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Firms in a Competitive Market: Competitive Markets

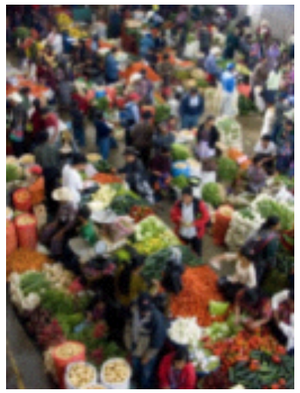
Recall

- Economists break cost into two components
  - Explicit costs (can be easily calculated)
  - Implicit costs (are hard to calculate)
- Costs are defined in a number of ways, but marginal cost plays the most crucial role in a firm's cost structure
- The MC curve always leads the ATC and AVC curves
- Long run costs are a reflection of scale

Competitive Markets

- Competitive markets
  - Many buyers and sellers
  - Similar (if not identical) goods
  - Free entry and exit
  - Firms are price takers
- Price taker
  - Has no control over the market price
  - “takes” the price as given

Are these Markets Really "Perfectly" Competitive?

Example	How It Works	Reality Check
Stock market 	Buyers and sellers have real-time information about prices. Most of the traders make up only a small share of the market.	Large institutional investors are big enough to be able to influence the market price.
Farmer's markets 	Sellers are free to come and go without having to pay a fee. Many buyers are also present. The market price for similar products will converge to a single price.	Many produce markets do not have enough sellers to achieve perfect competition. Higher- quality produce sellers can set their prices higher.

Are these Markets Really "Perfectly" Competitive?

Example	How It Works	Reality Check
Online ticket auctions 	The resale market for tickets to major events involves many buyers and sellers. The prices for seats in identical sections end up converging quickly to a narrow range.	Some ticket companies and fans get special privileges that enable them to buy and sell blocks of tickets before others can enter the market.
Currency trading 	Currency is a homogeneous good. There are hundreds of thousands of traders around the globe. All traders have real-time information and currency trades in different parts of the world converge toward the same price.	Currency markets are subject to intervention on the part of governments that might wish to strategically alter the prevailing price of their currency.

Production and Profits for the Firm

- Goal of a firm:
  - Maximize profits
  - This is true whether the firm is competitive or not
- A profit maximizing firm needs to consider
  - Revenues
  - Costs

Economics in *Two and a Half Men*

- Alan tries to earn money by entering the competitive industry of personal massage

9 Firms in a Competitive Market: Profit Maximization

Profit Maximizing Rule

- Quantity (Q)
  - How many driveways did Mr. Plow clear?
- Price (P)
  - Price charged per driveway
- Total Revenue (TR)
  - $TR = P \times Q$
- Total Costs (TC)
  - Sum of all production costs at a certain level of output
- Profit (π)
  - $\pi = TR - TC$

Profit Maximizing Rule

- Marginal Revenue (MR)
  - MR = ΔTR ÷ ΔQ
  - Δ = change in
  - For a competitive firm, MR = P
- Marginal Cost (MC)
  - MC = ΔTC ÷ ΔQ
  - Additional costs of producing additional units

Profit Maximizing Rule

- Change in Profit
  - ΔProfit = MR – MC
- Profit maximizing rule:
  - To maximize profits, the firm should use a marginal analysis
  - Profit is maximized by choosing the level of output such that

MR = MC

Profit Maximizing Rule

- Profit is maximized by choosing the level of output such that

MR = MC

- If MR > MC
  - The firm can increase profits by producing more Q
- If MR < MC
  - The firm has produced “too much” Q, and profits are not maximized

Calculating Profits

Quantity	TR P × Q	TC	Profit TR – TC	MR Δ TR ÷ Δ Q	MC Δ TC ÷ Δ Q	Change in Profit MR – MC Δ TR ÷ Δ Q
0	$0	$250	-$250			
10	100	340	-240	$100	$90	10
20	200	410	-210	100	70	30
30	300	460	-160	100	50	50
40	400	490	-90	100	30	70
50	500	510	-10	100	20	80
60	600	540	60	100	30	70
70	700	600	100	100	60	40
80	800	700	100	100	100	0
90	900	950	-50	100	250	-150
100	1000	1250	-250	100	300	-200

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Firms in a Competitive Market: How Much to Produce

