Competitive Markets

Market Structure

All features of a market that affect the behavior and performance of firms in the market, such as the number and size of sellers, the extent of knowledge about one another's actions, the degree of freedom of entry, and the degree of product differentiation

Competitive Market Structure

Market power — the influence that individual firms have on market prices.

The less power an individual firm has to influence the market price, the more competitive is that market's structure

- *A market is said to have a competitive structure when its firms have little or no market power. The more market power the firms have, the less competitive the market structure is.*

Competitive Behavior

Competitive behavior is the degree to which individual firms actively vie with one another for business.

The Significance of Market Structure

- When a firm decides how much output to produce in order to maximize its profit, it needs to know the demand for its product and also the costs of production.

- Demand for the firm's product- details of market structure determine how we get from the industry demand curve to the demand curve facing any individual firm in that industry.

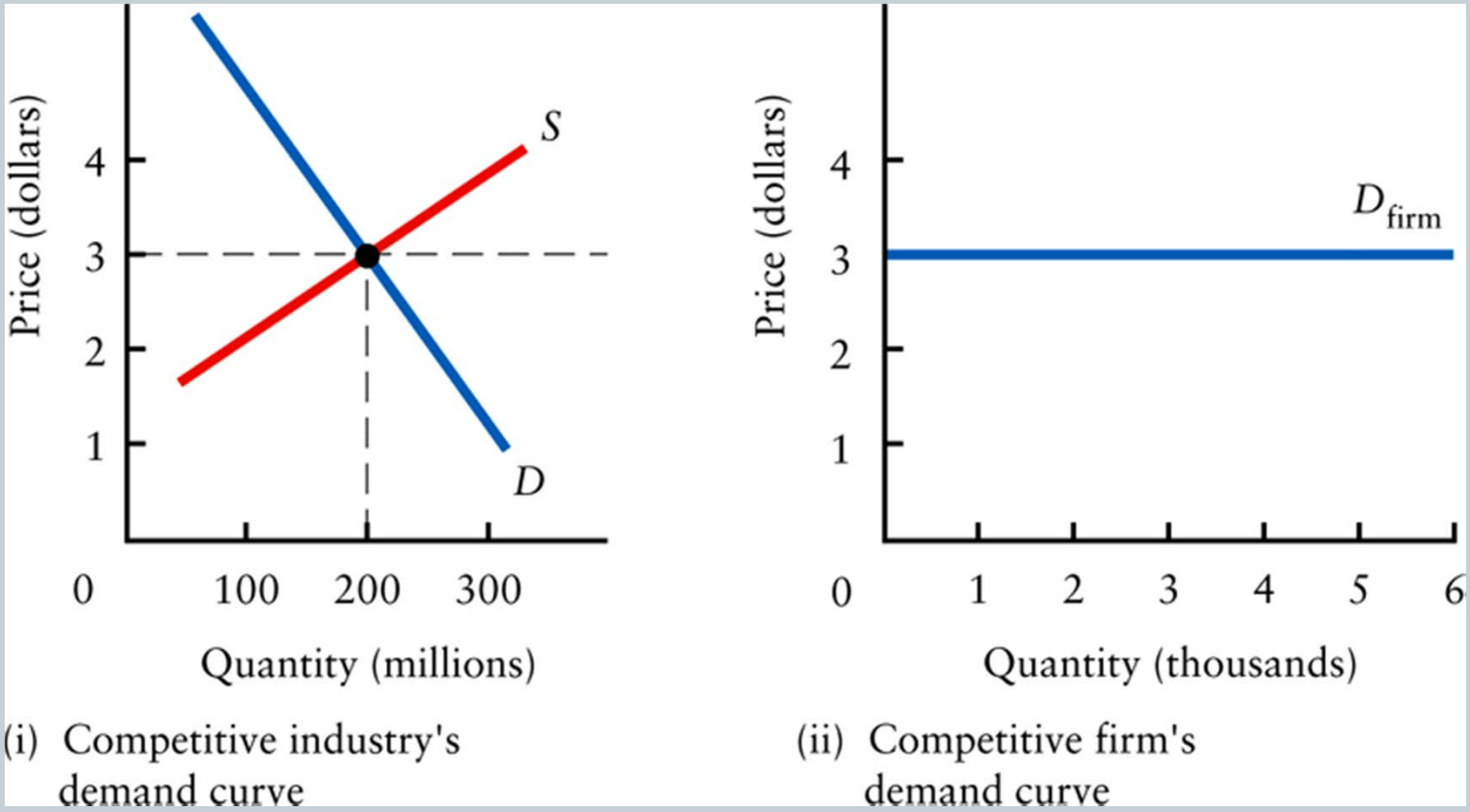
The Theory of Perfect Competition

The Assumptions of Perfect Competition

1. All firms sell a homogeneous product.
2. Customers know the product and each firm's price
3. Each firm reaches its minimum LRAC at a level of output that is small relative to the industry's total output.
4. Firms are free to exit and enter the industry.

1-3 ➔ Firms are price takers.

