Monopoly

Goals

- Define and look at the effects of monopoly.
- Use as a general model for what happens when there is market power.
- Get through the uglyist graphs in EC 201

Monopoly Key Assumptions

The same as perfect competition except:

- There is only one seller
- The seller engages in price setting behavior.
  - In PC, firms observe price and then choose quantity to maximize profits.
  - In Monopoly, firms observe demand and then choose quantity and let the price adapt.
- No entry or exit. Technically you only need no entry but no exit makes this simpler.

Monopolies are

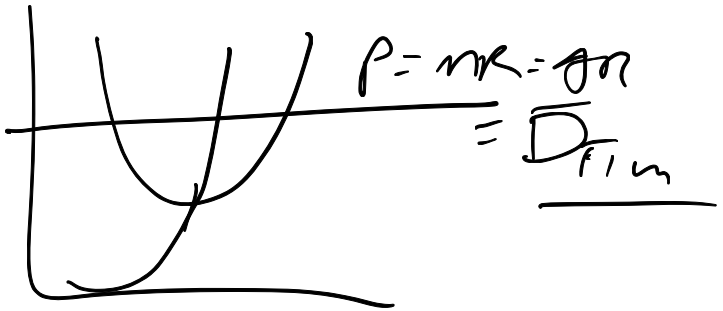
Don't think of monopolies as being globe spanning huge corporations. Monopoly power often simpler.

- The only gas station in a small geographically isolate town.
- The only provider of a drug needed for a medical condition.
- Local newspaper/radio or TV station for local news.
- Sometimes the best answer to a problem, but we regulate those.

How can I get one?

- Geographic isolation
- Barriers to entry
- Control of a unique resource – Rich minerals, a face, knowledge
- Government grants it to you – franchise
- Intellectual Property – Patent, copyright.
- Large economies of scale – like natural gas distribution
- Network externalities – non-standard connectors

What is different About the Analysis?



- In perfect competition, $MR = AR = P = D_{firm}$.
- In monopoly (Single price), MR splits off.
- Because of no entry or exit – no long-run analysis on extensive margin. Plenty happens on intensive but wait till EC 311/415 for that.

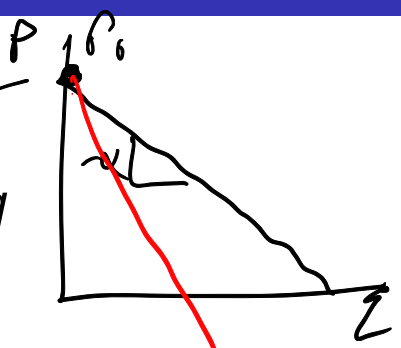
Marginal Revenue

The additional revenue from selling one more unit.

- This is price in perfect competition.
- $MR < Price$ in monopoly because to sell one more, you must reduce price on all units sold.

Math For Calculus Folks

Assume a linear demand, $P = P_0 - \alpha q$



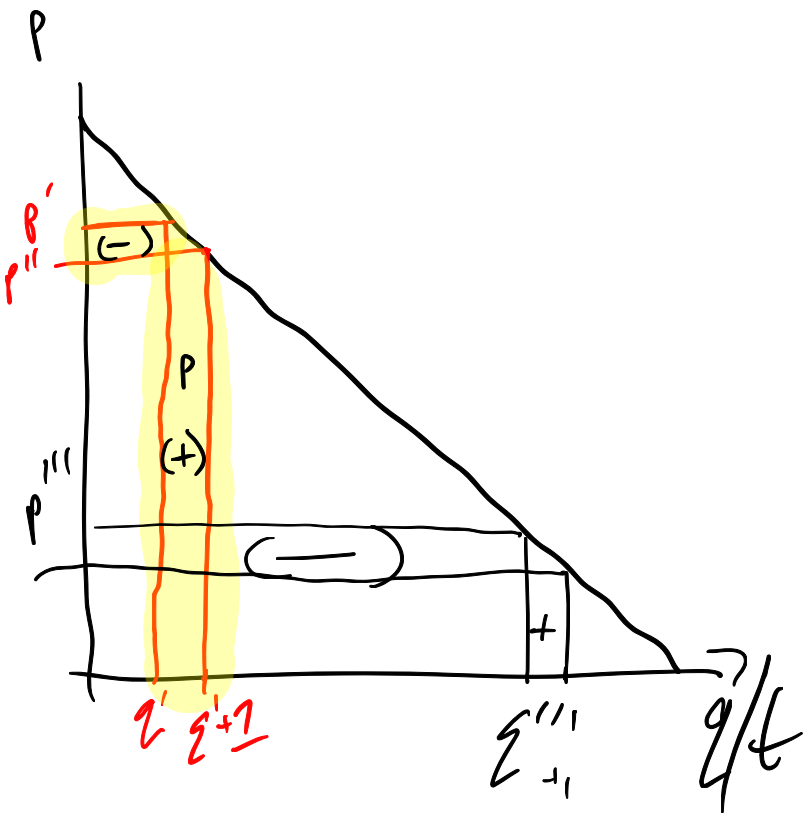
$$R(q) = Pq = (P_0 - \alpha q)q = P_0 q - \alpha q^2$$

