Tuesday, August 16, 2016 8:51 AM

EE481 Industrial Economics

Market Structures (I)*

Semester 1/2016

*Carlton D and Perloff J., **Modern Industrial Organization**, 4th Edition, 2015, Pearson.

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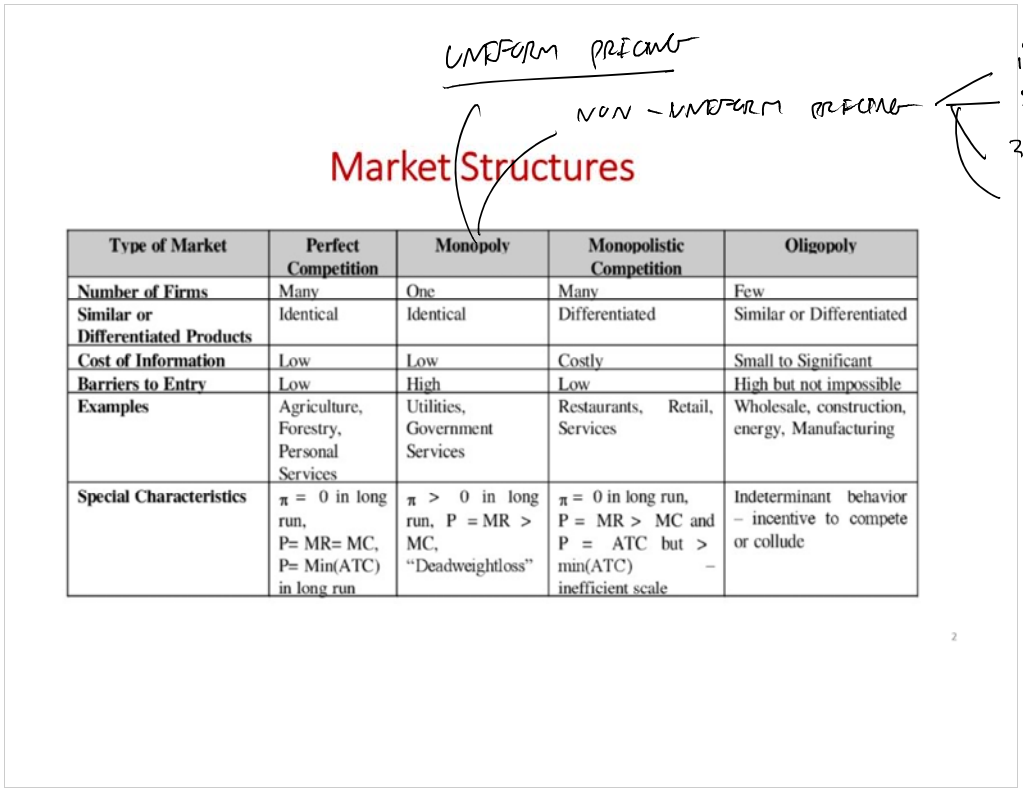

Type of Market	Perfect Competition	Monopoly	Monopolistic Competition	Oligopoly
Number of Firms	Many	One	Many	Few
Similar or Differentiated Products	Identical	Identical	Differentiated	Similar or Differentiated
Cost of Information	Low	Low	Costly	Small to Significant
Barriers to Entry	Low	High	Low	High but not impossible
Examples	Agriculture, Forestry, Personal Services	Utilities, Government Services	Restaurants, Retail, Services	Wholesale, construction, energy, Manufacturing
Special Characteristics	$\pi = 0$ in long run, P= MR= MC, P= Min(ATC) in long run	$\pi > 0$ in long run, P = MR > MC, "Deadweightloss"	$\pi = 0$ in long run, P = MR > MC and P = ATC but > min(ATC) – inefficient scale	Indeterminant behavior – incentive to compete or collude

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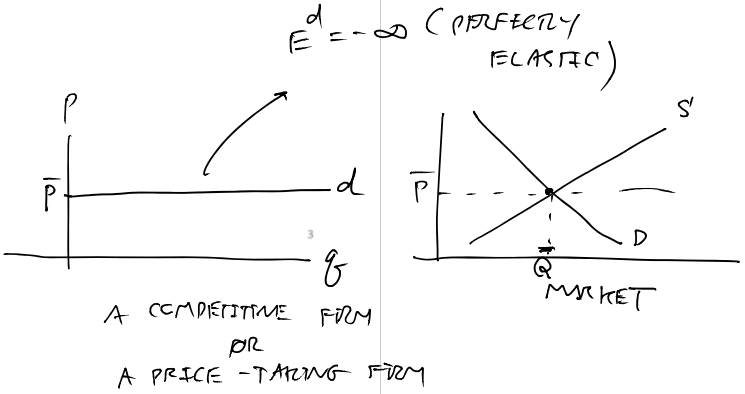
Market Structure 1: Perfect Competition