The Demand Curve for a Competitive Industry and for One Firm in the Industry



Revenue

Total, average, and marginal revenue

Total revenue (***TR***):

$$TR = p \times Q$$

Average revenue (***AR***):

$$AR = (p \times Q)/Q$$

Marginal revenue (***MR***):

$$MR = \Delta TR/\Delta Q$$

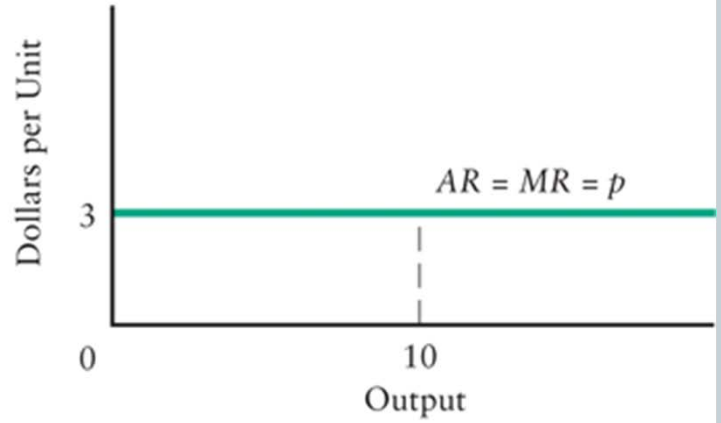
Note: For a perfectly competitive firm, ***AR*** = ***MR*** = ***p***.

Revenues for a Price-Taking Firm

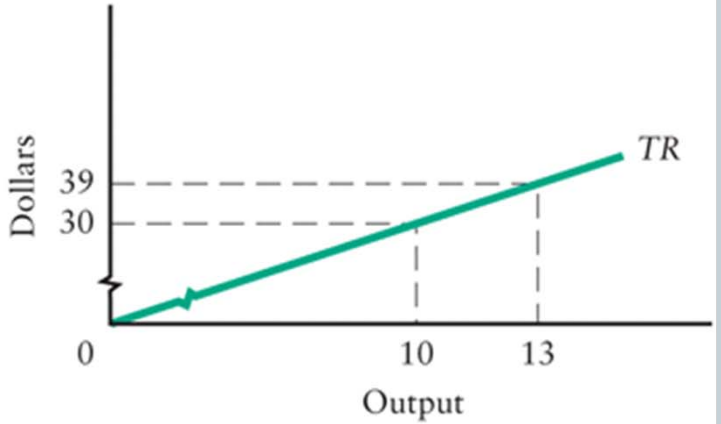
Revenue Concepts

Price p	Output Q	$TR = p \times Q$	$AR = TR/Q$	$MR = \Delta TR/\Delta Q$
\$3	10	\$30	\$3	
3	11	33	3	\$3
3	12	36	3	3
3	13	39	3	3

Revenue Curves



(i) Average and marginal revenue



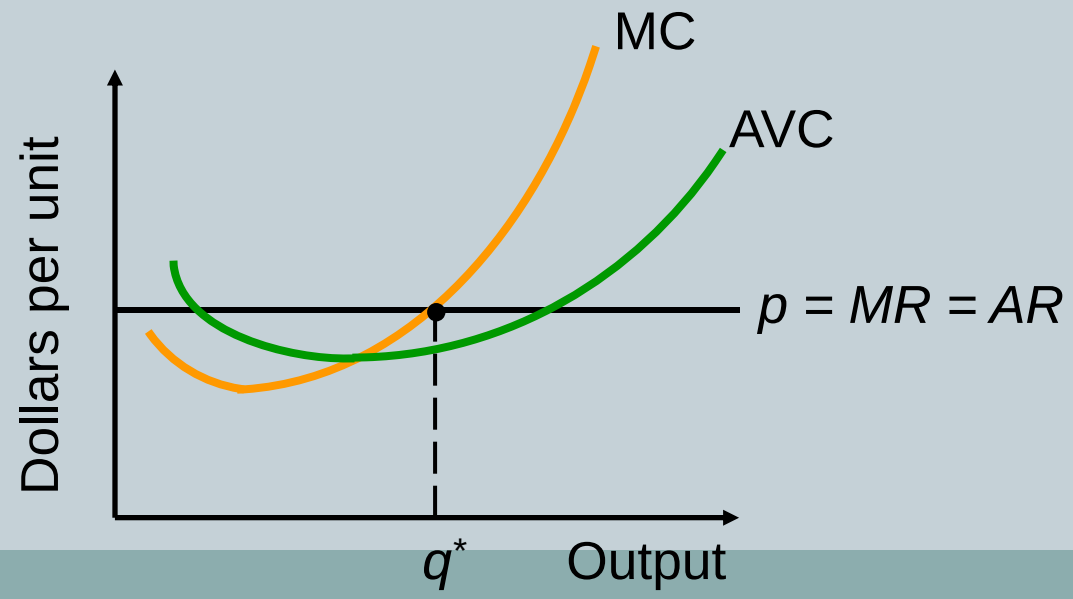
(ii) Total revenue

Short-Run Decisions

Rules for All Profit-Maximizing Firms

Should the Firm Produce at All?

A firm should produce only if at some level of output, price exceeds ***AVC***.



Negative Profits and the Firm's Shut-Down Decision

				Price = $2		Price = $5	
Q	*TVC*	*TFC*	*TC*	*TR*	Profit	*TR*	Profit
0	0	200	200	0	–200	0	–200
10	50	200	250	20	–230	50	–200
20	80	200	280	40	–240	100	–180
30	100	200	300	60	–240	150	–150
40	110	200	310	80	–230	200	–110
50	130	200	330	100	–230	250	–80
60	160	200	360	120	–240	300	–60
70	200	200	400	140	–260	350	–50
80	260	200	460	160	–300	400	–60
90	320	200	520	180	–340	450	–70
100	380	200	580	200	–380	500	–80

At a low price of $2, there is no level of output at which the firm's revenues cover its variable costs.