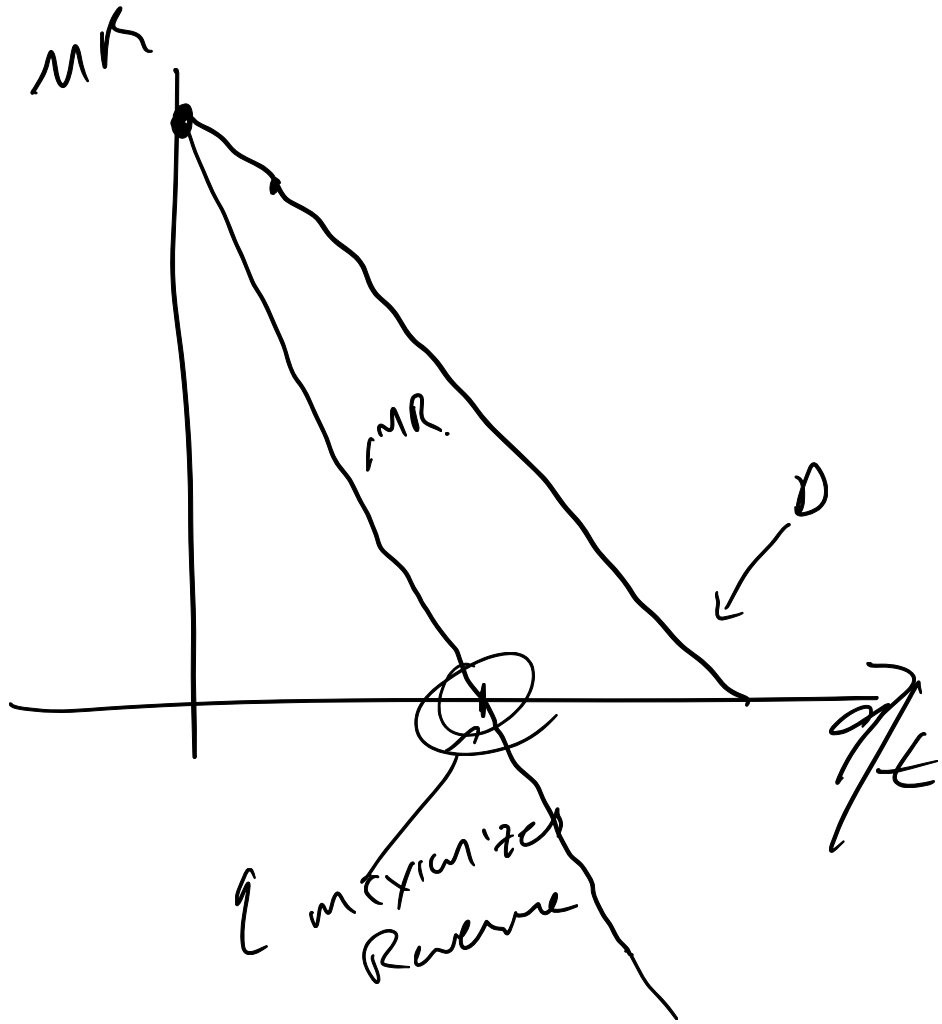
The derivative of revenue is marginal revenue

$$MR(q) = \frac{\partial}{\partial q} R(q) = P_0 - 2\alpha q$$

Same intercept but twice as steep.

