Dylan Black
ECON 2316

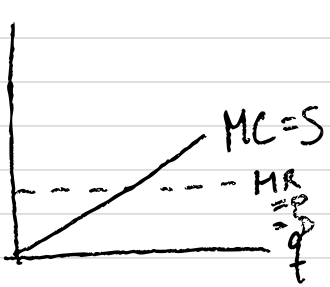
Lecture 14:
Monopolies and Market Power

Long Run Perfect Competition

Suppose we have: 49 firms, $TC = 20 + \frac{q^2}{4}$,
$Q_d = 200 - 2P$

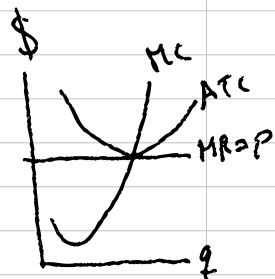
First, short run: what are equilibrium P & Q in the market?

Each firm chooses q s.t. MR = MC
$\rightarrow MR = P$
$\rightarrow MC = q/2$
$P = q/2 \Rightarrow q_s = 2P$



$Q_s = 49 q_s = 98P$

$Q_d = Q_s$
$200 - 2P = 98P$
$P = 2, Q = 196$ in SR



Next, long run: what q does each firm supply in the LR?

MC = ATC in the LR

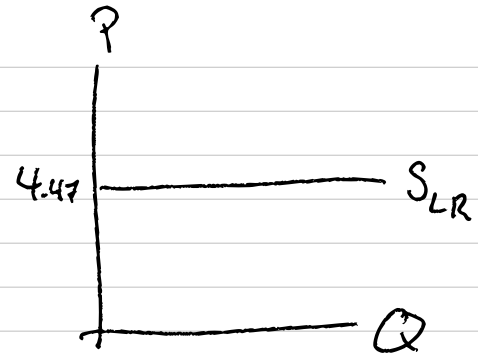
$\frac{q}{2} = \frac{20}{q} + \frac{q}{4} = \frac{80 + q^2}{4q}$

$160 + 2q^2 = 4q^2 \Rightarrow \boxed{q = \sqrt{80} \approx 8.94}$

$P = ATC = MC$

$P = \frac{8.94}{2} = 4.47$

$MC = q/2$



More Practice:

TR = 85 million TVC = 45 million

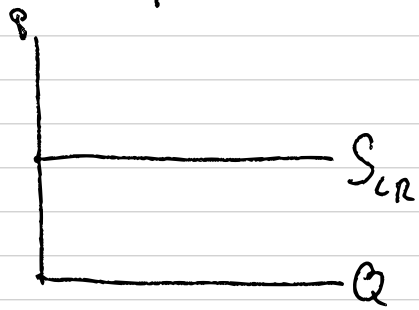
FC = 20 million

PS = Variable profit

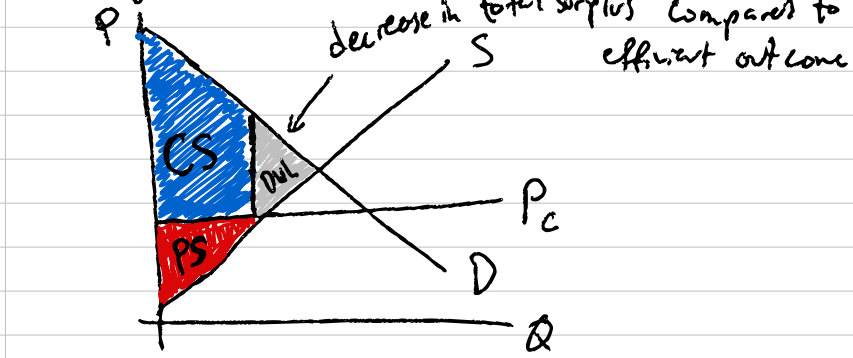
= 85 − 45 million = $40 million

$\boxed{PS = TR - VC}$

More MORE practice!



Binding Price Ceiling



Market Power

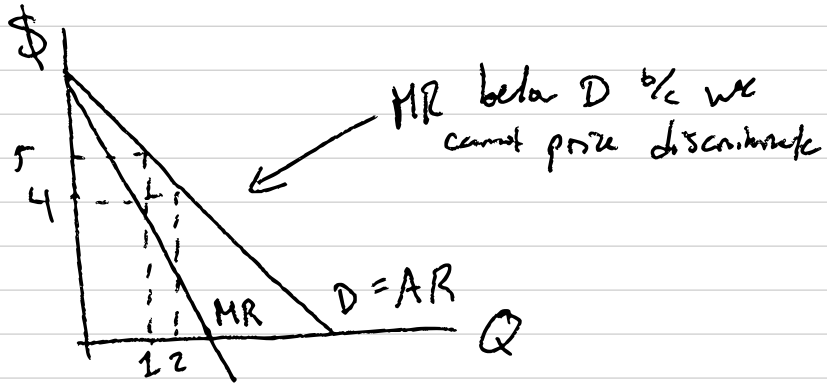
Market power - ability of a firm or consumer to affect the price of a good or service

Monopoly - one seller
Monopsony - one buyer

Why do monopolies exist?
- High barriers to entry
- Types of barriers:
  - intellectual property / patents / gov't action
  - high economies of scale → natural monopoly
  - network externalities
  - control over a key resource of production

Monopolists choose q where MR = MC !!!

