Perfect Competition

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Acknowledgement

These slides was originally made by

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But, I, Mr. Pongpalin Yingchoncharoen, have edited them.

Any mistake is my own.

Perfectly Competitive Markets

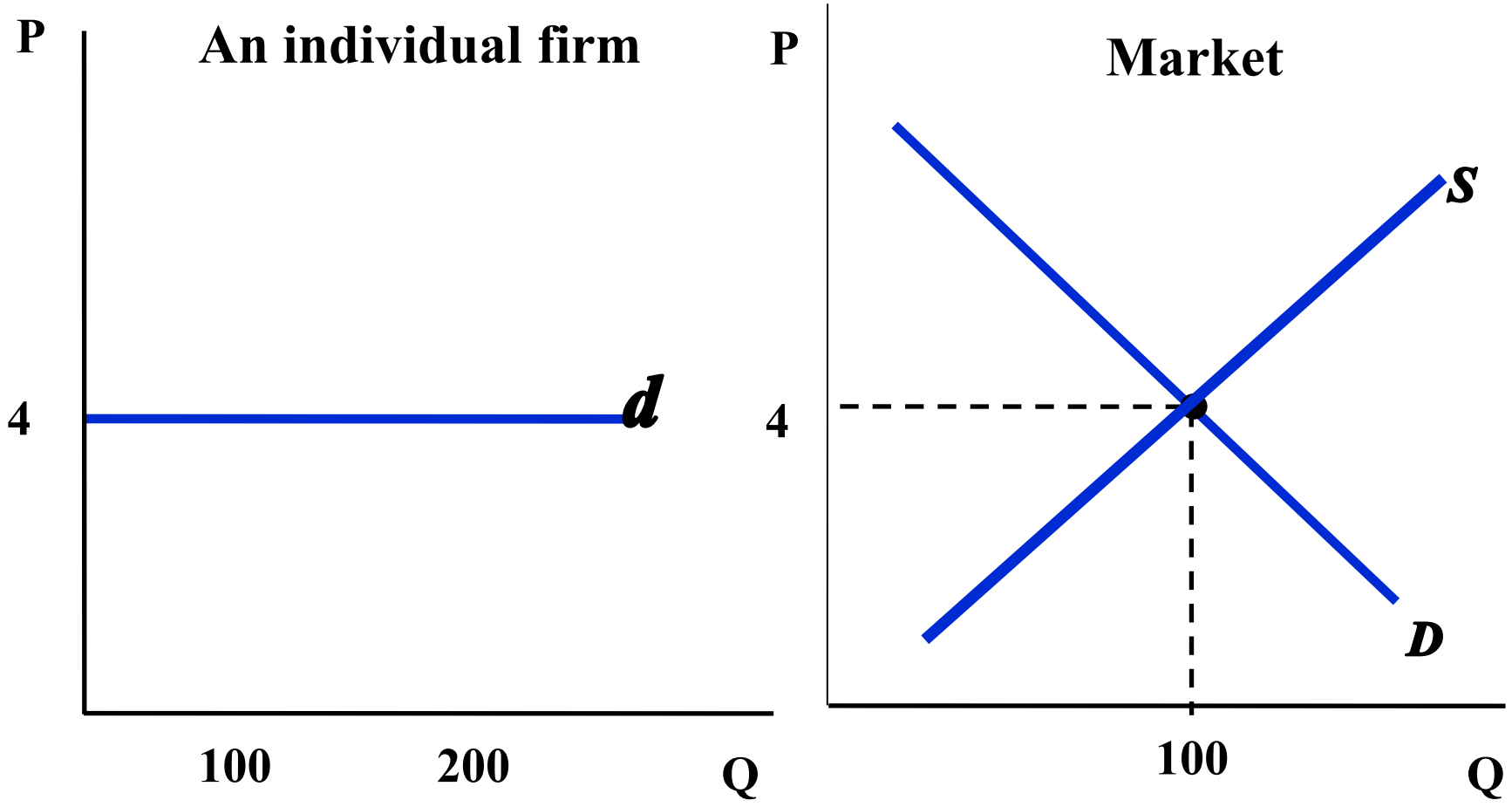
- The model of perfect competition can be used to study a variety of markets, such as agricultural products, stock markets, foreign exchange markets, etc.
- Basic assumptions of Perfectly Competitive Markets
  - Many small firms --> Price taking
  - Product homogeneity
  - Free entry and exit
  - Perfect information

Perfectly Competitive Markets

1. Price Taking

- An individual firm sells a very small share of the total market output, so it cannot influence market price.
- Each firm takes market price as given – price taker.
- The demand curve of each firm is horizontal, meaning that there are infinitely many buyers at market price.

Demand Curve of a Competitive Firm



Perfectly Competitive Markets

2. Product Homogeneity

- The products of all firms are perfect substitutes.
- Product quality is relatively similar as well as other product characteristics.
- Examples: agricultural products, copper ore, lumber

3. Free Entry and Exit

- There are no special costs that make it difficult for a firm to enter or exit an industry, i.e. no laws or regulations and free factor mobility.

