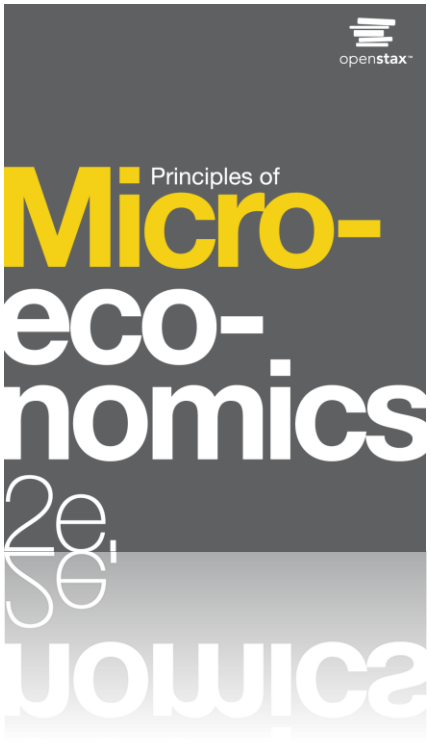
PRINCIPLES OF MICROECONOMICS 2e

Chapter 8 Perfect Competition

PowerPoint Image Slideshow



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Competition in Farming

Depending upon the competition and prices offered, a wheat farmer may choose to grow a different crop.
(Credit: modification of work by Daniel X. O'Neil/Flickr Creative Commons)

8.1 Perfect Competition and Why It Matters

- **Market structure** - the conditions in an industry, such as number of sellers, how easy or difficult it is for a new firm to enter, and the type of products that are sold.

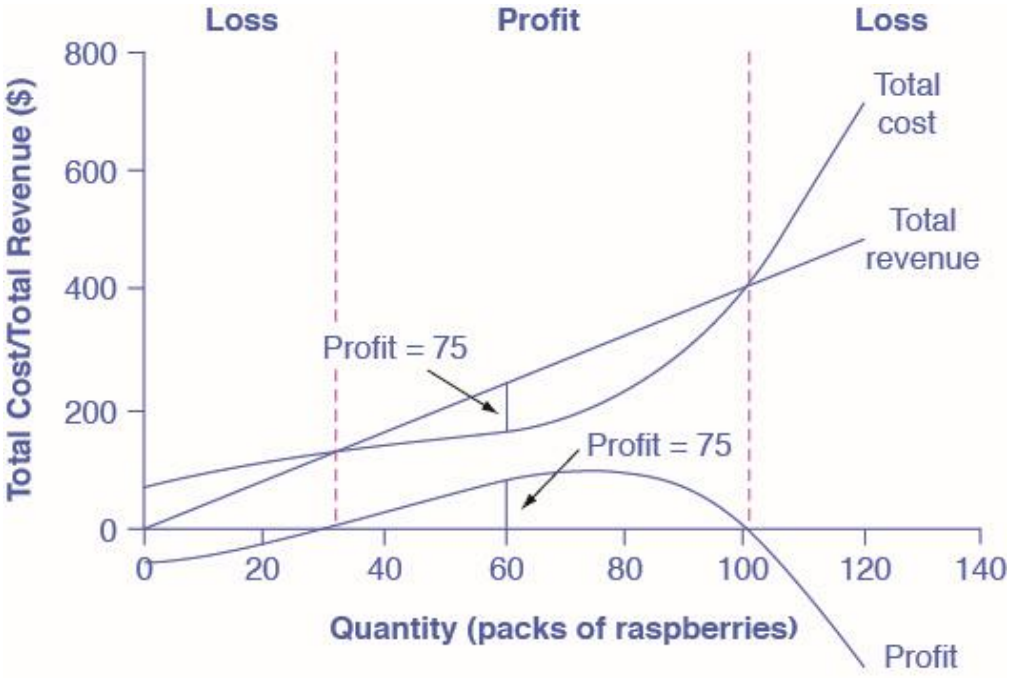
- **Perfect competition** - each firm faces many competitors that sell identical products.
  - 4 criteria:
    - many firms produce identical products,
    - many buyers and many sellers are available,
    - sellers and buyers have all relevant information to make rational decisions,
    - firms can enter and leave the market without any restrictions.

