Week 6. Firm & Industry under Perfect Competition

1. **Market:** Set of all sale and purchase transactions that affect the price of some commodity

2. **Market Structure**

a. **Perfect competition** occurs in an industry when
   - i) that industry is made up of many small firms (rules out trade associations or other collusive arrangements);
   - ii) producing homogeneous products (Consumers do not care about from which firm they buy);
   - iii) information is perfect (Each customer knows whether one supplier is selling at a lower price than another.);
   - iv) there is no impediment to entry or exit of firms.

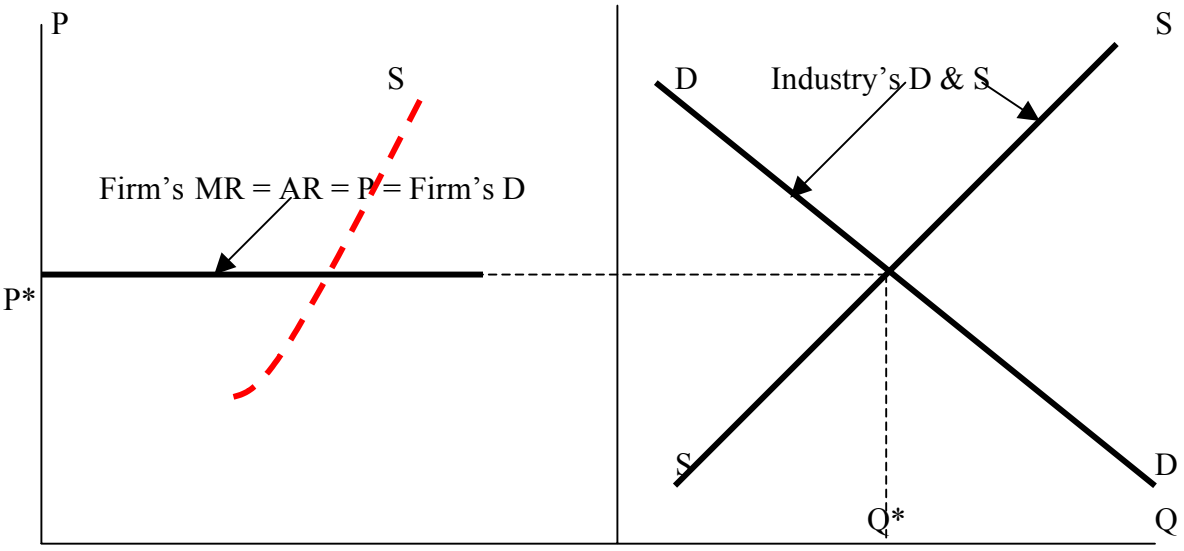
b. **Monopolistic Competition & Oligopoly (*eg.* Duopoly)**

c. **Monopoly**

3. **Competitive Firm & Its Demand Curve (Individual Firm vis-à-vis Industry)**
It is under perfect competition that the market mechanism performs best. Also, perfectly competitive firms use society's scarce resources with maximum efficiency.

a. **Price-Setter vs. Price-taker:** Under perfect competition, the firm has no choice but to take the price determined in the market.

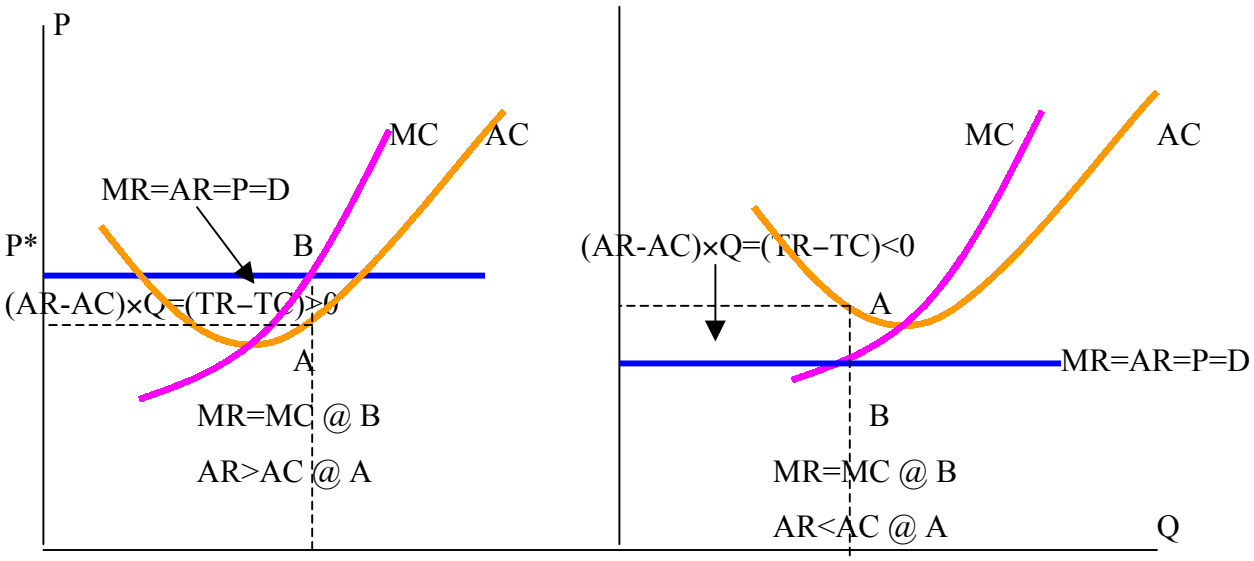
b. **Horizontal D-Curve:** A perfectly competitive firm has a horizontal D-curve. Therefore, it can sell as much as it wants at the prevailing market price. This is because price determined by the industry's S & D curves.