Perfectly Competitive Markets

4. Perfect Information

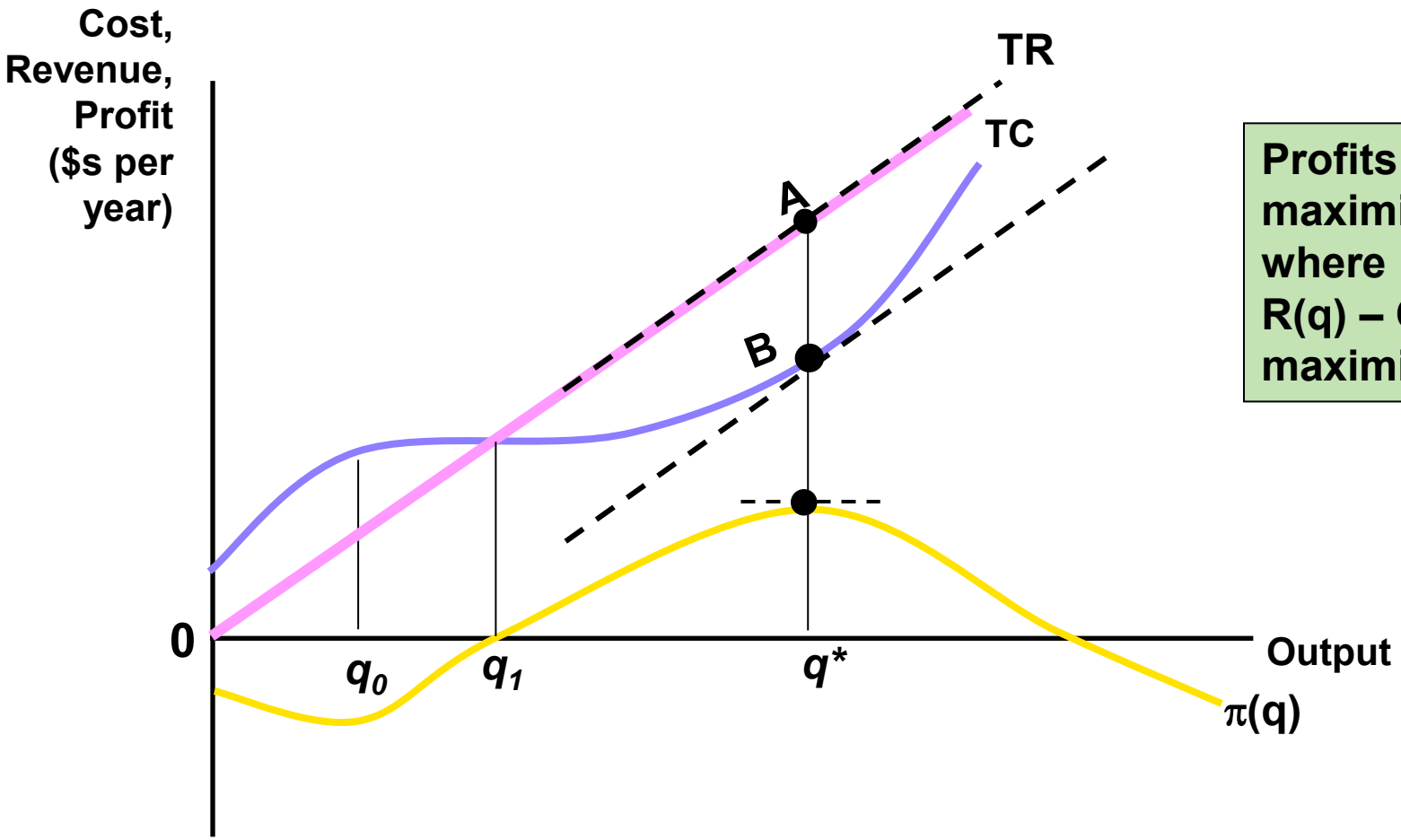
- Perfect information and homogenous products imply one market price.
- Perfect information and free entry and exit imply zero profit in the long run.

Profit Maximization – Short Run

- We can study profit-maximizing output for any firm whether perfectly competitive or not.
- Profit: $\pi(q) = TR(q) - TC(q)$
  - π, TR, and TC depend on q or output produced.
  - TR = P x q, where P is fixed for a competitive firm.
  - TC = fixed cost + variable cost.
- Firm selects output to maximize the difference between revenue and cost.

Profit Maximization – Short Run

Profits are maximized where MR (slope at A) and MC (slope at B) are equal or slope of $\pi(q) = 0$

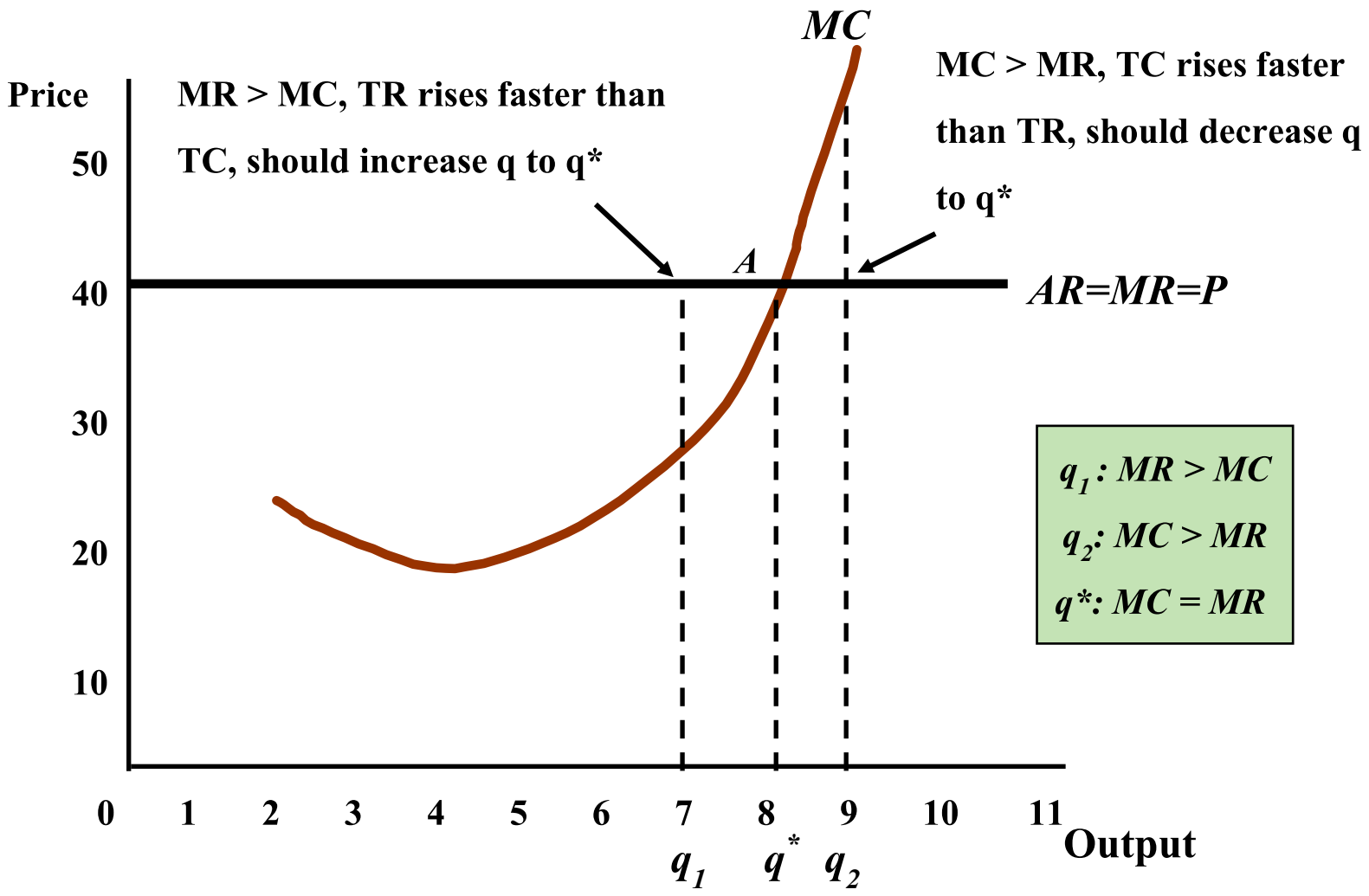


Profits are maximized where R(q) – C(q) is maximized

Profit Maximization – Short Run

- If the producer tries to raise price, sales are zero.
- Profit is negative to begin with since revenue is not large enough to cover fixed and variable costs.
- As output rises, revenue rises faster than costs increasing profit. Profit increases until it is maximized at q*.
- Profit is maximized where MR = MC or where slopes of the TR(q) and TC(q) curves are equal.