- **Price taker** - a firm in a perfectly competitive market that must take the prevailing market price as given.

8.2 How Perfectly Competitive Firms Make Output Decisions

- A perfectly competitive firm has only one major decision to make - *what quantity to produce*?
- A perfectly competitive firm must accept the price for its output as determined by the product's market demand and supply.
- The maximum profit will occur at the quantity where the difference between total revenue and total cost is largest.

Total Cost and Total Revenue at a Raspberry Farm



- Total revenue for a perfectly competitive firm is a straight line sloping up; the slope is equal to the price of the good.
- Total cost also slopes up, but with some curvature.
- At higher levels of output, total cost begins to slope upward more steeply because of diminishing marginal returns.
- The maximum profit will occur at the quantity where the difference between total revenue and total cost is largest.

Comparing Marginal Revenue and Marginal Costs

- **Marginal revenue** (MR) - the additional revenue gained from selling one more unit.

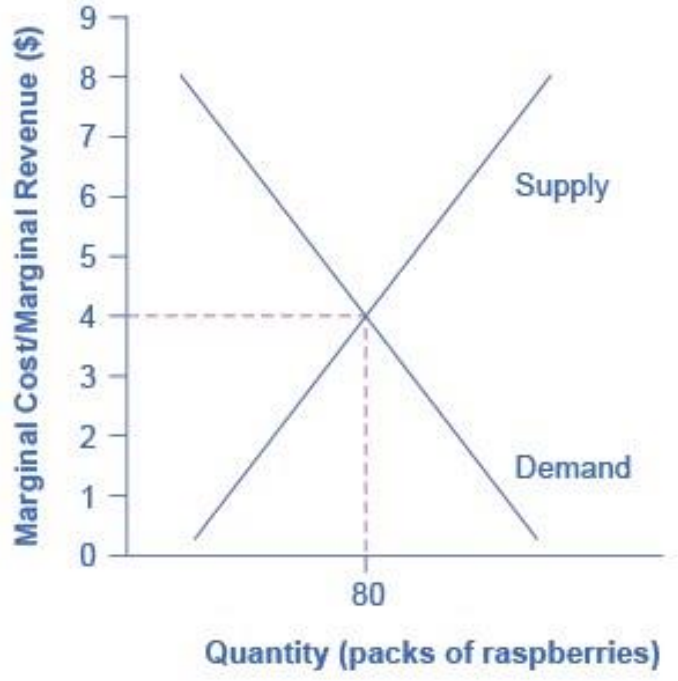
$$MR = \frac{\text{change in total revenue}}{\text{change in quantity}}$$

- **Marginal cost** (MC) - the cost per additional unit sold.

