Cartel Theory

Overview

1. Why do firms form a cartel
2. How do firms price in a cartel
3. What happens to welfare
4. How do institutions influence cartel formation

Cartel Unlikely when..

1. When they are illegal
2. Lots of firms
3. Cost differences
4. Instability in the market

Strategies

1) Market Division

1. Geographic - you get your territory, I get my territory
2. Customers

2) (Price matching) Most-Favored Customer

Customer can come back and get rebate of price difference

3) (Price matching) Meet the Competition

Price matching

4) Trigger Strategy - keep using it until the other firm cheats

1. If the firm cheats today, they earn π_B, nothing afterwords
2. If the firm doesn't cheat they earn π_C forever

Maximize Joint Profit

1. Market demand $\quad p = a - bQ$
2. Market costs $\quad TC = c \cdot Q$
3. Market Profit

$$\pi = \pi_1 + \pi_2$$

$$\pi = (p - c)(q_1 + q_2)$$

$$\pi = (aq_1 - bq_1^2 - bq_1q_2 - cq_1) + (aq_2 - bq_2^2 - bq_1q_2 - cq_2)$$

4. Profit Max

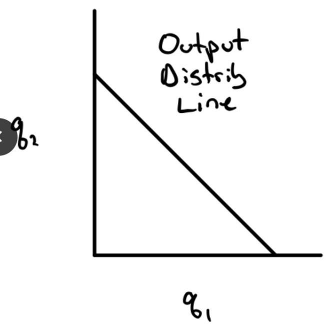
$$\frac{d\pi}{dq_1} = MR_1 - MC_1 + E_1$$

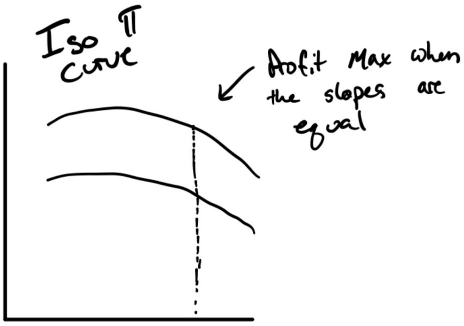
E_1 is the external effect that an increase in our q has on their π

⑤ Profit Max

$$\frac{\partial \pi}{\partial q_2} = MR_2 - MC_2 + E_2$$

E_2 is the external effect that an increase in their q has on our π





Review Questions

Assume a duopoly market (firms 1 and 2).
$p = 120 - Q$ is the inverse market demand.
$Q = q_1 + q_2$ is the total market supply.
$TC_i = 20q_i$ is each firm's total cost equation (firms face the same costs).

A. Determine the cartel price and market level of output.
B. Explain why you cannot calculate the output and profit levels for each firm.

In the above problem, assume that firms are able to divide the market in half, so that each firm's inverse demand becomes
$p_i = 120 - 2q_i$
Would this be an effective way to facilitate collusion?