Profit Maximization: MR = MC

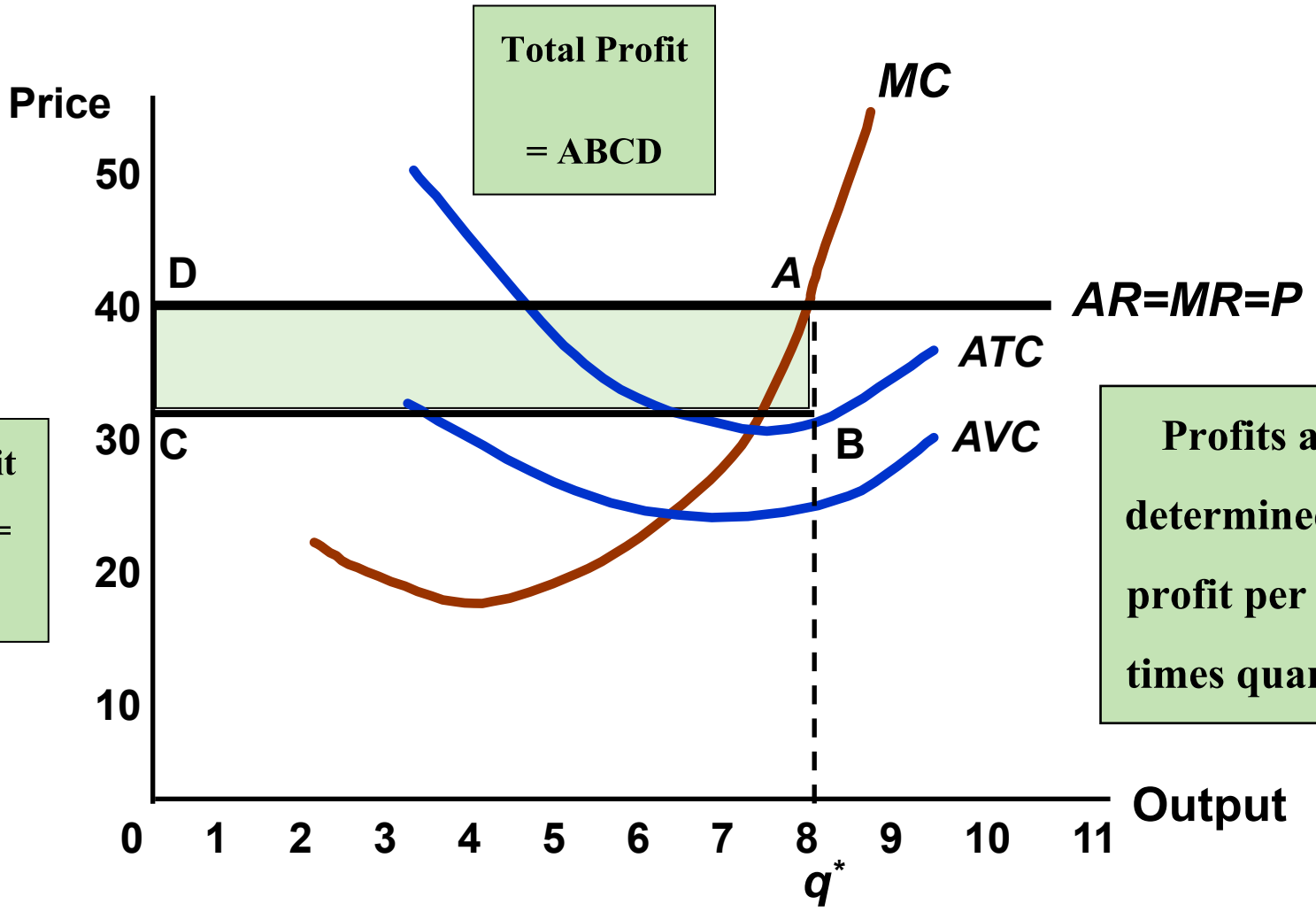


Profit Maximization – Short Run

- MR=MC at quantity, q*, of 8.
  - At a quantity less than 8, MR > MC: increasing output will increase profits.
  - At a quantity more than 8, MC > MR: increasing output will decrease profits.

- **A firm does not always make profits. It is possible for a firm to incur losses if the P < AC at q*. In this case, <u>MR=MC implies loss minimization</u>.**