Build MR Graphically





Key Takeaways

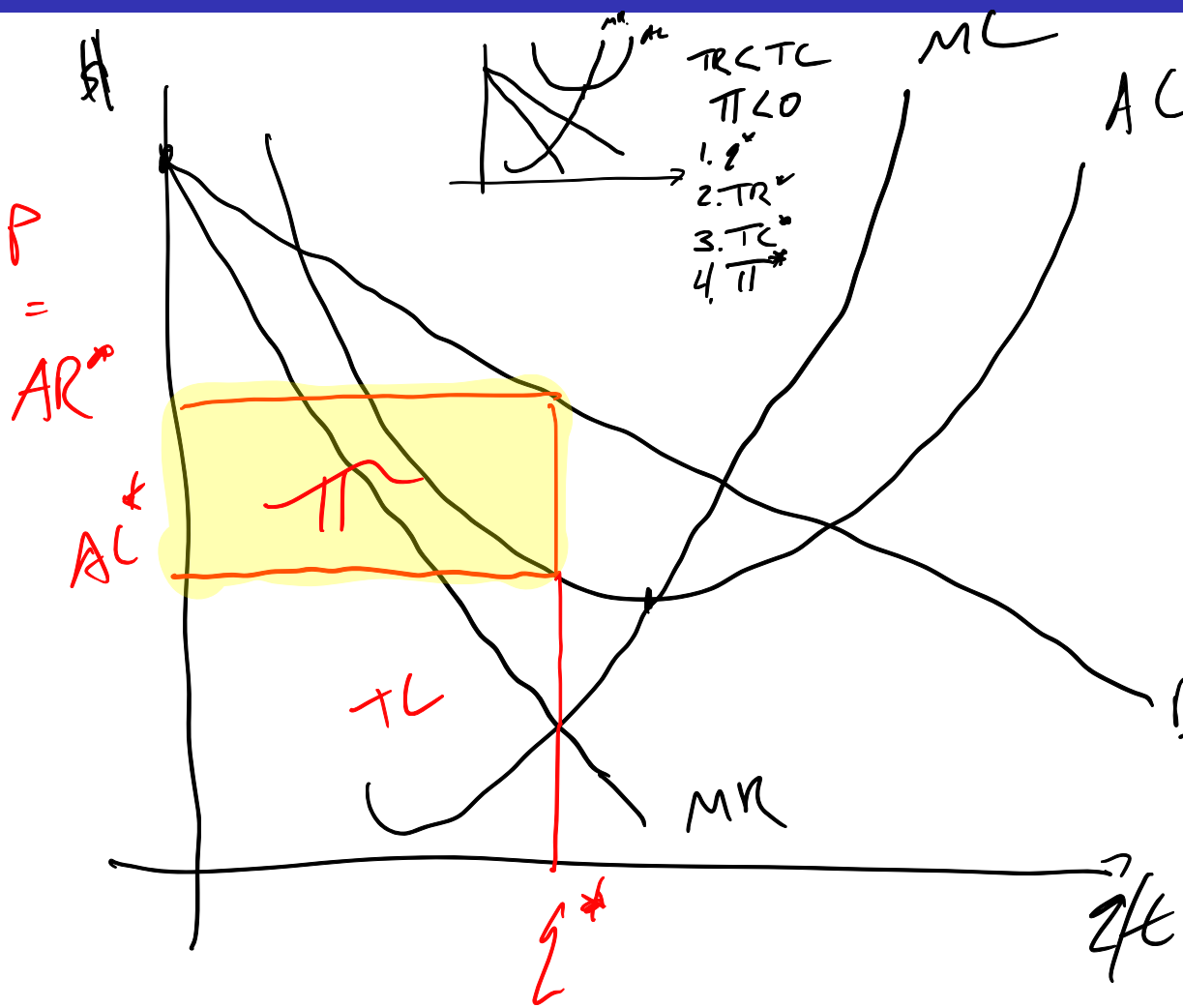
- Same intercept but twice as steep.
- Marginal revenue can be negative.
- Revenue, not profit, is maximized when $MR = 0$.

Steps

These are the same as Perfect Competition.