Production Decision

At the shut-down price the firm can just cover its average variable cost, and so is indifferent between producing and not producing.

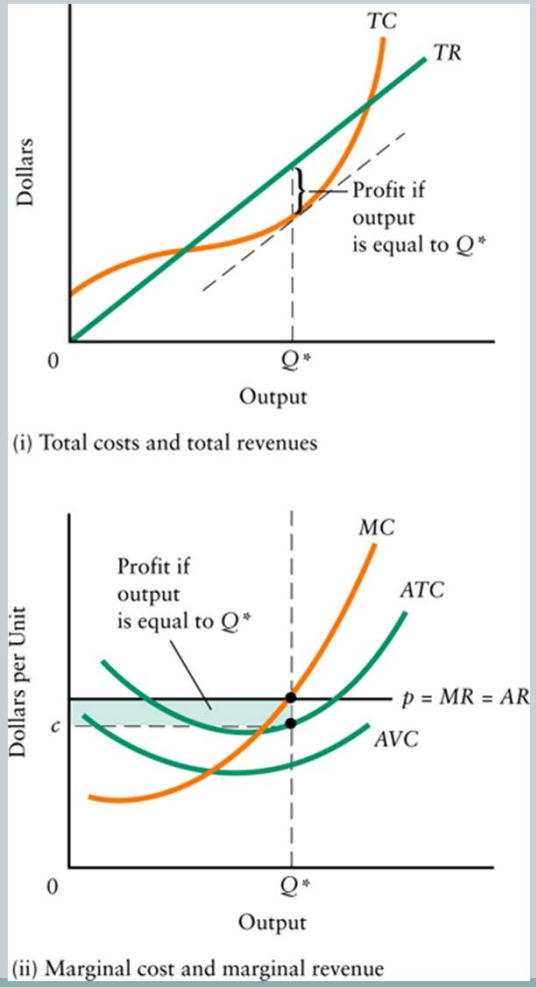
How Much Should the Firm Produce?

When p > AVC, the firm does not shut down.

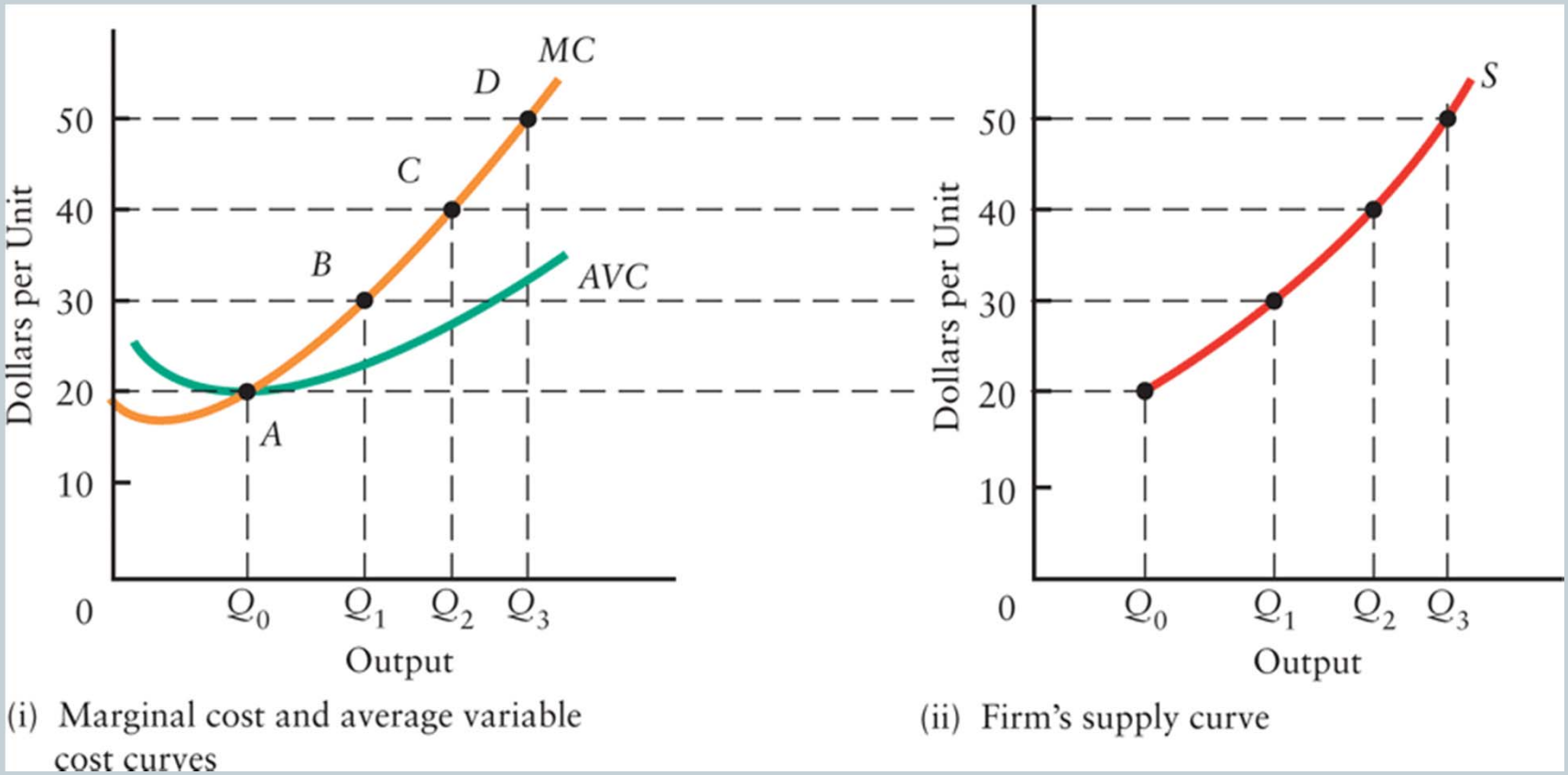
To maximize profits, the firm chooses the output where *MR* = *MC*. But for a competitive firm, *MR* = *p*:

