Production Theories (2)

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From the Firm's Problem to the Supply Curve

- The MR=MC rule is powerful because, by linking the market price to the MC curve, we can determine in the short run how a competitive firm changes its output when the market price changes.
- It permits us to describe the firm's supply curve, which relates output to prices.

Price Elasticity of Supply

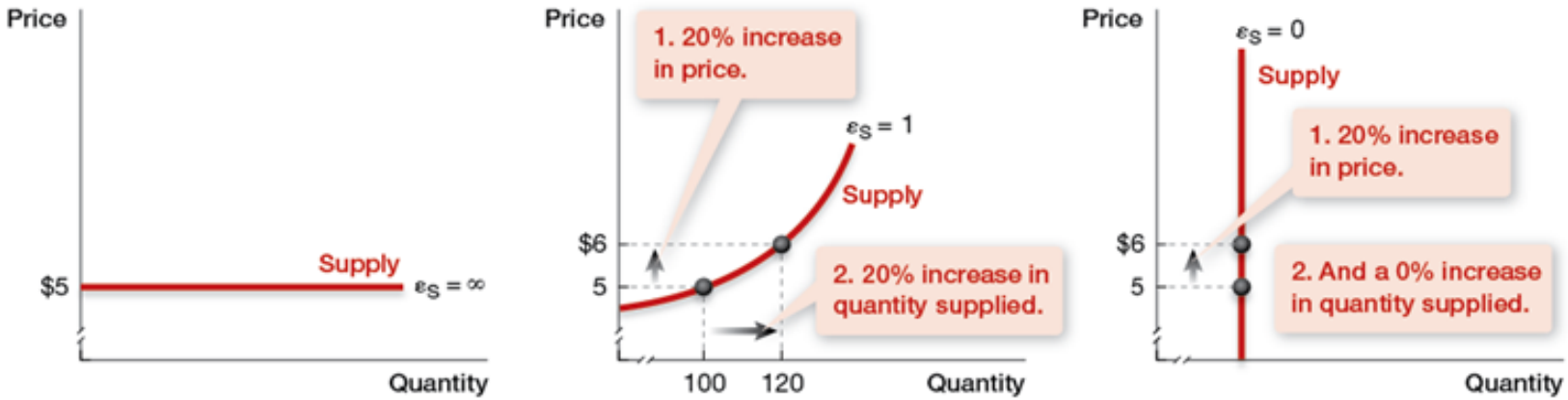
- Price elasticity of supply is the measure of how responsive quantity supplied is to price changes.

$$\varepsilon_S = \frac{Percentage\_change\_in\_quantity\_supplied}{Percentage\_change\_in\_price}$$

- The price elasticity of supply will tend to be positive, because as price increase, firms tend to increase their quantity supplied.
- Key determinants of the size of supply elasticities:
  1. Size of inventories;
  2. Time to respond;
  3. Number of available workers.