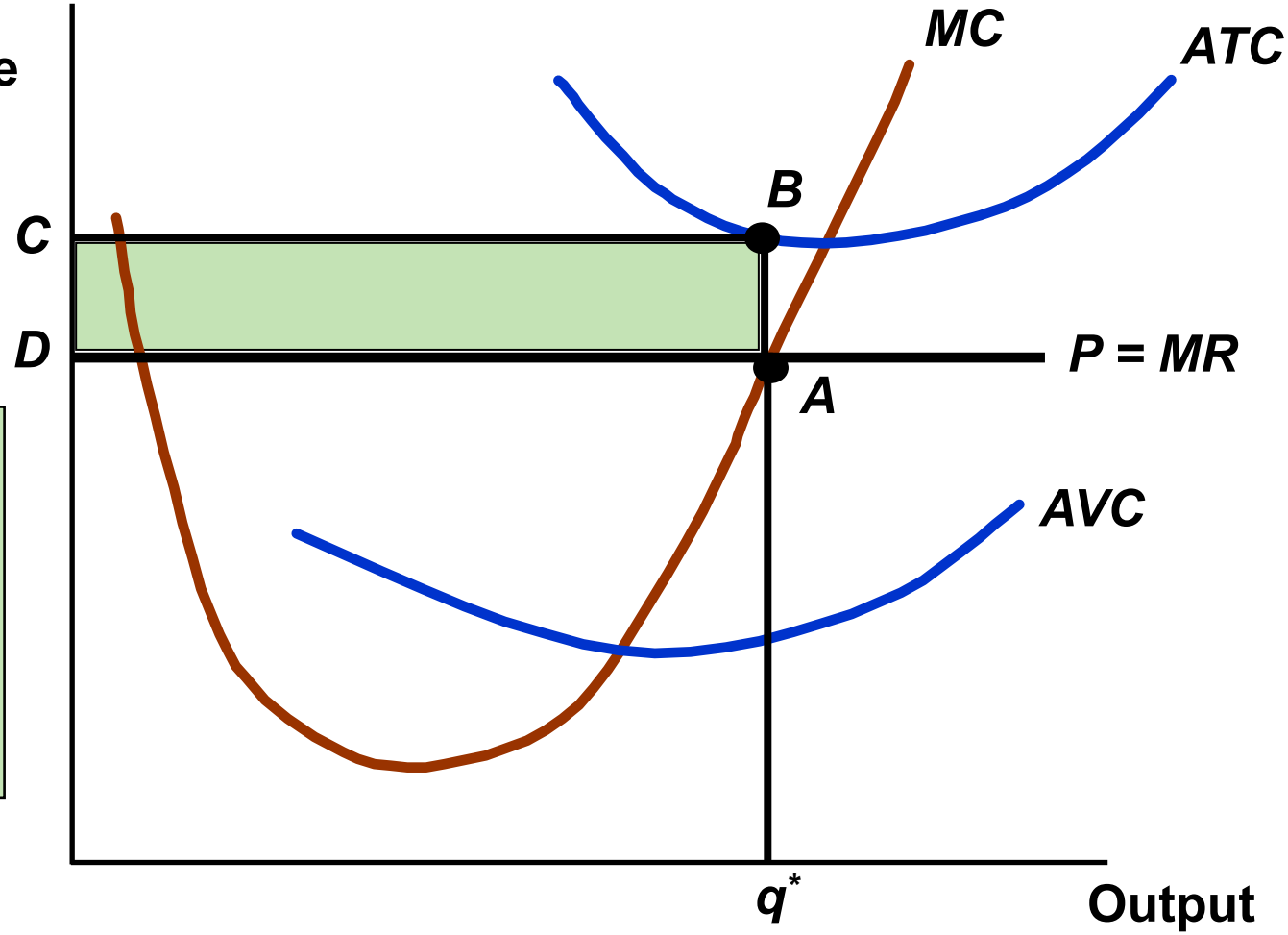
Choosing output: Positive Profits



Profit per unit = P - AC(q) = A to B

Profits are determined by profit per unit times quantity

Choosing output: Losses

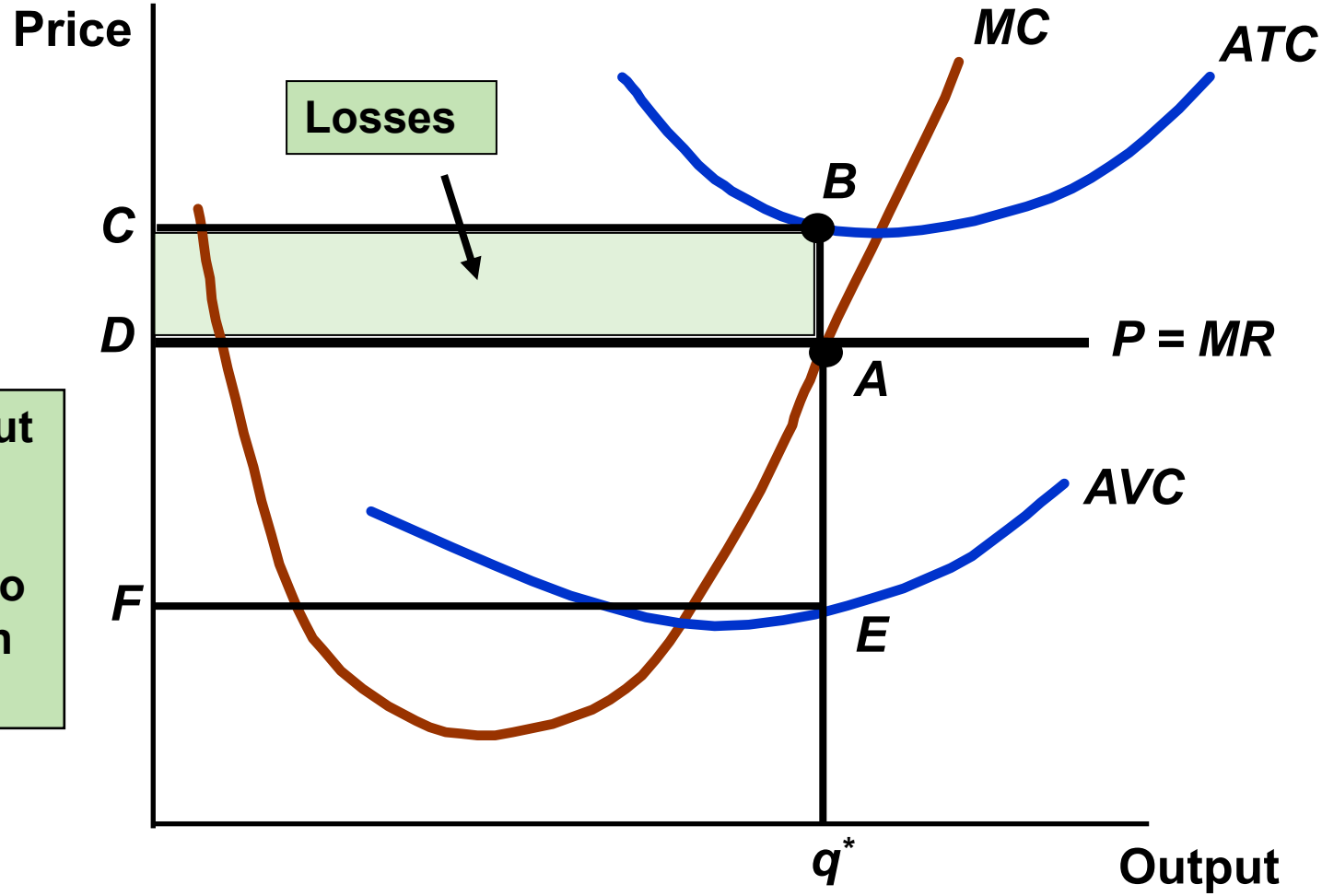


At q^*: MR = MC
and P < ATC
Losses =
(P- AC) x q^*
or area ABCD

Choosing output: Losses

- Why would firm produce at a loss?
  - Might think price will increase in near future
  - Shutting down and starting up could be costly
  - The loss may be smaller than when shut down
- Firm has two choices in short run
  - Continue producing
  - Shut down temporarily
  - Will compare profitability of both choices

Choosing output: Losses but should operate



P < ATC but > AVC so firm will continue to produce in short run

When should the firm shut down?