Prof'l maximizer:
Choose Q^* s.t. $MR = MC$



MR is downward sloping and may be negative

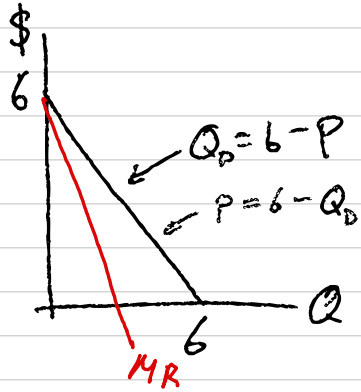
Market Power

MR is below D, w/ linear D, it has twice the slope

(Exercise: generalize this for any linear Demand)

$$MR = \frac{\partial TR}{\partial q}, \quad TR = P_q = AR \cdot q$$

Since we only have 1 firm,
$TR = PQ$



Example: $Q_D = 6 - P$

$\rightarrow P = 6 - Q_D$ ← avg revenue

$$TR = P_q = PQ = (6 - Q)(Q) = 6Q - Q^2$$

$$MR = \frac{\partial TR}{\partial q} = 6 - 2Q$$

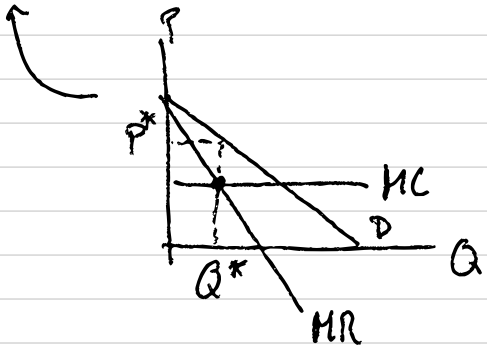
Twice the slope

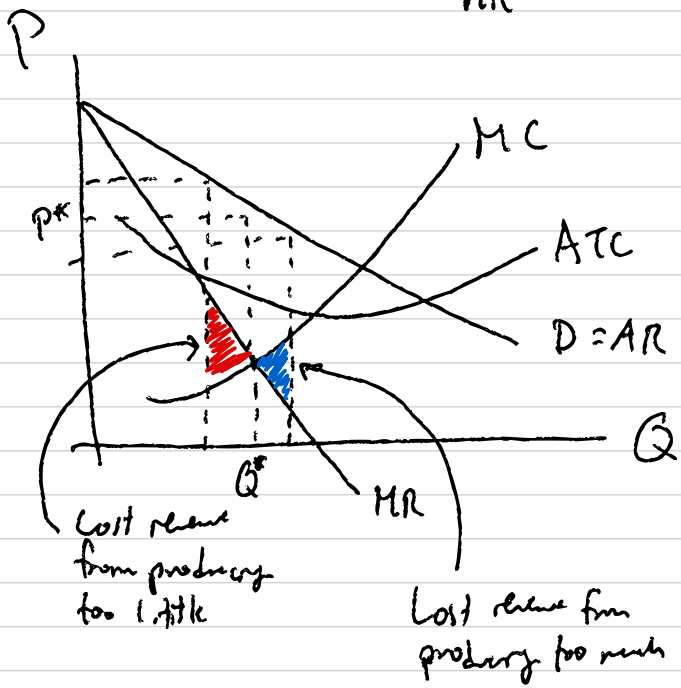
WOW!

Suppose $MC = 0$, what is the monopolist's optimal q and what is P?

$$6 - 2Q = 0 \Rightarrow Q = 3$$

$$P = 6 - Q_D \Rightarrow P = 3$$





Example:

Inverse demand: $P = 40 - Q_D$
↖ average revenue

$TC = 50 + q^2$

→ What is the monopolist's profit?

$MR = \frac{\partial TR}{\partial q}$

$TR = PQ = (40 - Q)(Q) = 40Q - Q^2$
$MR = 40 - 2Q$

$MC = 2Q = 40 - 2Q \Rightarrow Q = 10,\ P = AR = 30$

$\pi = TR - TC = 300 - 150 = 150$