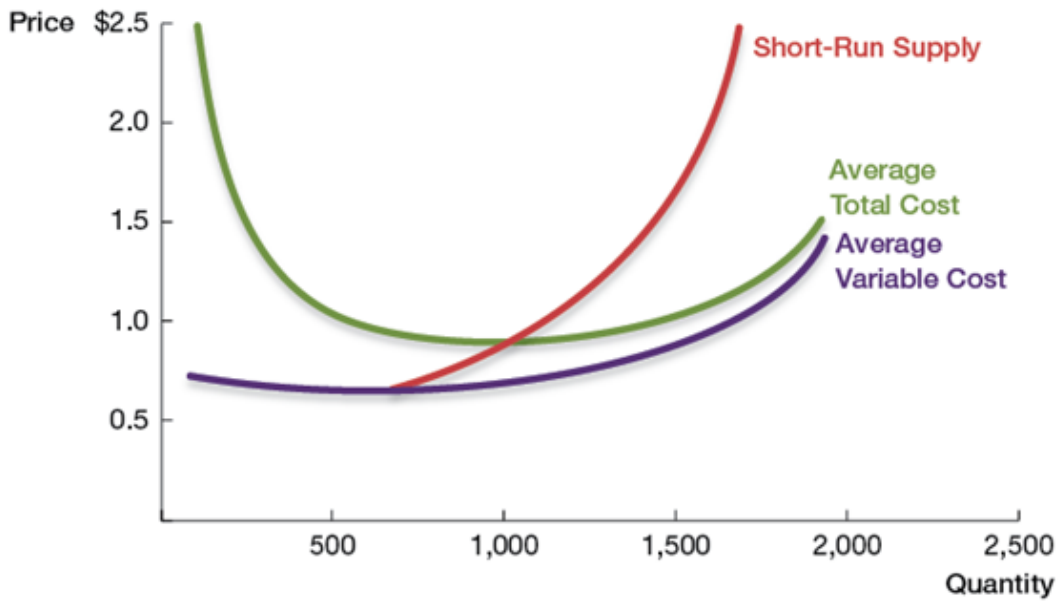
Price Elasticity of Supply

- Elastic vs Inelastic vs Unit-elastic supply



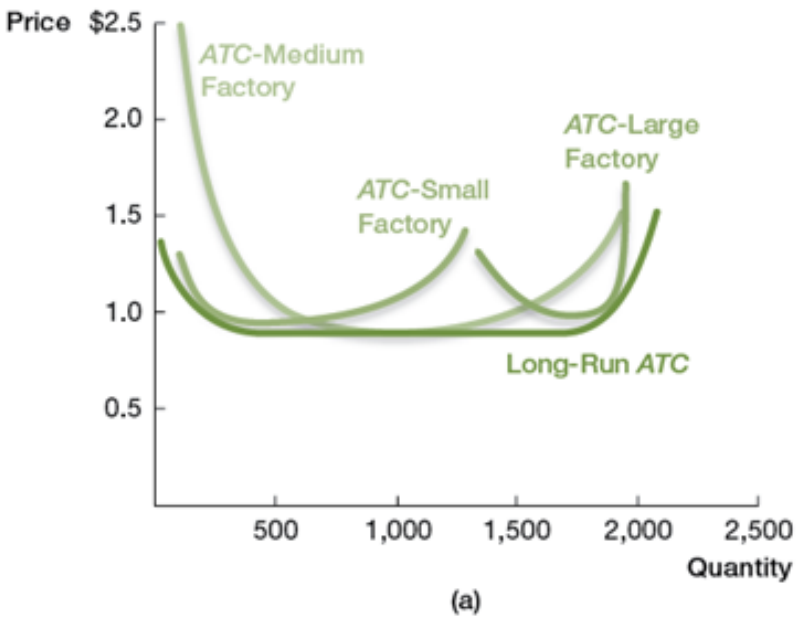
Shutdown

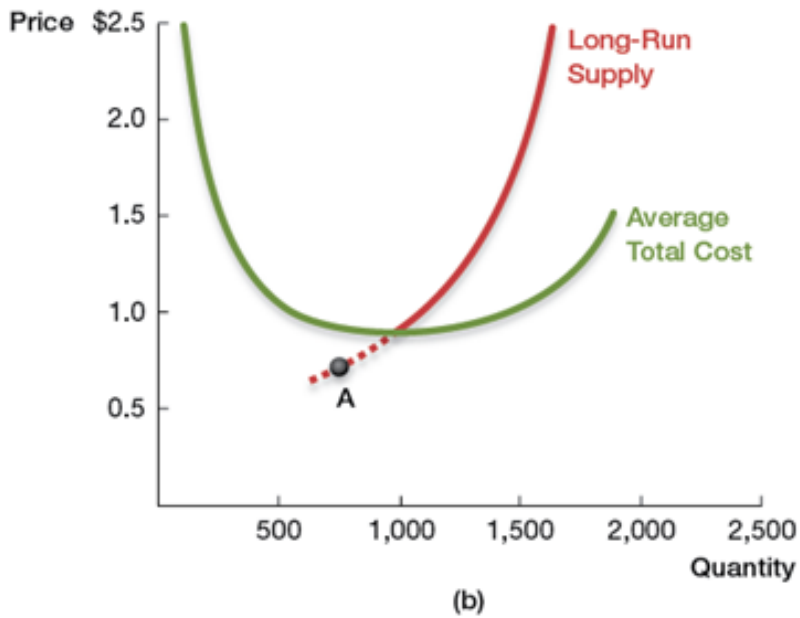
- Shutdown is a short-run decision to not produce anything during a specific period (e.g. $MR < AVC = \frac{VC}{q}$).
- Sunk costs are costs that, once committed, can never be recovered and should not affect current and future production decisions (e.g. fixed costs).
- The short-run supply curve is the portion of the MC curve that lies above AVC.



