Problem Set 2

ECONS 321 - Sports Economics

Due February 14, 2018

1 City Choice

A sports franchise is choosing between two cities: city A and city B. The team analyst has estimated the following demands for each city:

City A: $P_A = 90 - .001A$

City B: $P_B = 130 - .002B$

where A is the quantity of fans in city A, and B is the quantity of fans in city B. The analyst aalso estimates that the marginal cost in each city is \$10, and the total cost is 10A and 10B in each city.

a) Find the profit maximizing price and quantity if the team locates in city A.

b) Find the profit maximizing price and quantity if the team locates in city B.

c) What are the maximum profits that could be achieved in each city (given the cities can't subsidize the team)?

2 Subsidizing a Franchise

Now assume the same demands for city A and city B.

a) Up to what amount would city A be willing to subsidize the franchise?

b) Up to what amount would city B be willing to subsidize the franchise?

c) How much total profit could the franchise (profit from problem 1 plus max subsidy) get by locating to city A?

d) How much total profit could the franchise (profit from problem 1 plus max subsidy) get by locating to city B?

3 Price Discrimination

Suppose the demand for ticket sales is given by the following function:

$$P = 315 - 2Q$$

Further suppose that marginal cost is $3Q$ and total cost is $\frac{3}{2}Q^2$

a) Find the profit maximizing price and quantity.

b) What is the maximum profit?

Suppose now that the ticket seller can price discriminate by checking IDs. There are two demands in the market:

Adult Demand: $P_A = 315 - 3Q$

Student Demand: $P_K = 315 - 6Q$
Again, suppose that marginal cost is $3Q$ and total cost is $\frac{3}{2}Q^2$

c) What is the profit maximizing price (P_A) that will be charged to the adults?

d) What is the profit maximizing price (P_K) that will be charged to the kids?

e) What is the maximum profit achieved by profit discrimination (add the profits from selling to the adult and kid markets)?