Operate: net revenue $= PQ - TVC - TFC.$

Shut down: net revenue $= -TFC.$

It should operate if $PQ - TVC - TFC > -TFC$

$$PQ - TVC > 0$$

$$TR > TVC$$

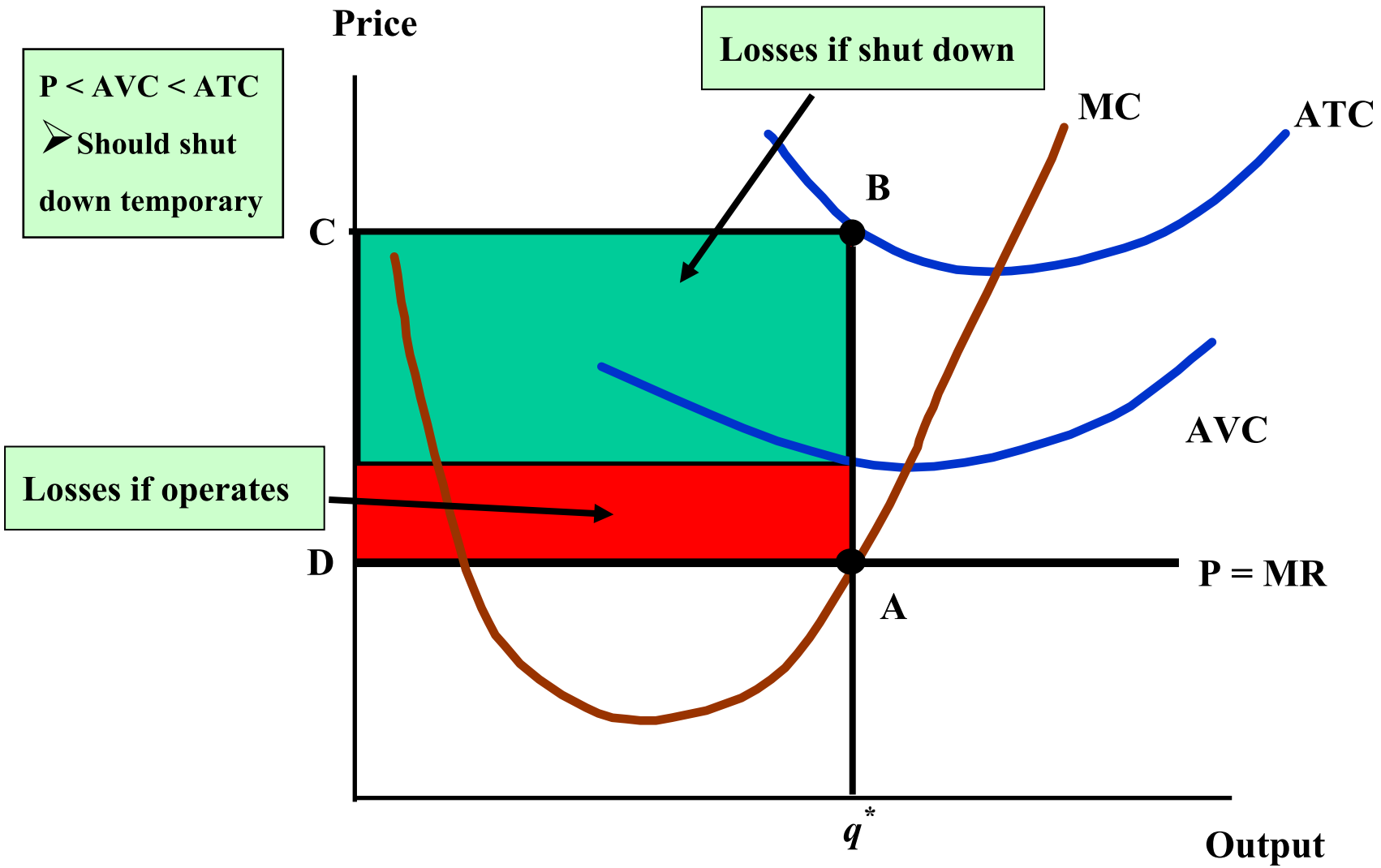
or $$P > AVC$$

It should shut down if $P \leq$ minimum AVC

When should the firm shut down?

- When should the firm shut down?
  - If AVC < P < ATC the firm should continue producing in the short run
    - Can cover all of its variable costs and some of its fixed costs
  - If P < AVC < ATC the firm should shut-down.
    - Cannot cover even its variable costs