From the Short Run to the Long Run

- In the long run, there are no fixed factors of production.
- In the long run, a firm is able to combine workers and physical capital to achieve the minimal ATC for each output level.
- This difference causes the short-run cost curves to be above the long-run cost curve.





From the Short Run to the Long Run

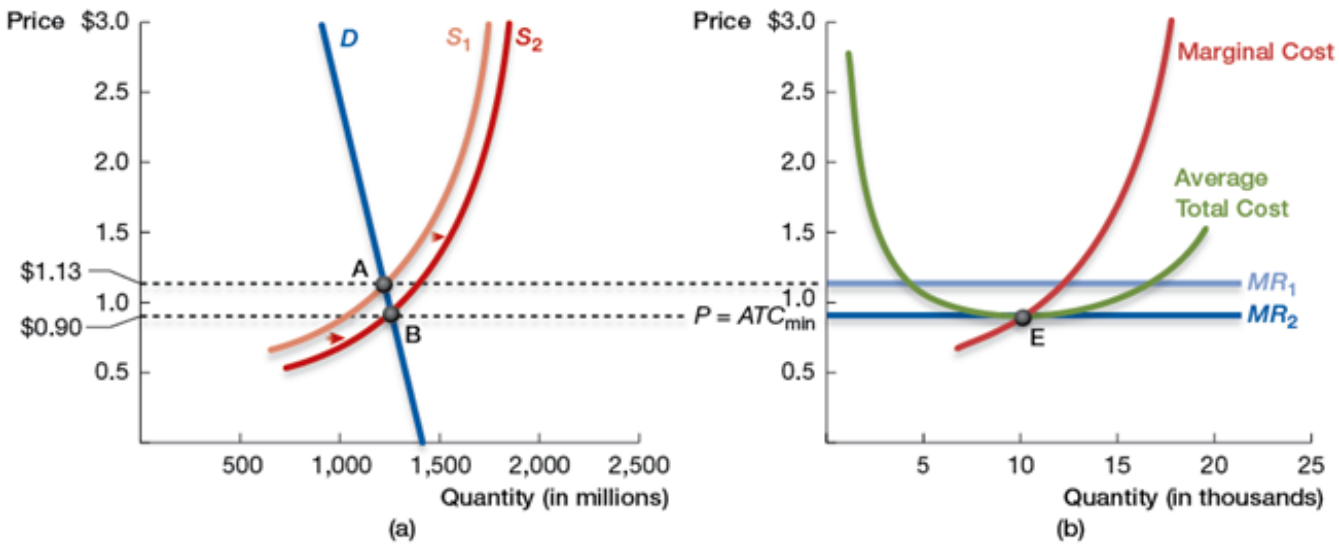
- The long-run ATC curve has a pronounced U-shape.
  - On the downward portion of the U, ATC decreases as output increases. In other words, economies of scale occur in this range.
  - Over this range, economies of scale exit.
  - Constant returns to scale exist when ATC does not change as the quantity produced changes.
  - Diseconomies of scale occur when ATC rises as the quantity produced increases.

From the Short Run to the Long Run

- Suppose that the marginal revenue is lower than ATC.
- When a firm is spending more money to produce its products than it is paid for them ($TR < TC$), there is no choice but to exit the industry.
    - Exit is a long-run decision to leave the market.
- The long-run supply curve is the portion of the MC curve that lies above ATC.

Firm Entry vs. Exit

- Assume that there is free entry into an industry when entry is unfettered by any special legal or technical barriers.
- If the marginal revenue is greater than ATC, a firm should enter.
- Entry shifts the market supply curve to the right. This shift will cause the market price to fall.
- If the market price is driven to the minimum ATC curve of the industry, there is no longer a profit incentive for other suppliers to enter.



Firm Entry vs. Exit

- If the demand curve shifts to the left, the market price should decrease. Then, the price is below the minimum ATC of the firms in the industry, which causes firms to make negative profits.
- If there is free exit from the market - in which a firm's exit is unfettered by any special legal or technical barriers - in the long run, some firms will leave the industry.
- This exit from the industry causes the market supply curve to shift leftward, raising the market price. So, exit continues until the market price rises to the minimum ATC.

Firm Entry vs. Exit

- As a result, entry or exit causes the market to reach the minimum of the long-run ATC curve. That's the long-run market equilibrium in a perfectly competitive market.