- Consider market for a single good.
- The perfectly competitive firm is a price taker: it cannot influence the price that is paid for its product.
- This arises due to consumers' indifference between the products of competing firms => for example, buy from store with lowest price.
- Consumers' indifference arises from:
  - Product homogeneity
  - Consumers have perfect information
  - No transactions cost
  - Many firms
- PC firm faces horizontal demand curve at market price p



A COMPETITIVE FIRM OR A PRICE-TAKING FIRM

PC's Profit Maximization Problem

$$\max_{q} \pi(q) = P \cdot q - C(q)$$

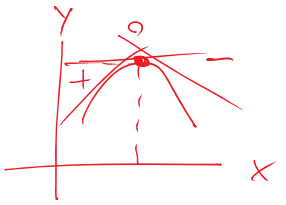
F.O.C: $\frac{\partial \pi(q)}{\partial q} = P - \frac{\partial C(q)}{\partial q} = 0$

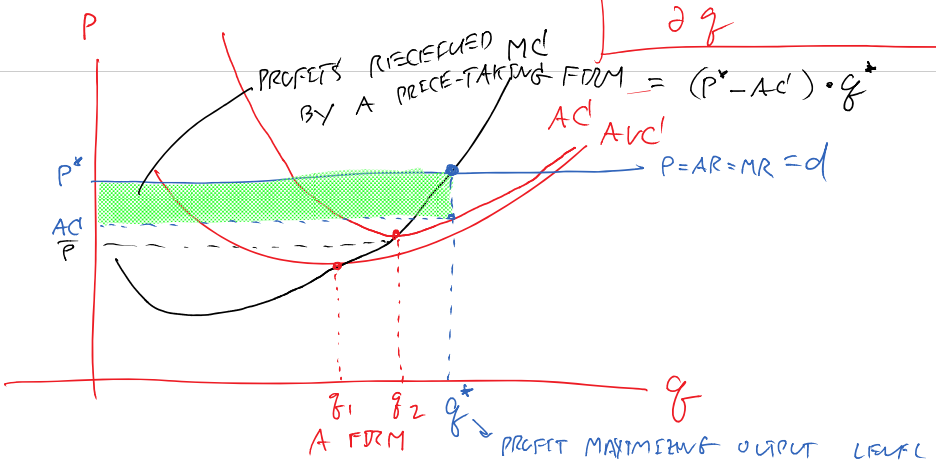
$$\boxed{P = MC(q)}$$

S.O.C: $\frac{\partial \left(\frac{\partial \pi(q)}{\partial q}\right)}{\partial q} = \frac{\partial \pi^2(q)}{\partial q^2} = -\frac{\partial MC(q)}{\partial q} < 0$

$$\boxed{\frac{\partial MC(q)}{\partial q} > 0}$$

$\equiv$ SLOPE OF MC CURVE MUST BE ON THE RISING PART





PC Firm's Shutdown Decisions

- A firm produces only when its profits from producing exceed the costs it would avoid by not producing
- In short-run: avoidable costs do not include sunk costs. Shut down when revenues fall short of avoidable costs ⇔ $pq <$ Avoidable costs(q).
- Consider two cases:
  1) All fixed costs are sunk. Avoidable costs = $VC(q)$:
     Shut down once $TR < VC(q)$ OR $P < AVC(q)$
  2 Proportion α of fixed costs not sunk. Avoidable costs = $VC(q) + \alpha F$:
     shutdown once $TR < VC(q) + \alpha F$ OR $P < AVC(q) + \frac{\alpha F}{q}$
- **In long-run**: avoidable costs include sunk cost. Shut down when $TR < TC$ OR $P < AC$.

SUNK COSTS AVOIDABLE COSTS AVOIDABLE COSTS

$TC = F + VC(q)$

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The Perfectly-Competitive Industry: Short run

- In the short run: Number of firms fixed
- Industry supply curve: sum of individual firms' short-run supply curves. Zero supply at prices below shutdown point.
- Industry demand curve: downward sloping.
- Price determined by intersection of industry demand and supply curves.
- In short-run equilibrium: positive profits for each firm as long as p > AC(q).