The rule: choose output where *p* = *MC*.

Profit Maximization for a Competitive Firm



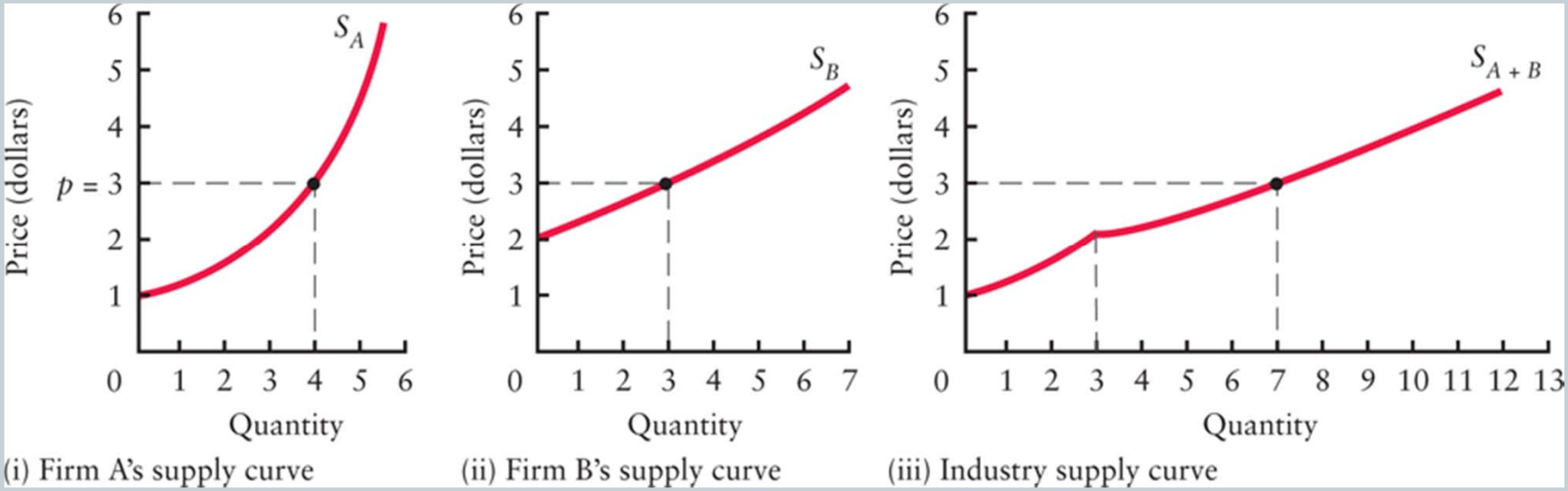
The Derivation of the Supply Curve for a Competitive Firm