$$MC = \frac{\text{change in total cost}}{\text{change in quantity}}$$

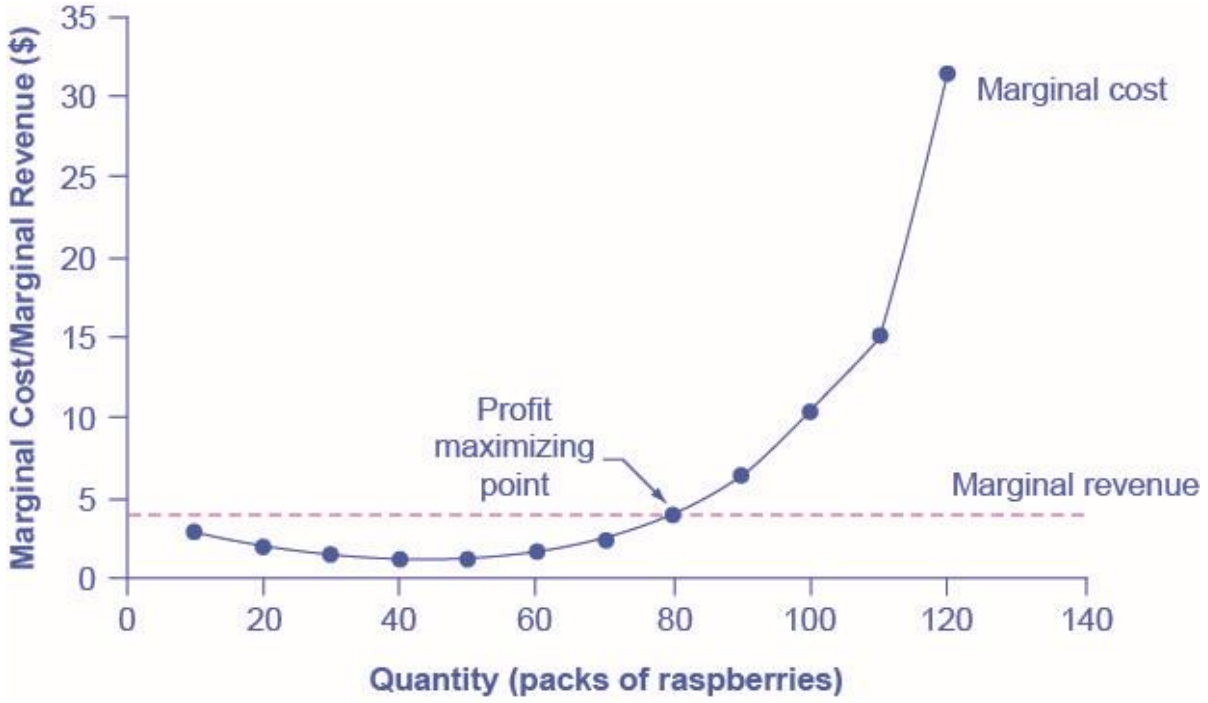
- The profit-maximizing choice for a perfectly competitive firm will occur at the level of output where MR=MC.

Marginal Revenues and Marginal Costs at the Raspberry Farm: Raspberry Market



- The equilibrium price of raspberries is determined through the interaction of market supply and market demand at $4.00.

Marginal Revenues and Marginal Costs at the Raspberry Farm: Individual Farmer



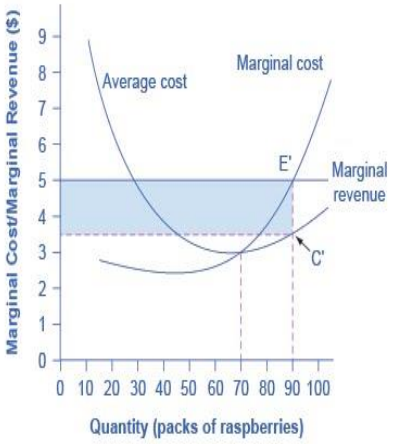
- For a perfectly competitive firm, the marginal revenue curve is a horizontal line because it is equal to the price of the good ($4), which is determined by the market.
- The marginal cost curve is sometimes initially downward-sloping, if there is a region of increasing marginal returns at low levels of output.
- It is eventually upward-sloping at higher levels of output as diminishing marginal returns kick in.

Profits and Losses with the Average Cost Curve

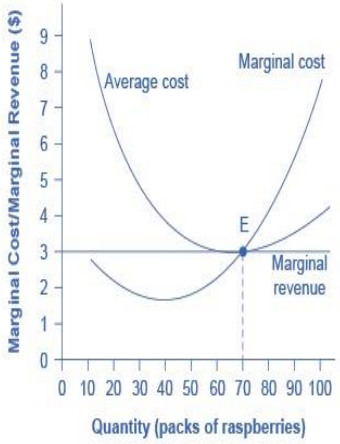
Does maximizing profit (producing where MR = MC) imply an actual economic profit?

The answer depends on the relationship between price and average total cost, which is the average profit or **profit margin**.

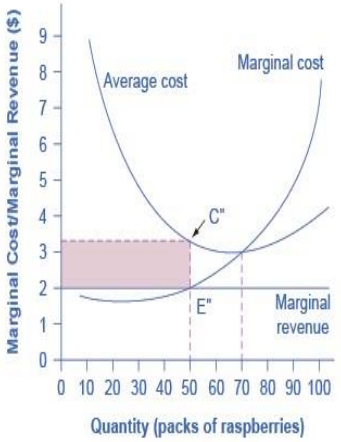
Price and Average Cost at the Raspberry Farm