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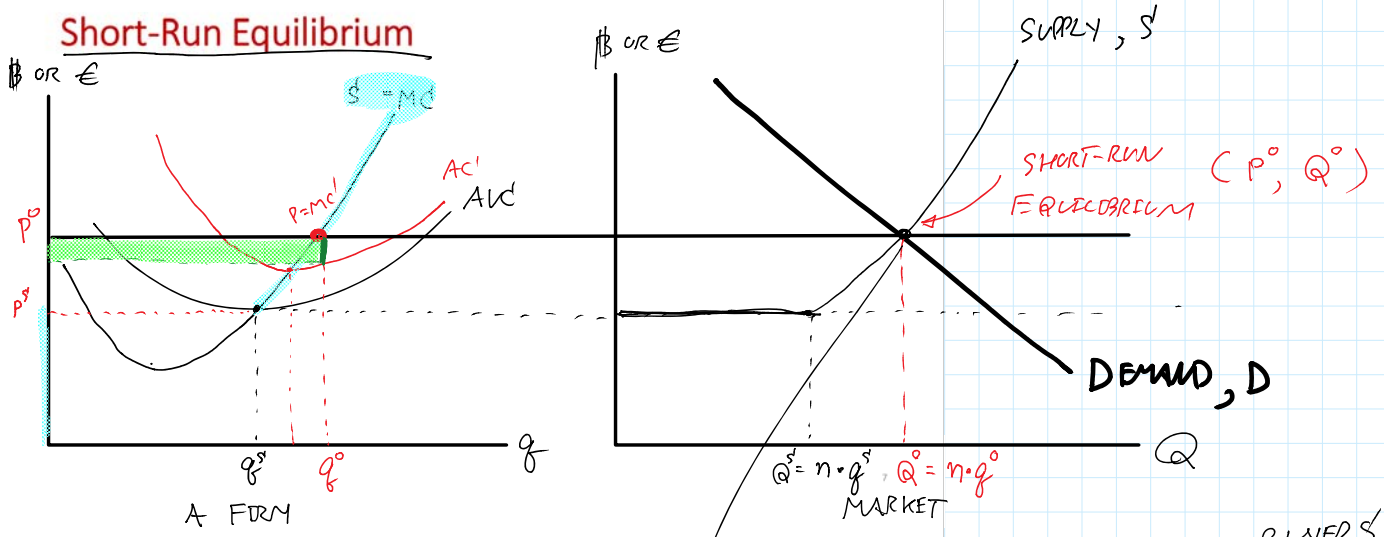

NEXT, PROFITS DRIVE MORE FIRMS TO ENTER . . .

- AT HERE, NO UNSATISFIED BUYERS & SELLERS
- ALL BUYERS PAY AND ALL SELLERS' RECEIVE THE SAME PRICE.

The Perfectly Competitive Industry: Long-run

- Number of firms can vary
- Free entry and exit:
- Any short-run profits soaked up by new firms in long-run =>
  Price is driven down to the minimum of the AC curve
- Long-run industry supply curve: horizontal at minimum of the average cost curve
- LR supply curve may be upward-sloping if min AC is rising in market demand Q (due, for example, to resource scarcity)

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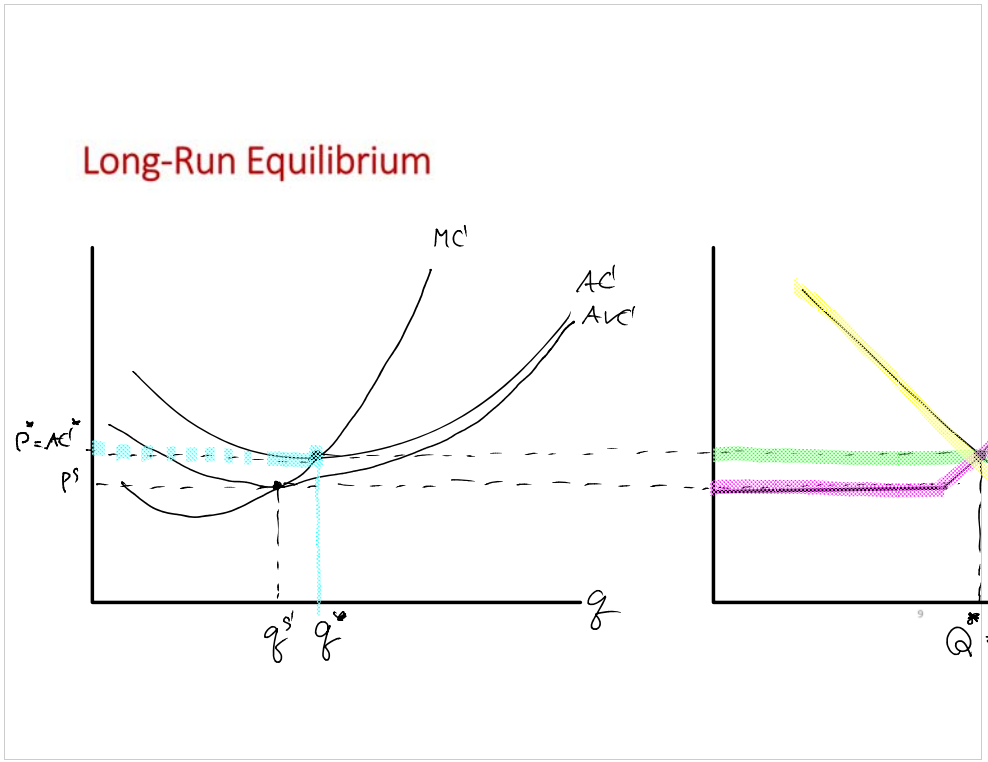
Long-Run Equilibrium
MC'
AC'
AVC'
P*=AC'
P'
q'
q*
q
SHORT RUN
SUPPLY
CURVE
LONG-RUN
SUPPLY CURVE IS
HORIZONTAL
(IN THIS
CASE)
DEMAND, D
Q
Q* = n·q*