4. **Short-Run Equilibrium of Perfectly Competitive Firm**

Because the firm is a price-taker, the equilibrium of a profit-maximizing firm in a perfectly competitive market must occur at an output level at which D = MR = AR = P = MC. In the SR, the firm will supply that level of output where MC = P as long as P > AVC. SR for the firm is the period of time where production decision is pre-committed to the FC constraints.

a. Short-Run Profit & Short-Term Losses



b. Shut-Down & Break-Even Analysis

TC ≷ TR = TFC (Sunk Cost) + TVC ≷ TR → TVC ≷ TR

i) If TC > TR ← TVC < TR, the firm only has to incur TFC−(TR−TVC)=TC−TR in SR. Eventually, the firm will recover TFC if it continues to run.

ii) If TC > TR ← TVC > TR, Shut down.

iii) If TC > TR ← TFC > TR, Shouldn't have got into the market in the first place.

Table 6-1 Shut-Down Decision

In Thousands of $	Case A	Case B
TR	100	100
TVC	80	130
TFC (Sunk Cost)	60	60
TC = TVC + TFC	140	190
Loss if shutdown	(∴ Keep up) 60	60
Loss unless shutdown	40	(∴ Shut down) 90

c. Short-Run Supply Curve of Competitive Firm vis-à-vis Industry

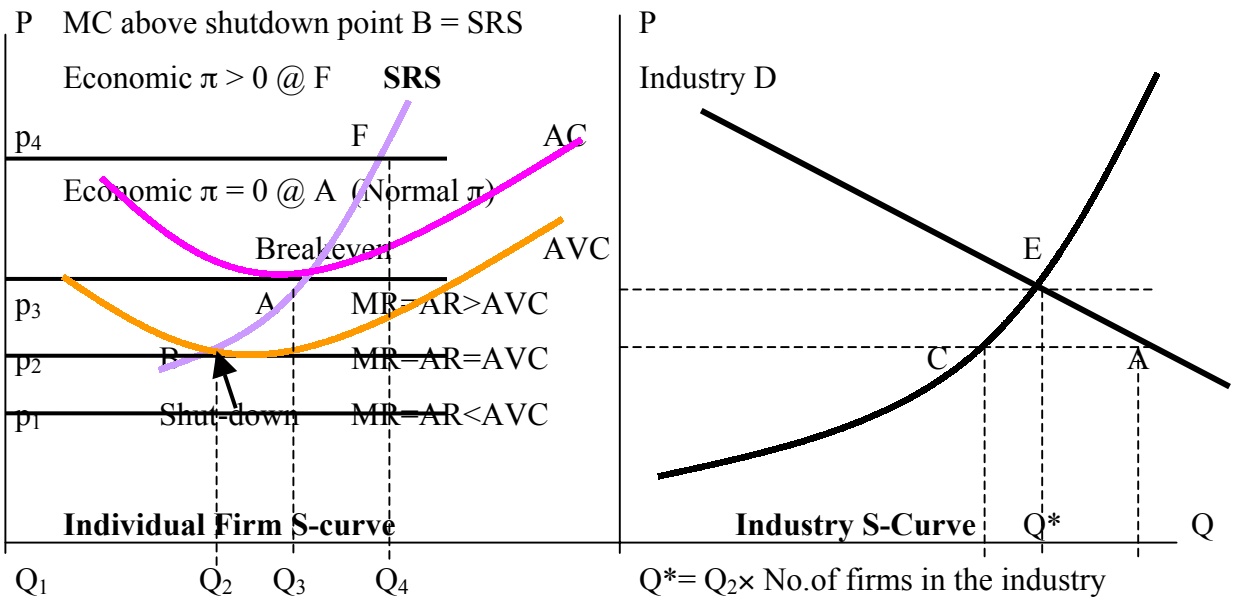
i) In the SR, if P > min AVC, produce output at the level where MR = AR = P = MC.