- Find q^* where $MC = MR$
- Start at q^* go to AC and hang a left.
  - That is AC^*.
  - Box is Total Cost, $TC^* = AC^* q^*$
- Start at Start at q^* go to $AR = D_{firm}$ and hang a left.
  - That is AR^*.
  - Box is Total Revenue, $TR^* = AR^* q^*$
- Little box on top is profit.

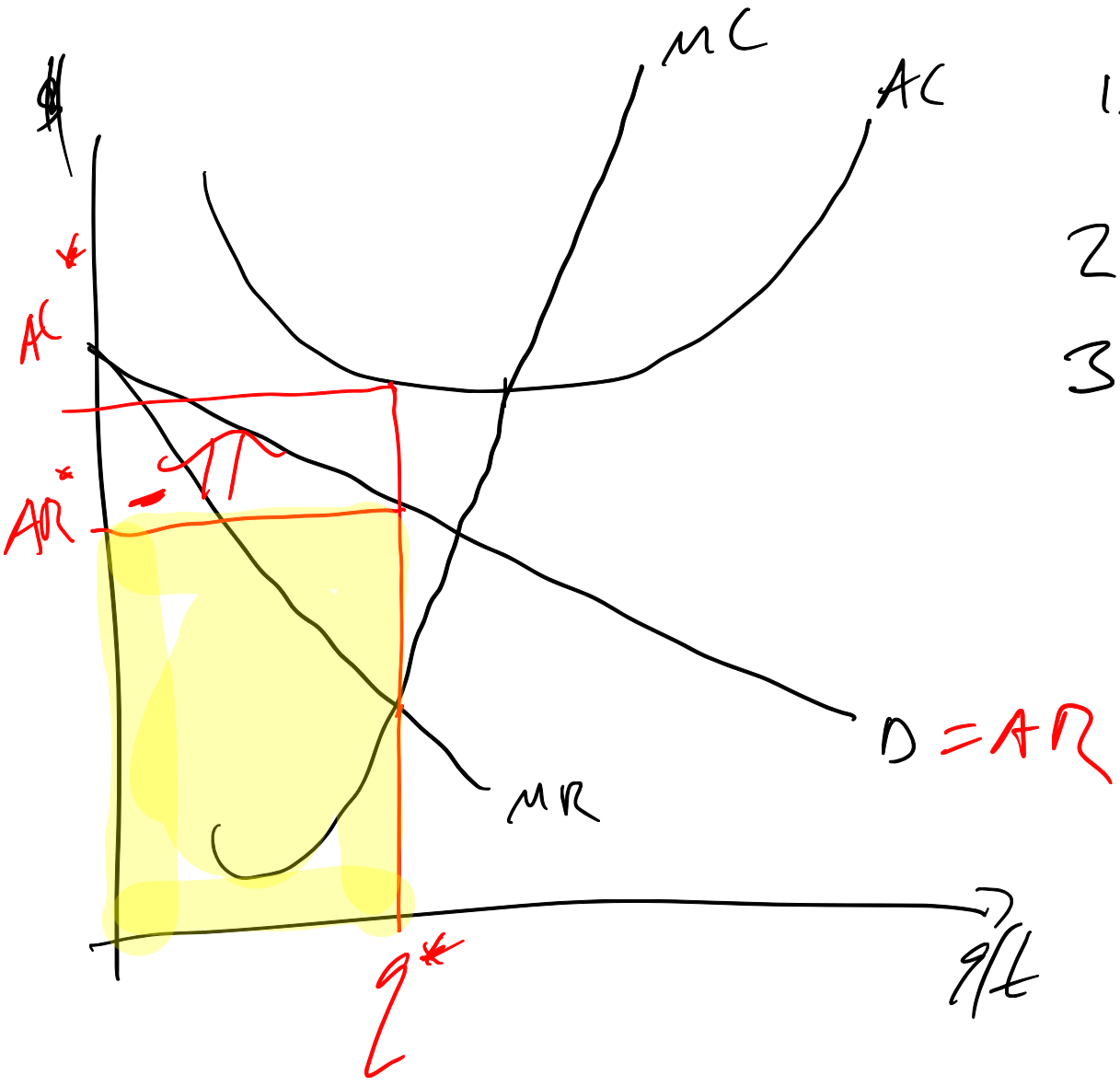
Monopoly Graphs



1. Find Q^* where $MR = MC$.