(i) Marginal cost and average variable cost curves

(ii) Firm's supply curve

The Derivation of a Competitive Industry's Supply Curve



Short-Run Equilibrium in a Competitive Market

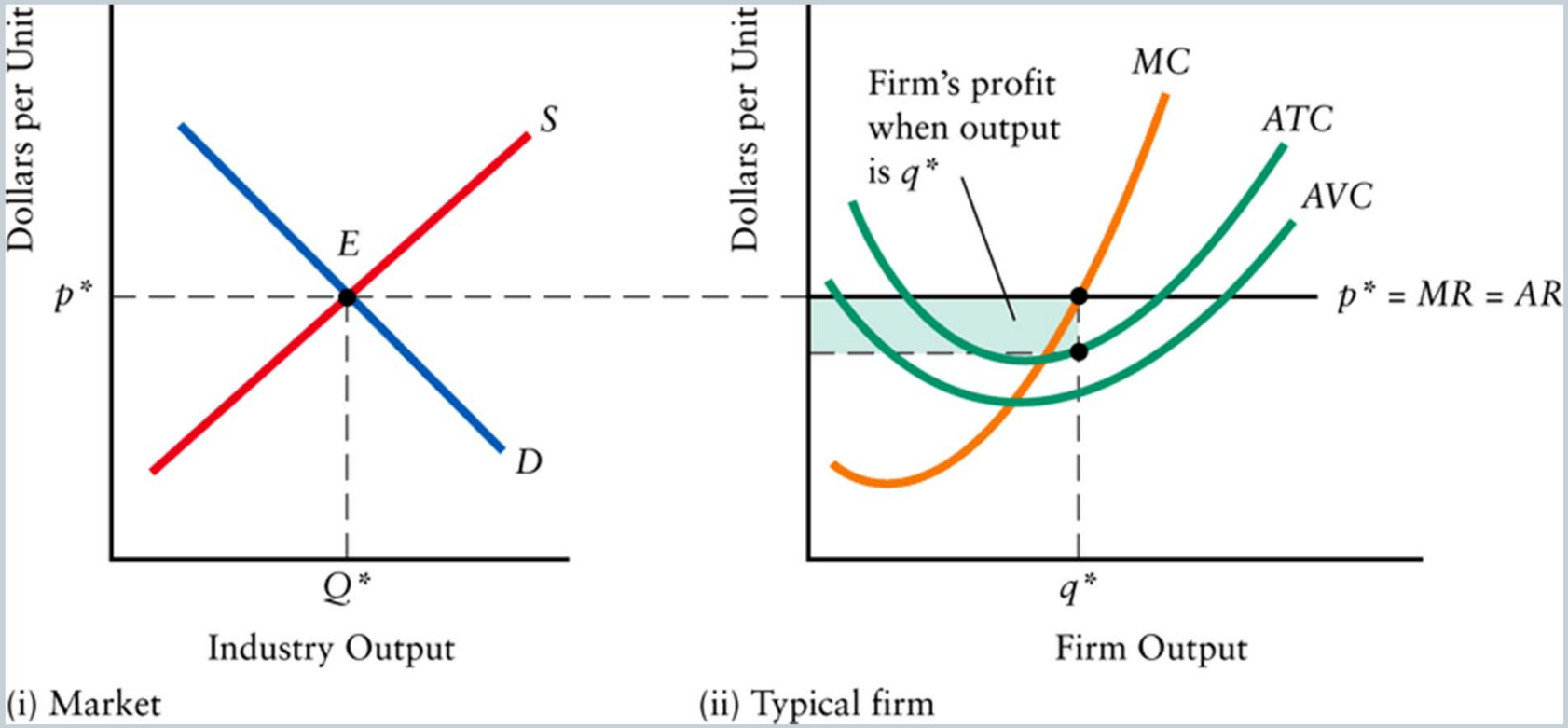
When an industry is in short-run equilibrium, two things are true:

- market price is such that the market clears
- each firm is maximizing its profits at this price

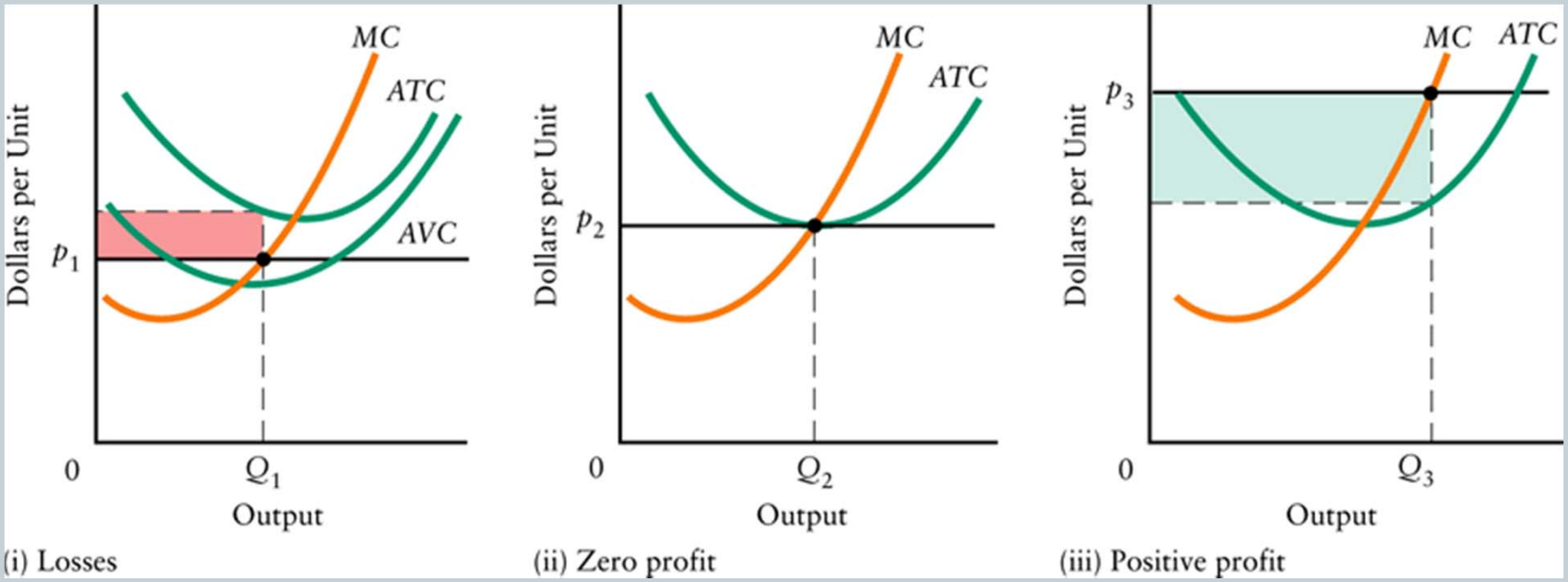
But how large are each firm's profits in this SR equilibrium?