ii) If P < min AVC, shut down!

iii) The SR supply curve of the perfectly competitive firm is the portion of its MC curve above the point where it intersects the SRAVC. (*i.e.* All the π max points where MR=MC along every P on & above AVC)

iv) Short-run for the industry is defined as a period of time too brief for new firms to enter the industry or for old firms to leave, so the number of firms is fixed. By contrast, the long-run for the industry is a period of time long enough for any firm that so desires to enter or leave. In the LR, each firm in the industry can adjust its output to its own long-run costs.

v) The supply curve of the competitive industry is derived by summing the SR supply curves of all the firms in the industry horizontally.



5. **Long-Run Equilibrium of the Perfectly competitive Firm vis-à-vis Industry**

a. What is Meant by Long-Run?

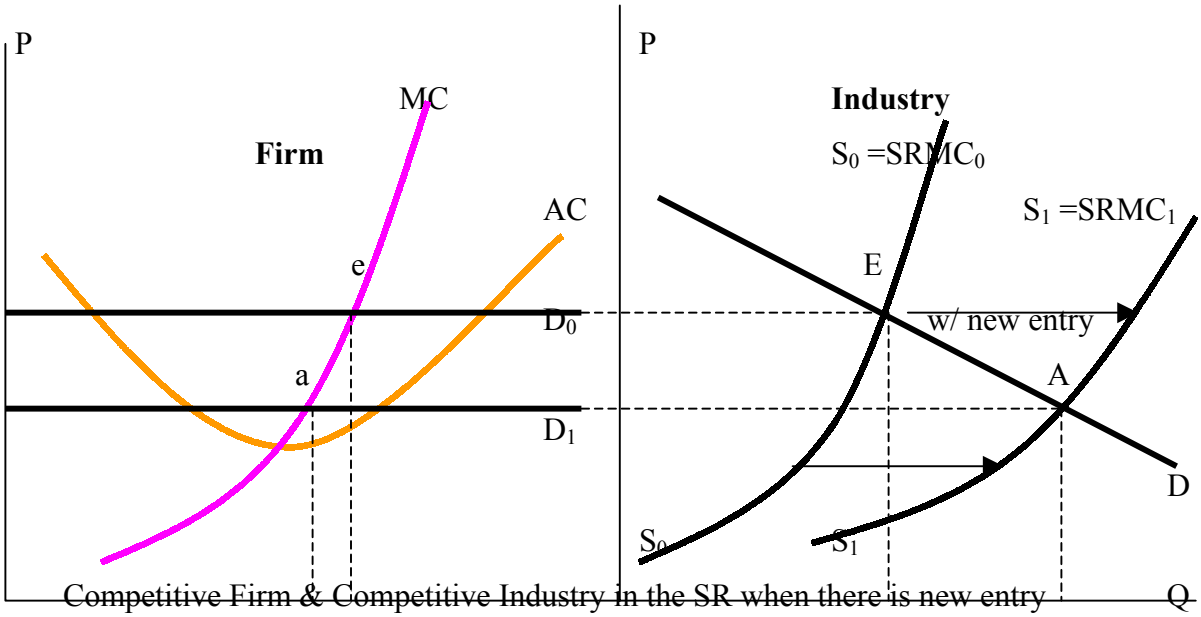
i) The number of firms in the industry is not fixed.

ii) The firm can vary its plant size and make other changes.

iii) Hence, everything is flexible with no more commitment to FC constraints.