2. Start at Q^* and go to AC and then left. That is AC^*

3. Start at Q^* and go to AR and then left. That is ~~AR^*~~

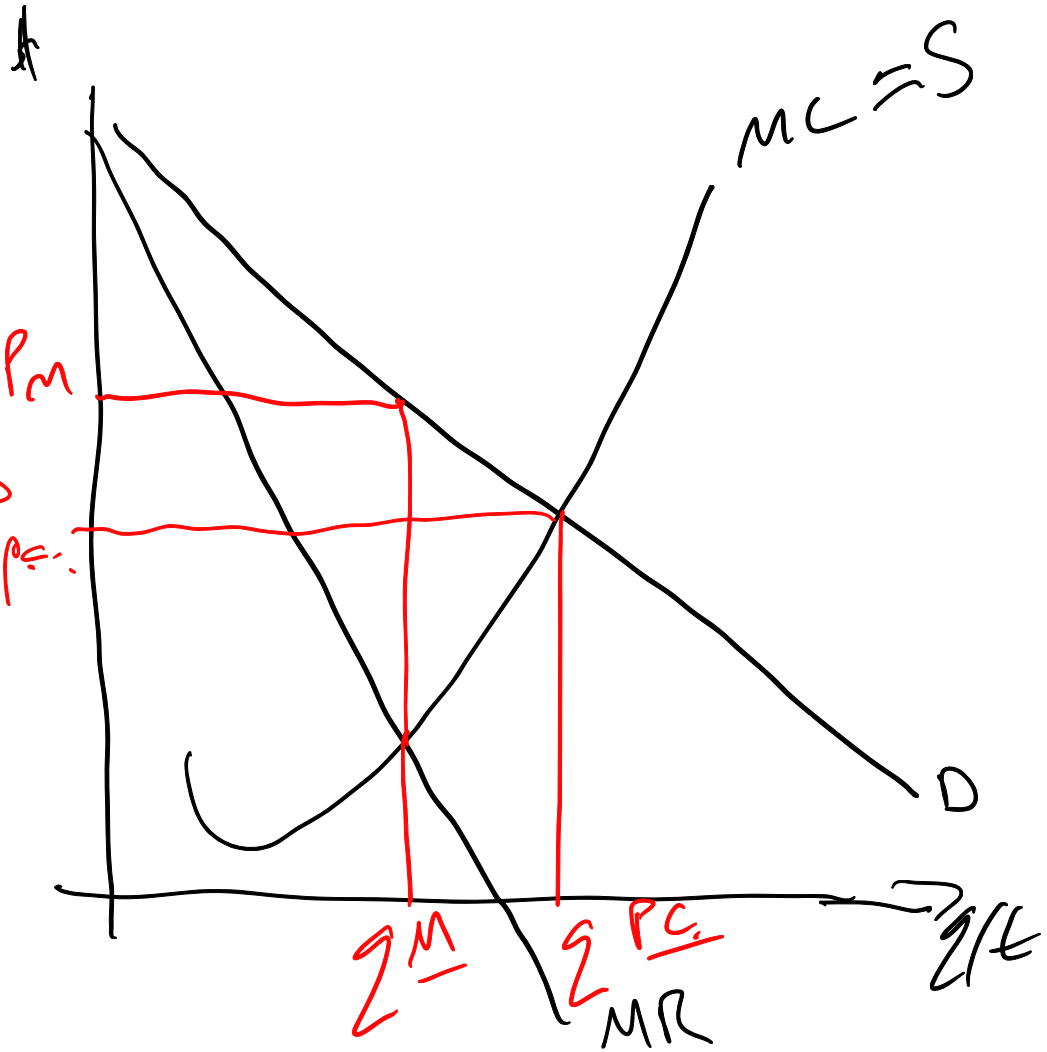


1. q^*
2. AC^*
3. AR^*

Why Monopoly is Bad

- Price and quantity effects
  - Price is higher
  - Less is sold
- Welfare Effects
  - DWL
  - Reduction in CS
- Long-run Effects
  - Price and cost above marginal cost