There are three possibilities:

A Typical Firm When the Competitive Market Is in Short-Run Equilibrium



Alternative Short-Run Profits of a Competitive Firm



Long-Run Decisions

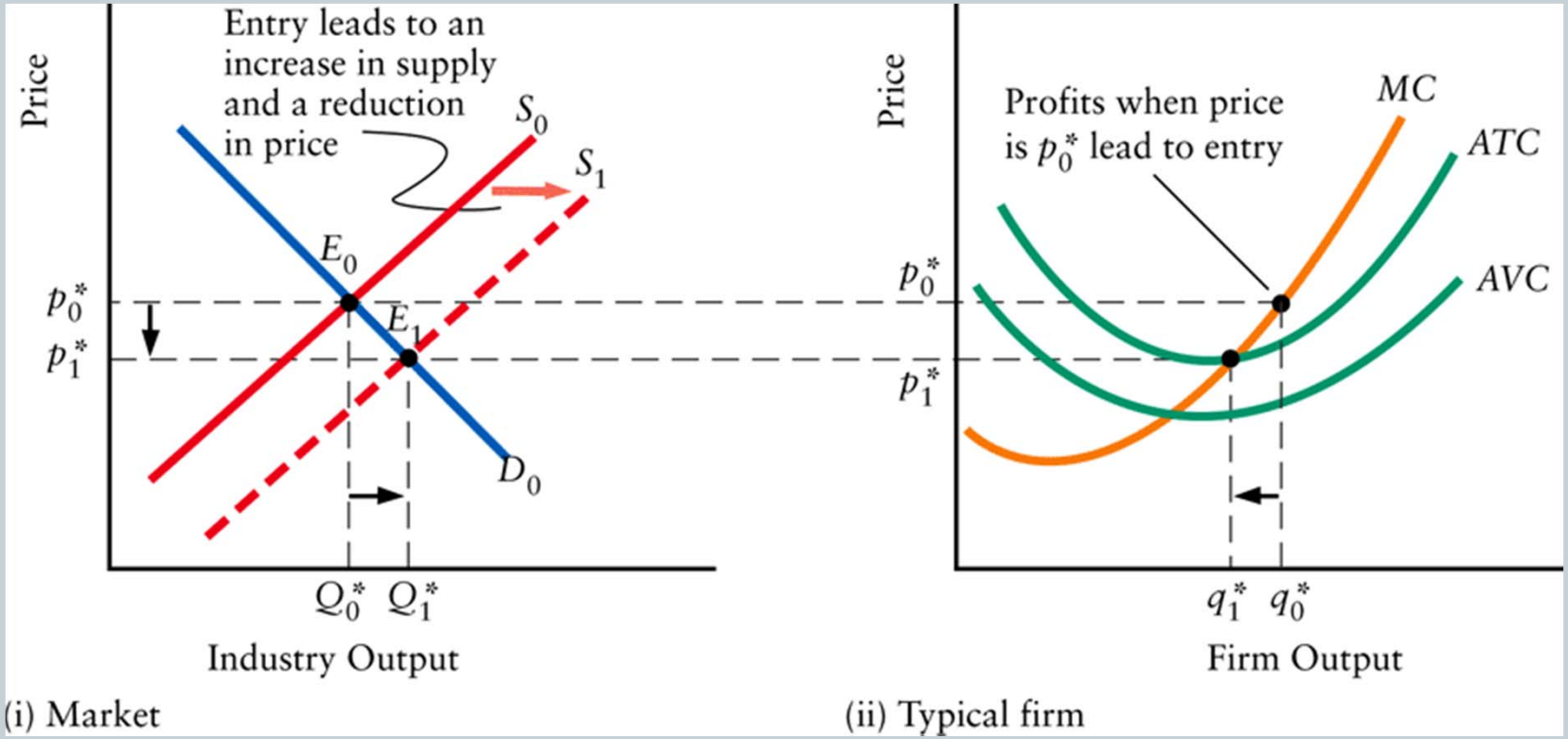
Entry and Exit

If existing firms have positive economic profits, new firms have an incentive to enter the industry.