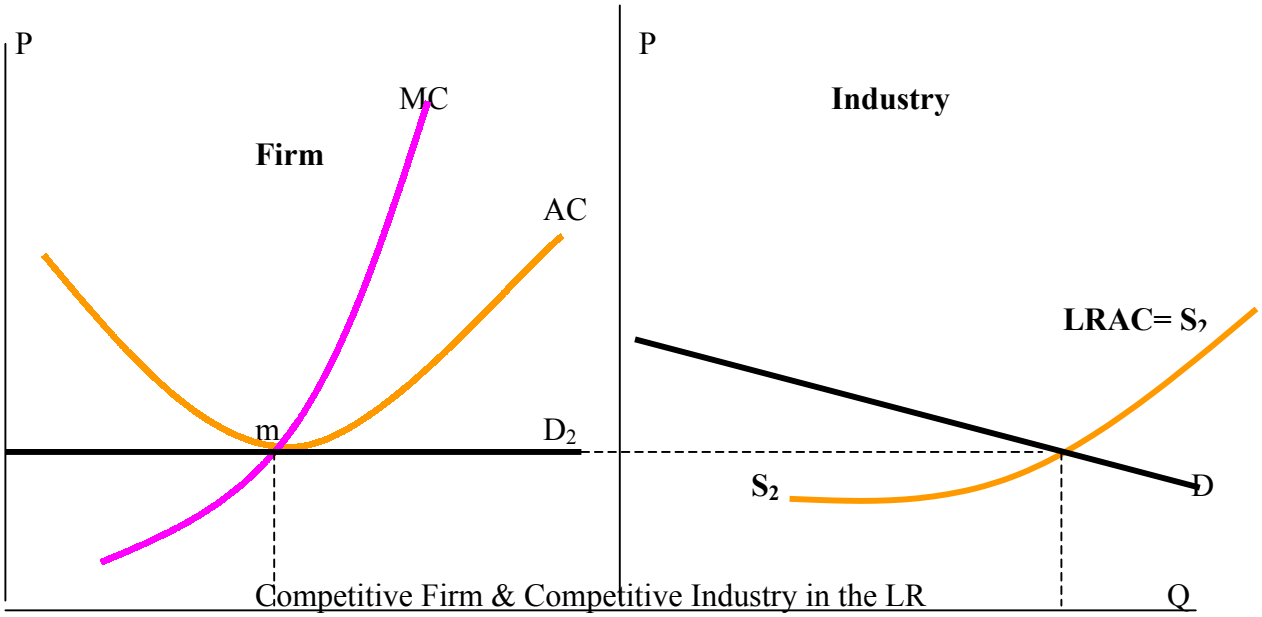
b. Firm & Industry Equilibrium in the Long-Run

i) The profit maximization condition: D=MR=AR=P=MC>min AVC doesn't hold, because no entry/exit barrier will eliminate any AR>AC at the point where MR=MC.



ii) At point a, there are still profits to be made because AR=P>AC. Thus, the entry process is not yet complete. It will end only when all profits have been competed away.

iii) Only when entry shifts the industry supply curve so far to the right, S_2S_2, that the demand curve facing individual firms falls to the level of min AC, point m, will profits be eradicated and entry ceases.



Competitive Firm & Competitive Industry in the LR

iv) At the equilibrium point m, MR=AR=P=AC=MC for each firm. But free entry forces AC to be equal to P in the LR (point M), for if P≠AC, firms would either earn profits or suffer losses. Then, firms would find it profitable to enter or leave the industry, which is incompatible with industry equilibrium.

v) When a perfectly competitive industry is in LR equilibrium, firms maximize profits, so that D=MR=AR=P=AC=MC, and entry forces the price down until it is tangent to the LRAC(=P). As a result in LR equilibrium it is always true that:

D=MR=AR=P=AC=MC (zero economic profit).

c. Long-Run Industry Supply Curve

LR industry supply curve evolves from SR supply curve via

i) entry of new firms or exit of old firms, which shifts the SR industry supply curve toward its LR position;

ii) Concurrently, as each firm in the industry is freed from its sunk commitments, the cost curves pertinent to its decisions become its LR cost curves rather than its SR cost curves

iii) LR supply curve of the competitive industry, S_2S_2, must be identical to the industry's LRAC curve, because in the LR economic profit must be zero. The price the industry charges cannot > LRAC of supplying that quantity. Similarly, price cannot < LRAC because firms would then refuse to supply that output at this price.

iv) In the LR firms earn zero economic profit, meaning that the firms earn not only just enough to cover its cost of L&K, but the opportunity cost of L&K as well., which is the normal , economy-wide rate of profit in the accounting sense.

i.e.) TP = PQ–(rK+wL)Q, where rK+wL = (rAcct + rO.C.)K + (wAcct + wO.C.)L.

6. **Perfect Competition & Economic Efficiency**

a. In the LR competitive equilibrium, every firm produces at the minimum point on its LRAC curve. Thus, the outputs of competitive industries are produced at the lowest possible cost to society.

b. Perfect Competition as A Guide to Regulation?:
   - i) Should the regulators force the monopolistic and oligopolistic firms to behave like the competitive firms? Should they force their prices to equal MC?
   - ii) Perfect competition may have the downside. If those industries have economies of scale, breaking them down into small firms will raise their costs and consumers will have to bear the higher cost.
   - iii) Where there are economies of scale, the AC must go down hill, so that MC must be below AC. Then, price set equal to MC will force the firms into bankruptcy.