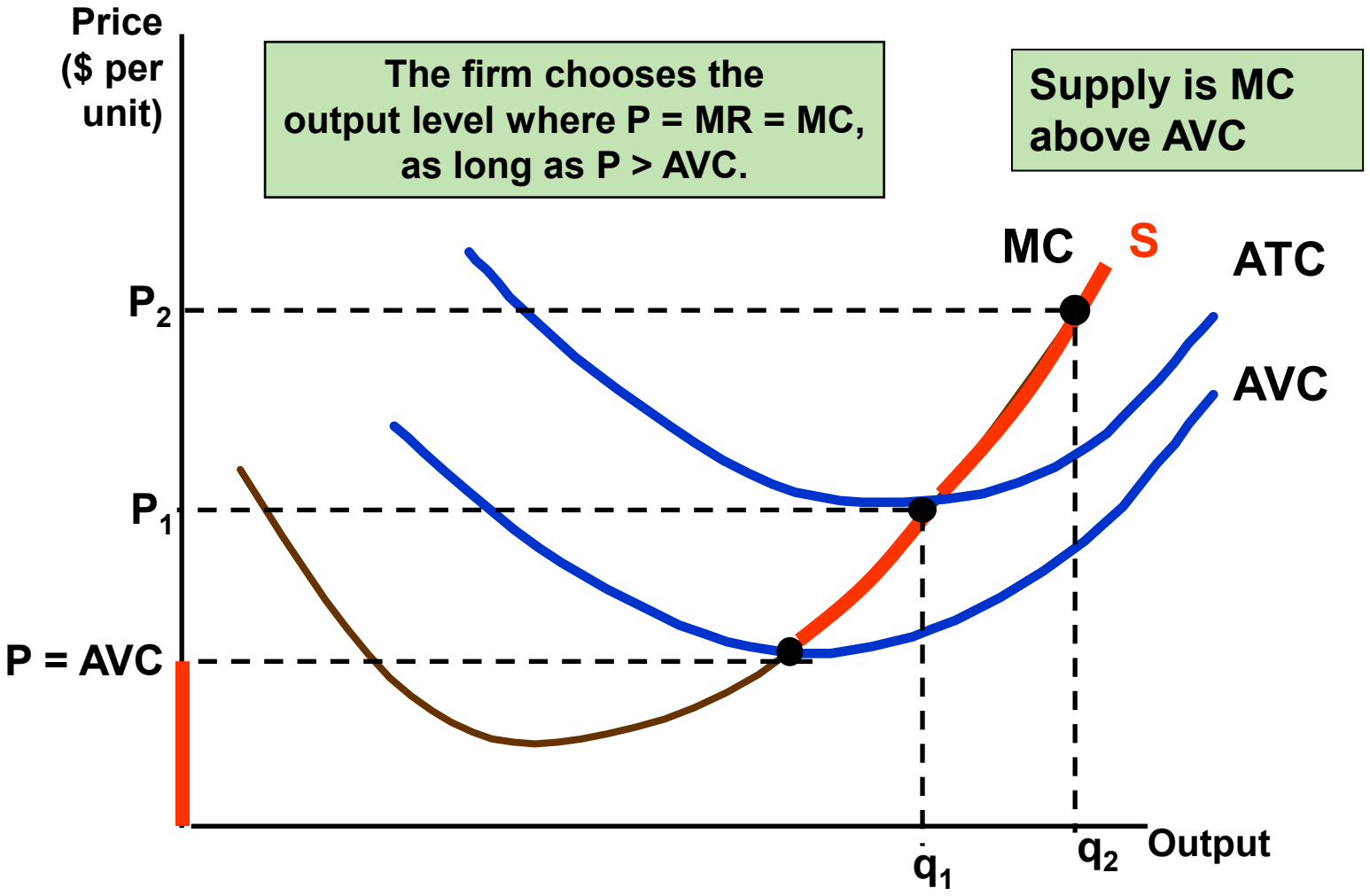
Choosing output: Losses and should shut down



A Competitive Firm's Short-Run Supply

- Supply curve tells how much output will be produced at different prices
- Competitive firms produce where P = MC
  - Firm shuts down when P < AVC
- Competitive firms supply curve is portion of the marginal cost curve above the AVC curve