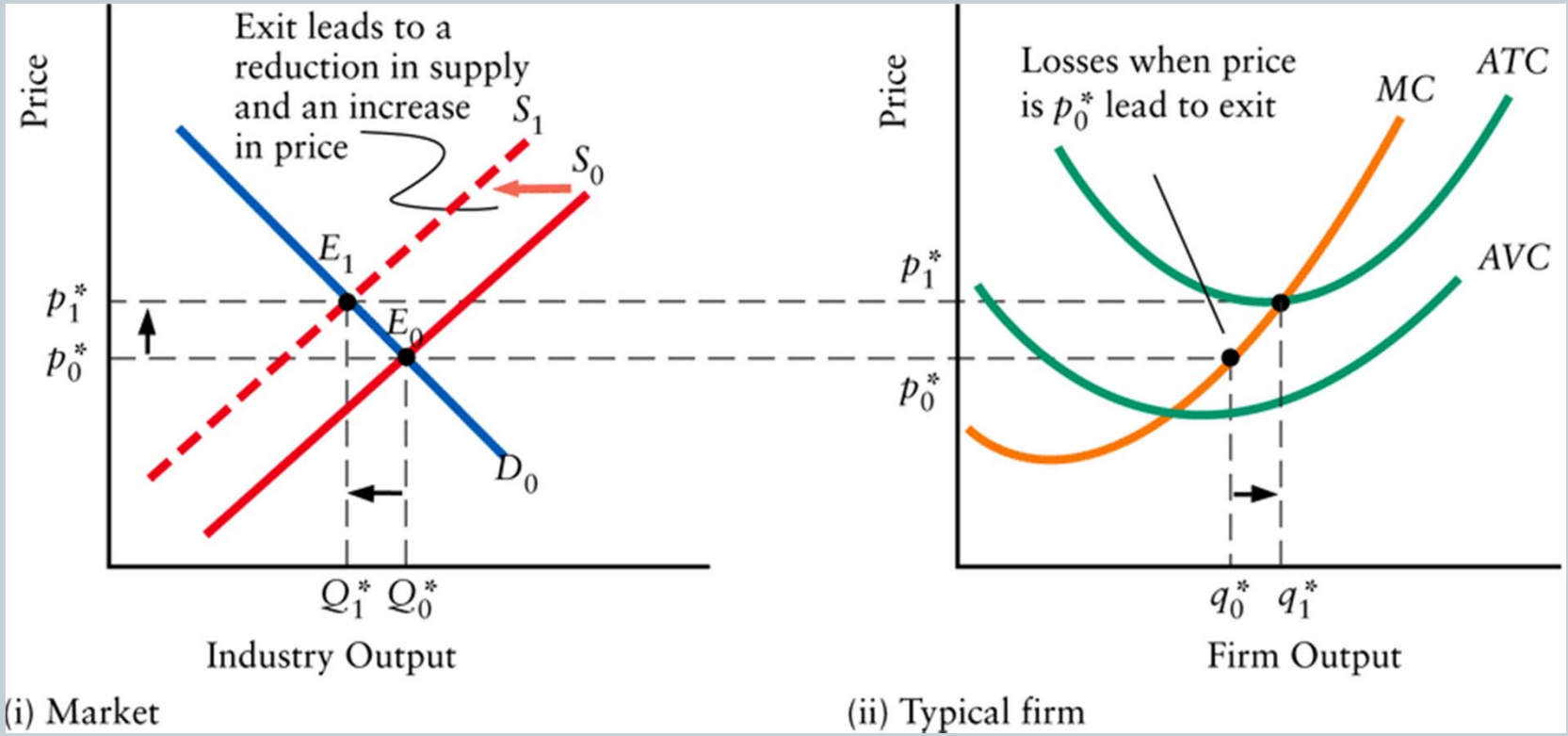
If existing firms have zero profits, there are no incentives for new firms to enter, and no incentives for existing firms to exit.

If existing firms have economic losses, there is an incentive for existing firms to exit the industry.

The Effect of New Entrants Attracted by Positive Profits



The Effect of Exit Caused by Losses



Sunk Costs and the Speed of Exit

The process of exit is not always quick and is sometimes painfully slow for the loss-making firms in the industry.

This depends on how quickly capital becomes obsolete or becomes too costly to operate.

The longer it takes for firms' capital to become obsolete or too costly to operate, the longer firms will remain in the industry while they are earning economic losses.

Long-Run Equilibrium

The long-run equilibrium of a competitive industry occurs when firms are earning zero profits

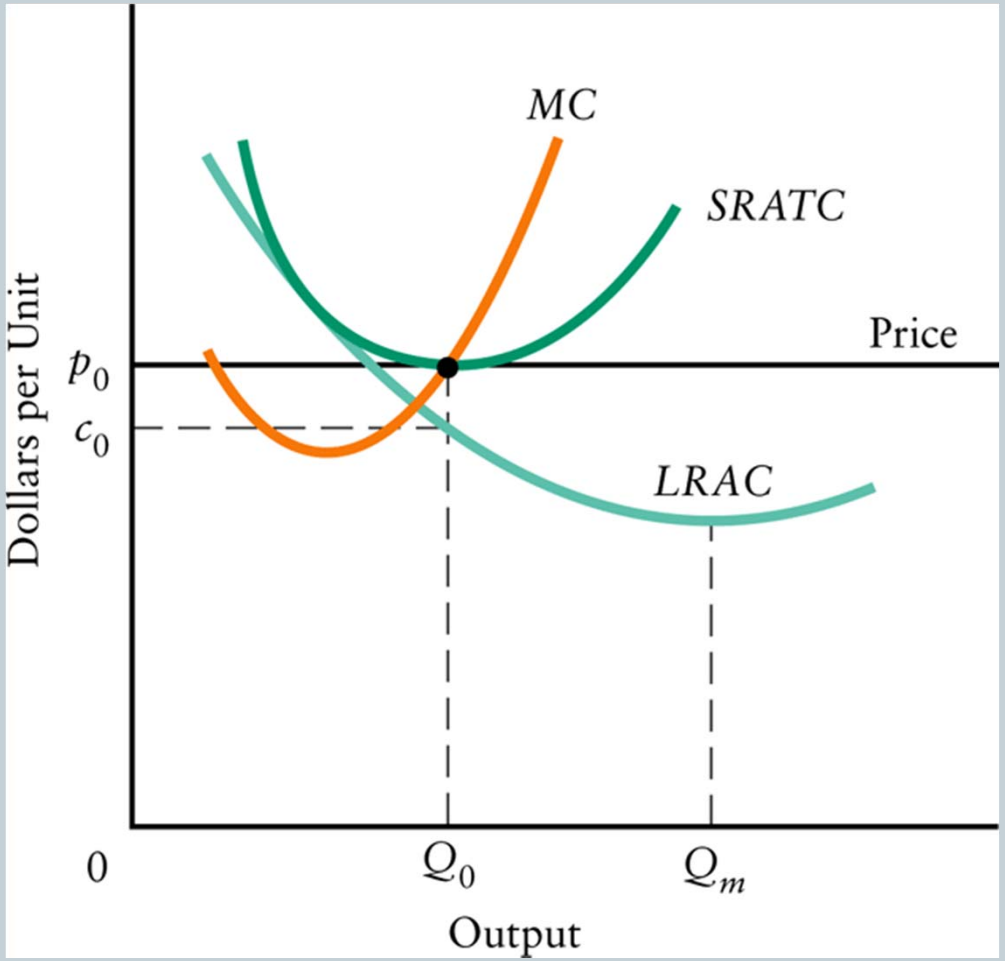
Break-even price – the price at which all costs, including the opportunity cost of capital, are being covered