(a) Price is above average cost



(b) Price equals cost



(c) Price is below average cost

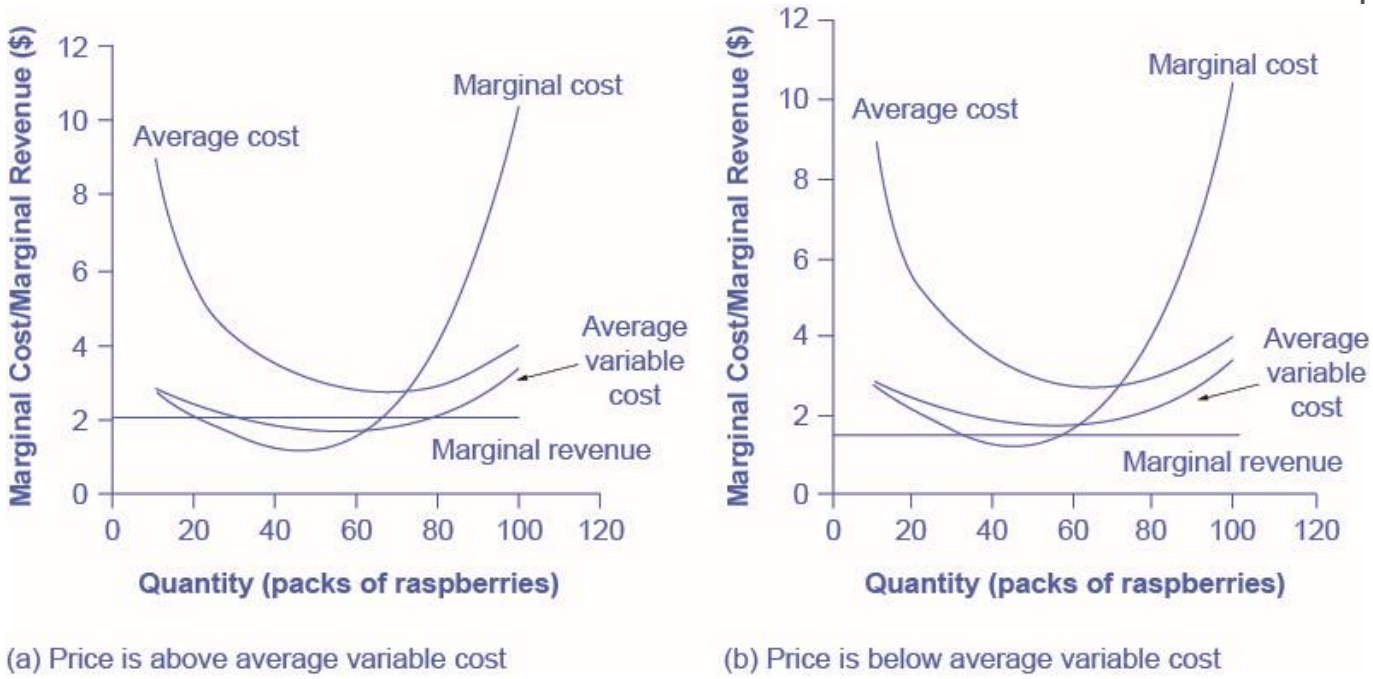
- In (a), price intersects MC *above* the AC curve.
  - Since price > AC, the firm is making a <u>profit</u>.
- In (b), price intersects MC at the minimum point of the AC curve.
  - Since price = AC, the firm is *breaking even*.
- In (c), price intersects MC below the AC curve.
  - Since price < average cost, the firm is making a *loss*.

The Shutdown Point

Discussion Question: Why can a firm not avoid losses by shutting down and not producing at all?