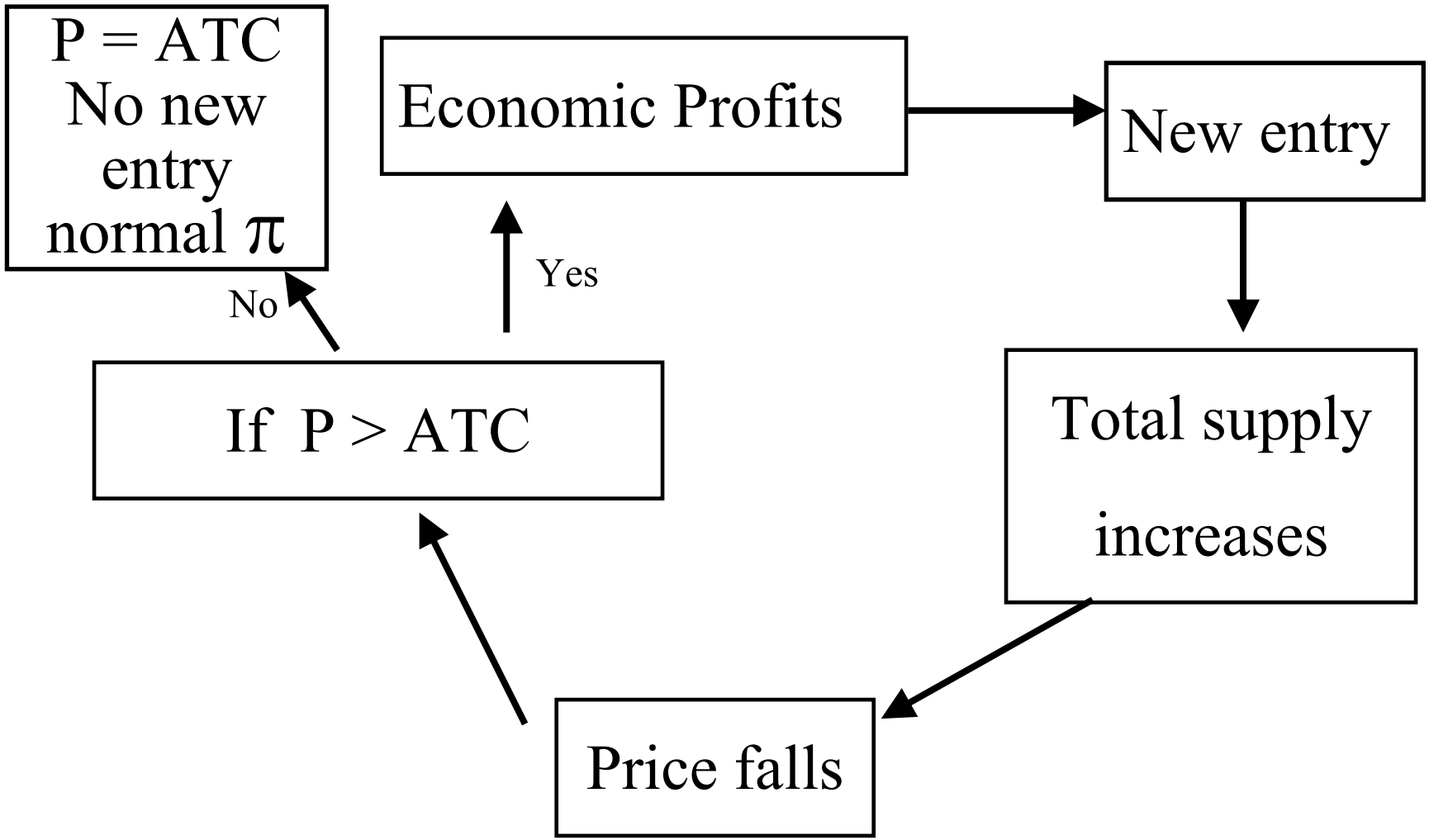
A Competitive Firm's Short-Run Supply



Long-Run Competitive Equilibrium

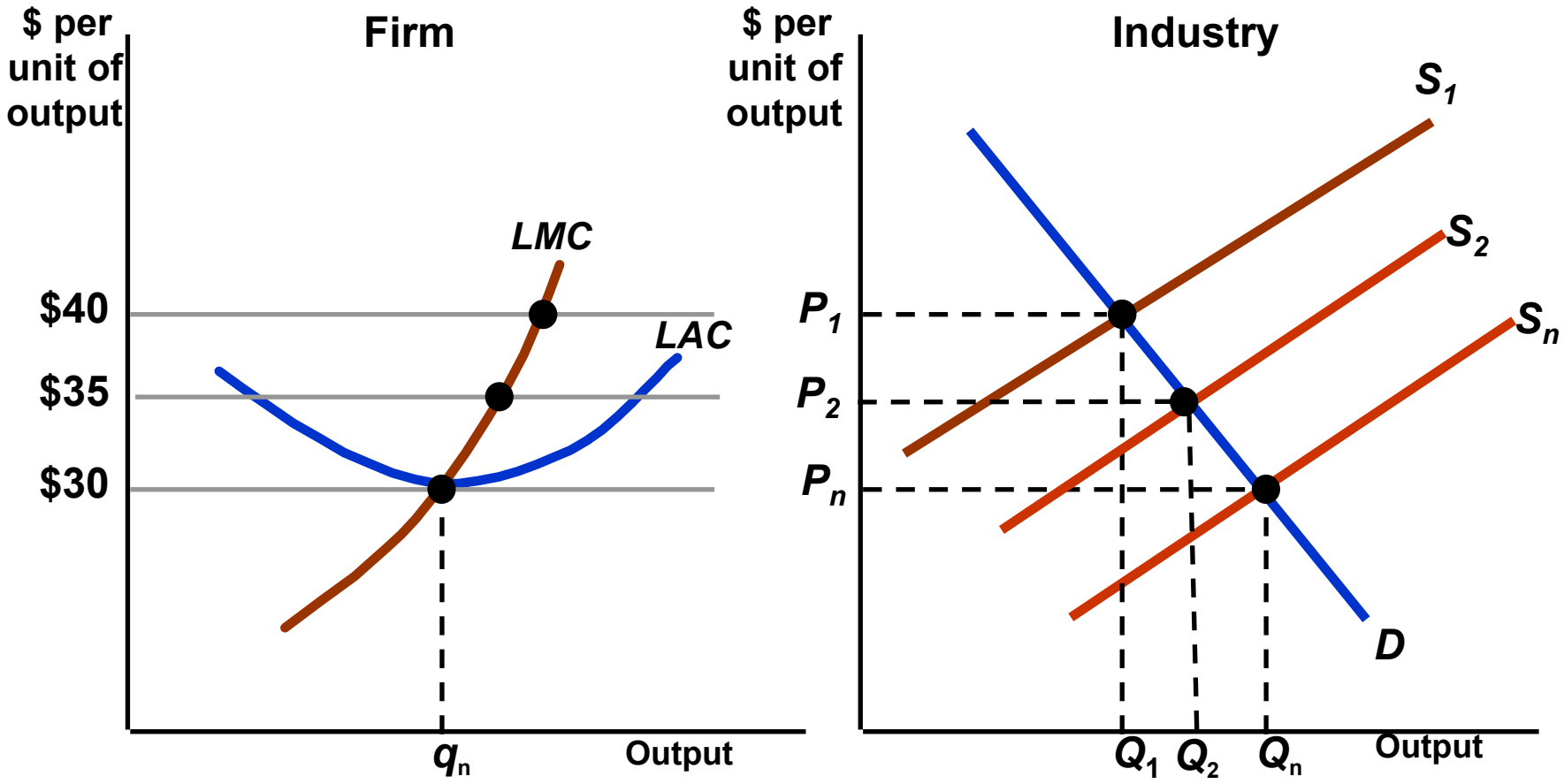
- For long run equilibrium, firms must have no desire to enter or leave the industry
- Zero-Profit
  - A firm is earning a normal return on its own resources
  - Doing as well as it could by using its resources elsewhere
  - Normal profit is firm's opportunity cost of using its own resources instead of using them elsewhere