Any firm that is just breaking even is willing to stay in the industry. It has no incentive to leave, nor do other firms have an incentive to enter.

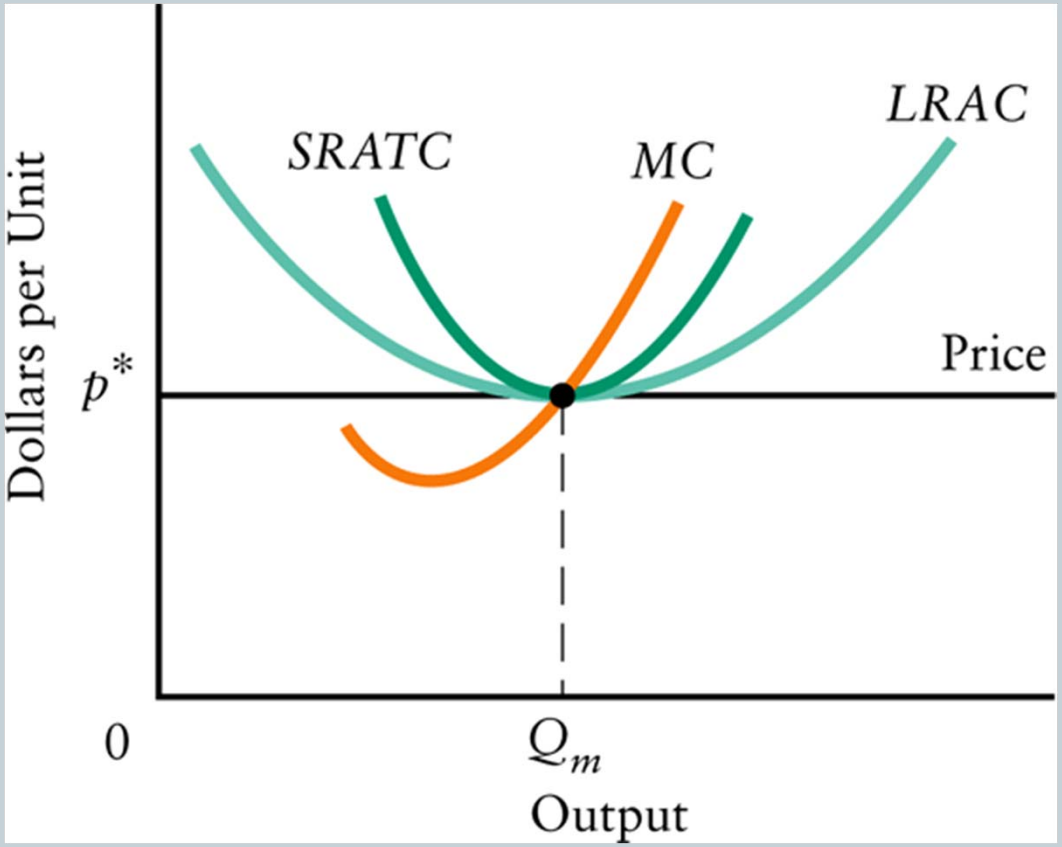
Conditions for Long-Run Equilibrium

1. Existing firms must be maximizing their profit, given their existing capital. Thus, short-run marginal costs of production must be equal to market price.
2. Existing firms must not be suffering losses. If they are suffering losses, they will not replace their capital and the size of the industry will decline over time.
3. Existing firms must not be earning profits. If they are earning profits, then new firms will enter the industry and the size of the industry will increase over time.
4. Existing firms must not be able to increase their profits by changing the size of their production facilities. Thus, each existing firm must be at the minimum point of its long run average cost (LRAC) curve.

Short-Run versus Long-Run Profit Maximization for a Competitive Firm



A Typical Competitive Firm When the Industry Is in Long-Run Equilibrium



Entry in the Long Run

Consider a competitive industry that is in long-run equilibrium. Now suppose that the market demand for the industry's product increases.

The price will rise, and profits will rise. Entry will then occur, and price will eventually fall.

Declining Industries

What happens when a competitive industry in LR equilibrium experiences a continual decrease in demand?

The efficient response is to continue operating with existing equipment as long as its variable costs of production can be covered. As demand shrinks, so will capacity.

Antiquated equipment in a declining industry is often the effect rather than the cause of the industry's decline.

Source:

- Lipsey, Ragan, and Storer (2008)