Price and quantity effects



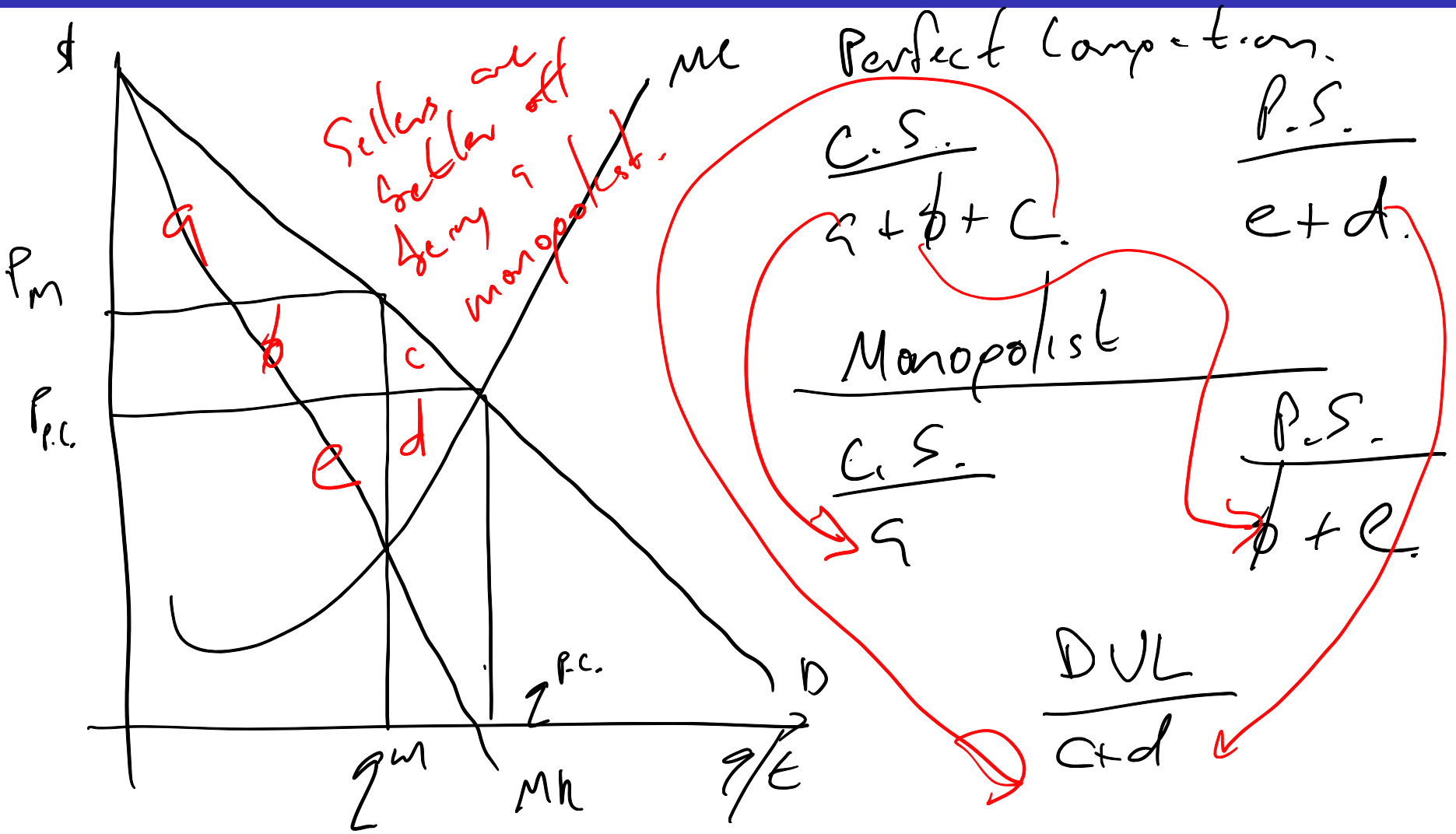
Learned lines on graph.