Long-Run Competitive Equilibrium – Profits

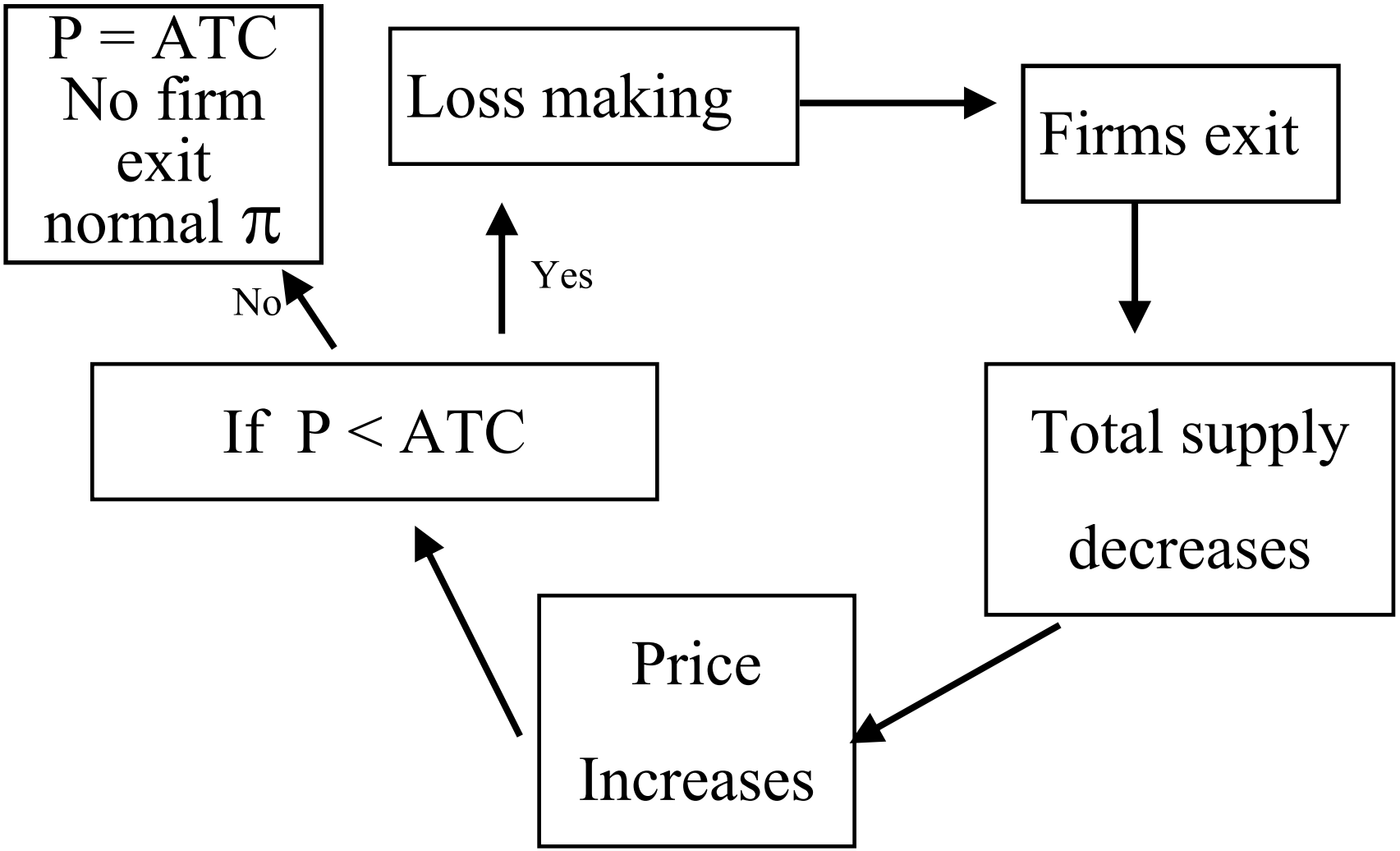


Long-Run Competitive Equilibrium – Profits

- Profit attracts firms
- Supply increases until profit = 0

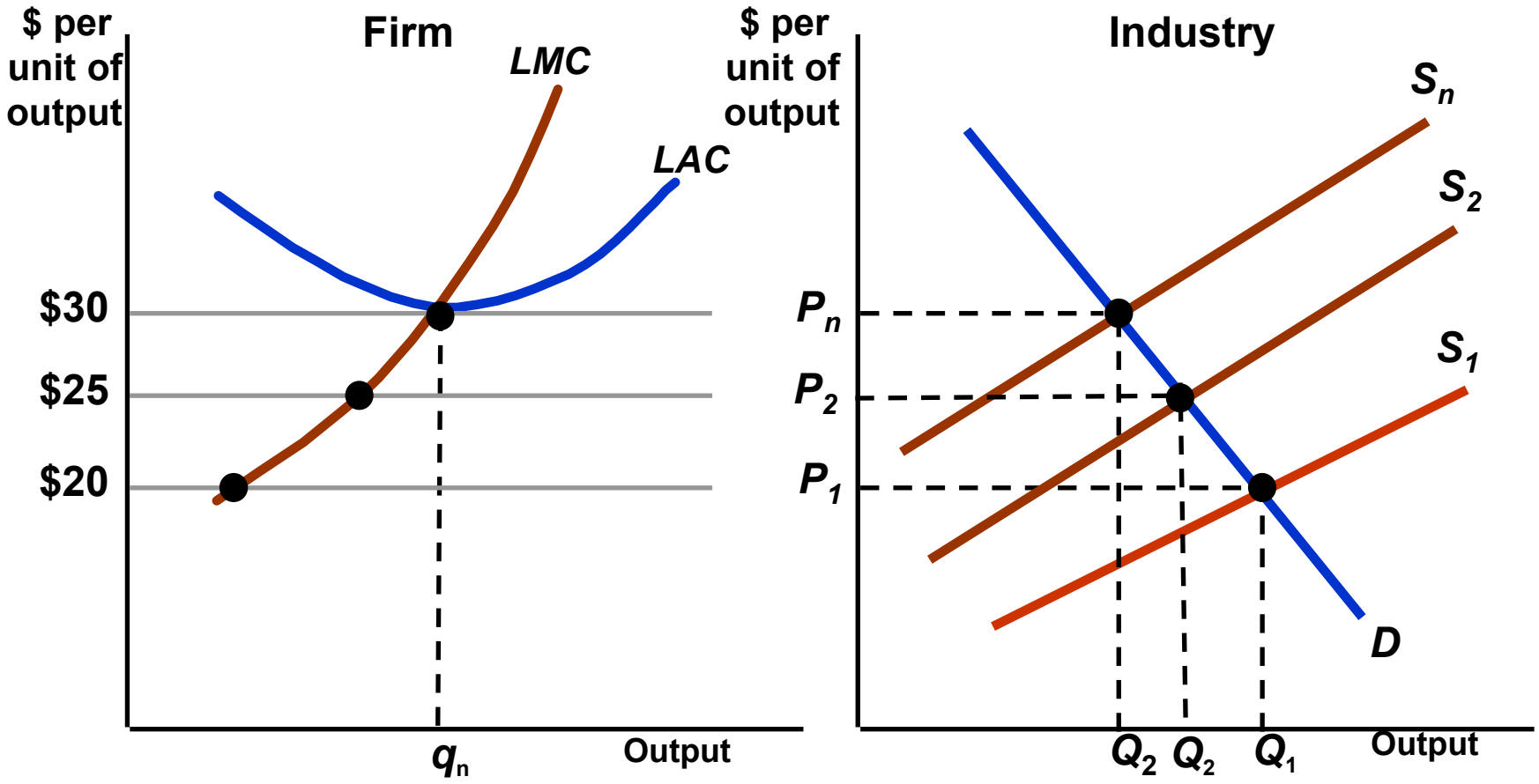


Long-Run Competitive Equilibrium – Losses



Long-Run Competitive Equilibrium – Losses

- Losses cause firms to leave
- Supply decreases until profit = 0



Long-Run Competitive Equilibrium

1. All firms in industry are maximizing profits
   - P = MR = LMC = LAC
2. No firm has incentive to enter or exit industry
   - Earning zero economic profits

Efficiency

Perfectly competitive market is the most efficient market.

- Produce at the lowest possible cost
  - P = Minimum LAC
  - It has productive efficiency.
- Generate the highest social welfare (social surplus)
  - D = S and CS + PS are largest
  - P = LMC, marginal benefit = marginal cost
  - It has allocative efficiency.