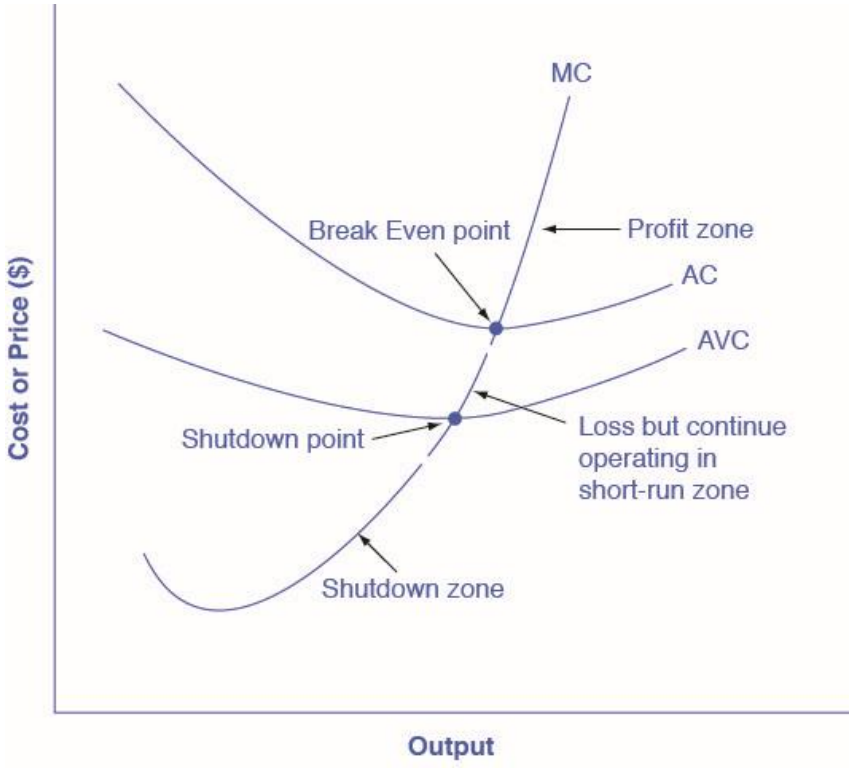
- **Shutdown point** - the intersection of the average variable cost curve and the marginal cost curve. If:
  - price < minimum AVC, then the firm shuts down
  - price > minimum AVC, then the firm stays in business

The Shutdown Point for the Raspberry Farm



- In (a), the farm produces at a level of 65. It is making losses, but price > AVC, so it continues to operate.
- In (b), the farm produces at a level of 60. This price < AVC for this level of output.
- If the farmer cannot pay workers (the variable costs), then it has to shut down.

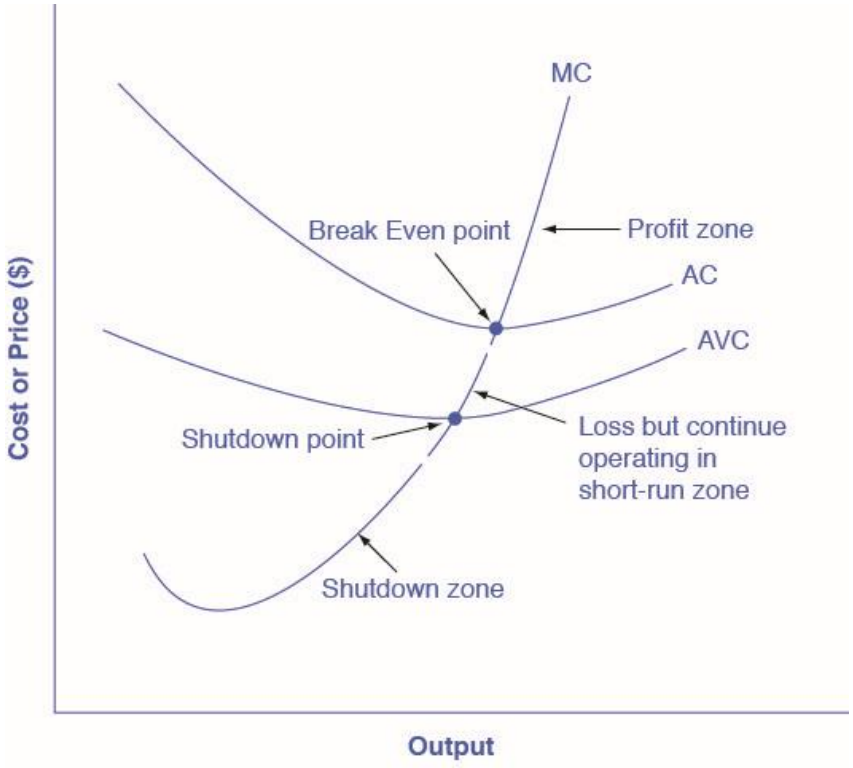
Short-Run Outcomes for Perfectly Competitive Firms



- We can divide the MC curve into 3 zones, based on where it is crossed by the AC and AVC curves.
- We call the point where MC crosses AC the break even point.
- If the firm is operating where *price* > *break even point*, then price > AC and the firm is earning profits.
- If the *price* = *break even point*, then the firm is making zero profits.

