the per unit price charged.
- Determine the optimal per unit price and lump-sum fee.
- Discuss the impact of the presence of customer 1 on customer 2's welfare.

Practice Question 10 (Bundling). Suppose there are two types of customers (the number of each type of customers are equal). The maximum willingness to pay of each type, for each of two phone services (Talk, Data), is given by

	Consumer 1	Consumer 2
Talk	15	12
Data	20	25

Assume the marginal cost of the service provider is constant equal to 4 for offering the Talk service to each customer and 5 for offering the Data service to each customer.

- Without computing profits under different scenarios, discuss whether the firm will prefer to use bundling or not?
- Confirm your answer in part (a) by computing the profits with and without bundling.

Practice Question 11 (Cournot Duopoly). The jet aircraft industry is dominated by two major competitors: Airbus (A) and Boeing (B). Their costs functions are given by:

$$TC(y_A) = 20y_A$$

$$TC(y_B) = 20y_B$$

Assume there are no fixed costs. The inverse demand function for jets by major airlines is estimated to be

$$p(y) = 200 - y$$

- (a) Find the best response function for Boeing $BR_B(y_A)$ and Airbus $BR_A(y_B)$. Plot them in a graph.
- (b) Find the market price of an aircraft, the level of individual and aggregate production in a Cournot-Nash equilibrium. Also find the level of profit of each individual firm.
- (c) What is the deadweight loss associated with oligopolistic trading by the two firms?