1. MC is the supply for competitive firms.

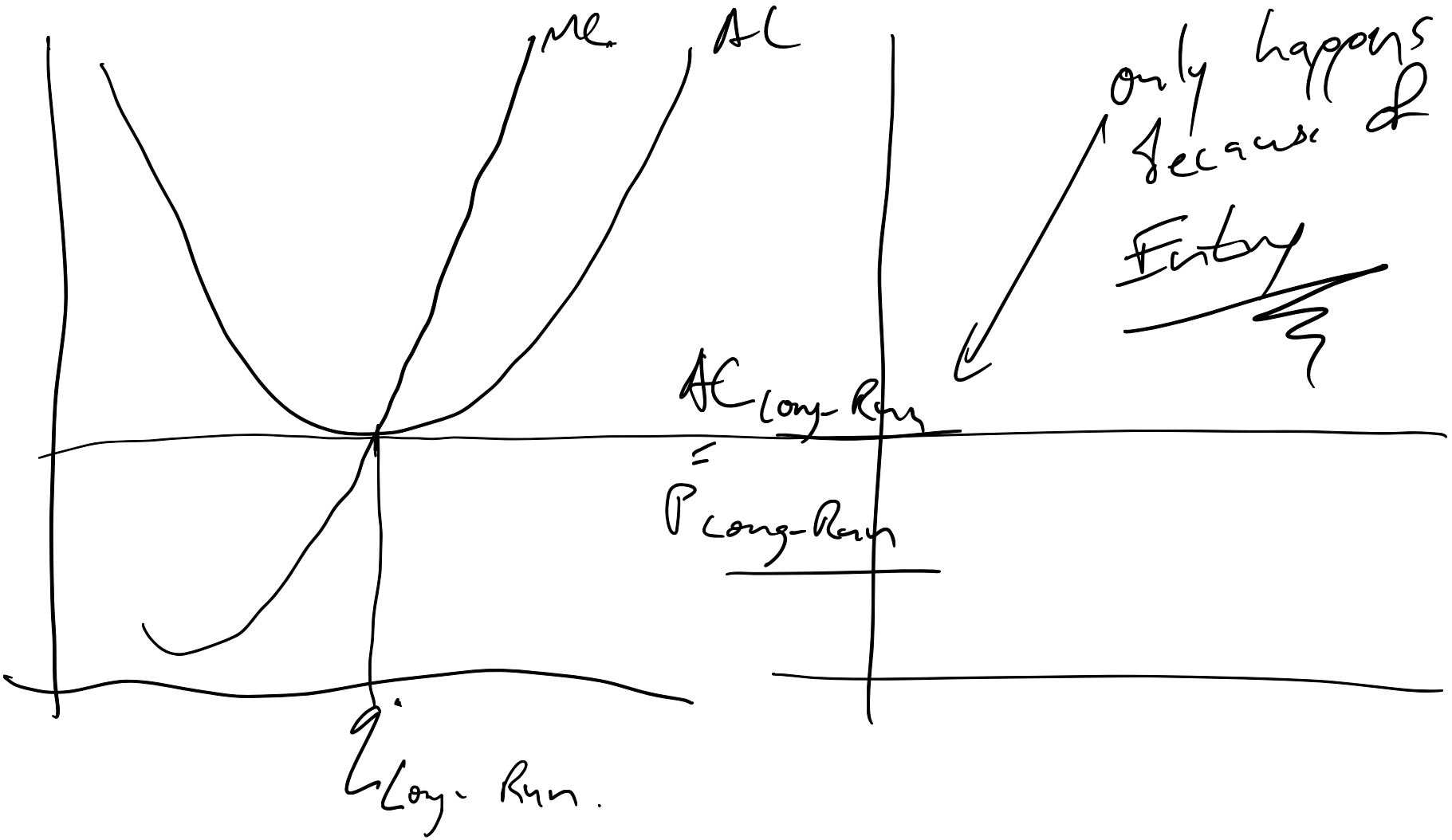
2. $q_M < q_{p.c.}$

3. $P_M > P_{p.c.}$

Welfare Effects



Long-run Effects



But, sometimes we need a monopoly

Minimize fixed costs for things like local electricity and natural gas distribution.

- Why have two conduits or service heads to your house when you only need one.
- In this case the monopolist has lower costs but still charges higher prices.
- We regulate these firms. This is in EC 437 Public Utility Economics.

Example

- We call this a natural monopoly
- Fixed cost but MC is constant $C(q) = F + \beta q$.
- Cost of one firm to produce $F + \beta q$
- Cost of two firms $(F + \beta q/2) + (F + \beta q/2) = 2F + \beta q$
- Twice the fixed cost

Up next

Depending on timing, brief Monopolistic Competition and then externalities and public goods.