Break even point - level of output where the MC intersects the AC curve at the minimum point of AC; if the price is at this point, the firm is earning zero economic profits.

Short-Run Outcomes for Perfectly Competitive Firms, Continued



- If *shutdown point* < *price* < *break even point*,
  - the firm is making losses
  - but will continue to operate in the short run,
  - since it is covering its variable costs, and more if price is above the shutdown-point price.

- If *price* < *shutdown point*, then the firm will shut down immediately, since it is not even covering its variable costs.

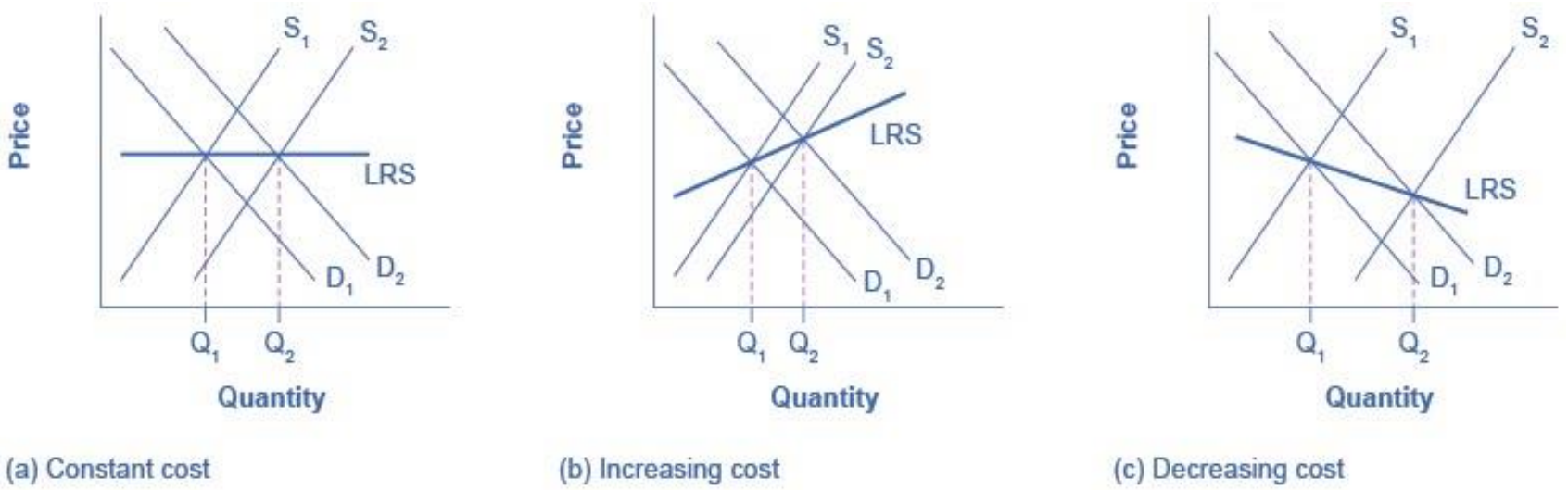
8.3 Entry and Exit Decisions in the Long Run

- **Entry** - when new firms enter the industry in response to increased industry profits.
- **Exit** - the long-run process of reducing production in response to a sustained pattern of losses.
- **Long-run equilibrium** - where all firms earn zero economic profits producing the output level where P = MR = MC and P = AC.

The Long-Run Adjustment and Industry Types

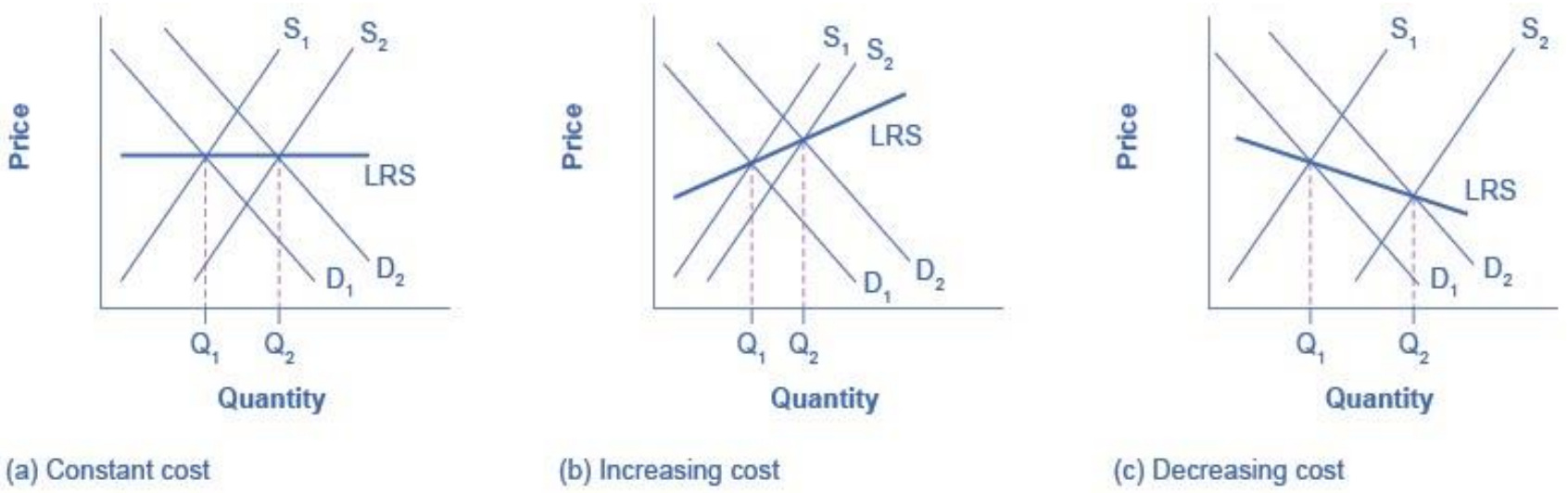
- Constant cost industry - as demand increases, the cost of production for firms stays the same.
- Increasing cost industry - as demand increases, the cost of production for firms increases.
- Decreasing cost industry - as demand increases the costs of production for the firms decreases

Adjustment Process in a Constant-Cost Industry



- In (a), demand increased and supply met it.
  - Notice that the supply increase is equal to the demand increase.
  - The result is that the equilibrium price stays the same as quantity sold increases.

Adjustment Process in a Constant-Cost Industry



- In (b), notice that sellers were not able to increase supply as much as demand.
  - Some inputs were scarce, or wages were rising.
  - The equilibrium price rises.

- In (c), sellers easily increased supply in response to the demand increase.
  - Here, new technology or economies of scale caused the large increase in supply, The equilibrium price declines.

8.4 Efficiency in Perfectly Competitive Markets

- When profit-maximizing firms in perfectly competitive markets *combine* with utility-maximizing consumers, the resulting quantities of outputs of goods and services demonstrate both productive and allocative efficiency.

- Productive efficiency means producing without waste, so that the choice is on the PPF.

- In the long run in a perfectly competitive market, the price in the market is equal to the minimum of the long-run average cost curve.

- In other words, firms produce and sell goods at the lowest possible average cost.

Perfectly Competitive Market and Allocative Efficiency

- Allocative efficiency means that among the points on the production possibility frontier, the chosen point is socially preferred.
- In a perfectly competitive market, P = MC of production.
- When perfectly competitive firms follow the rule that profits are maximized by producing at the quantity where P = MC, they are ensuring that the social benefits they receive from producing a good are in line with the social costs of production.

Compare Perfect Competition to Real-world Markets

- Perfect competition is a hypothetical benchmark.

- Real-world markets include many issues that are assumed away in the model of perfect competition.
  - Such as:
    - Pollution,
    - Inventions of new technology
    - Poverty (some people are unable to pay for basic necessities)
    - Government programs
    - Discrimination in labor markets
    - Buyers and sellers with imperfect and unclear information.