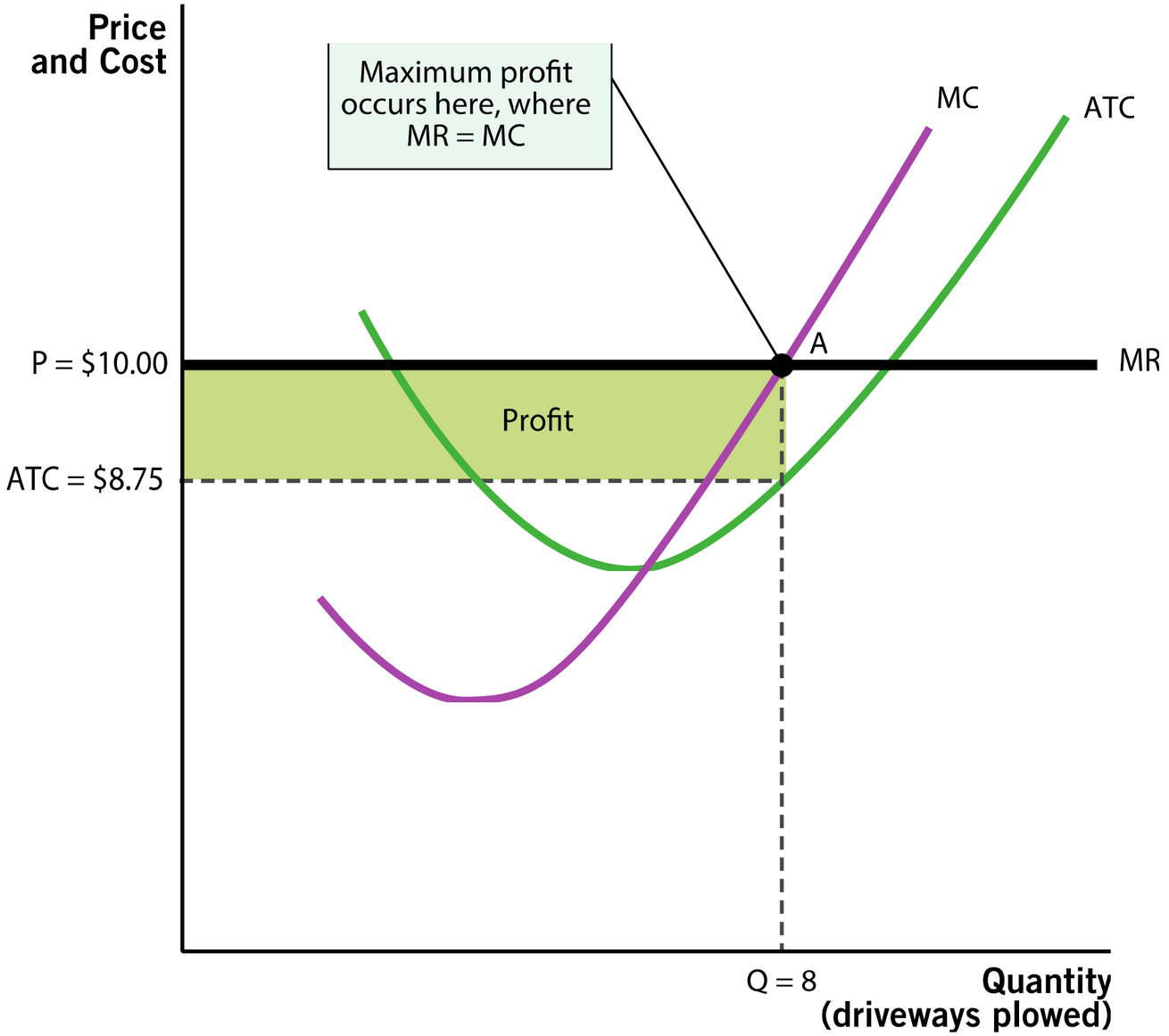
The example of Mr. Plow

- Homer buys a snow plow and goes into the snow removal business. After
- Mr. Plow, becomes a huge success.
  - Every snowy morning he looks out the window and comments about “white gold.”
- Homer’s joy, profits, and notoriety are short-lived.
- His friend, Barney, notices the profits, buys a bigger plow and joins the ranks of the “plow people.”

Deciding How Much to Produce

- Mr. Plow is a price taker
  - Cannot set his own price, and must charge the price that is determined by overall supply and demand
- Recall
  - Cost curves (ATC, AVC, and MC) are U-shaped
  - In perfect competition, P = MR
  - Profits are maximized at the level of output Q where MR = MC

Profit Maximization



Calculating Profit

- To find profit, we need to know revenues and costs
  - For a perfectly competitive firm, revenues can be found by looking at the price (determined by the market) and the quantity sold
  - Costs are determined by the quantity sold
- For the firm,

$$\pi = q \times \left(P - ATC \right)$$

- Intuition: Profit = (units sold) ×(average profit per unit)

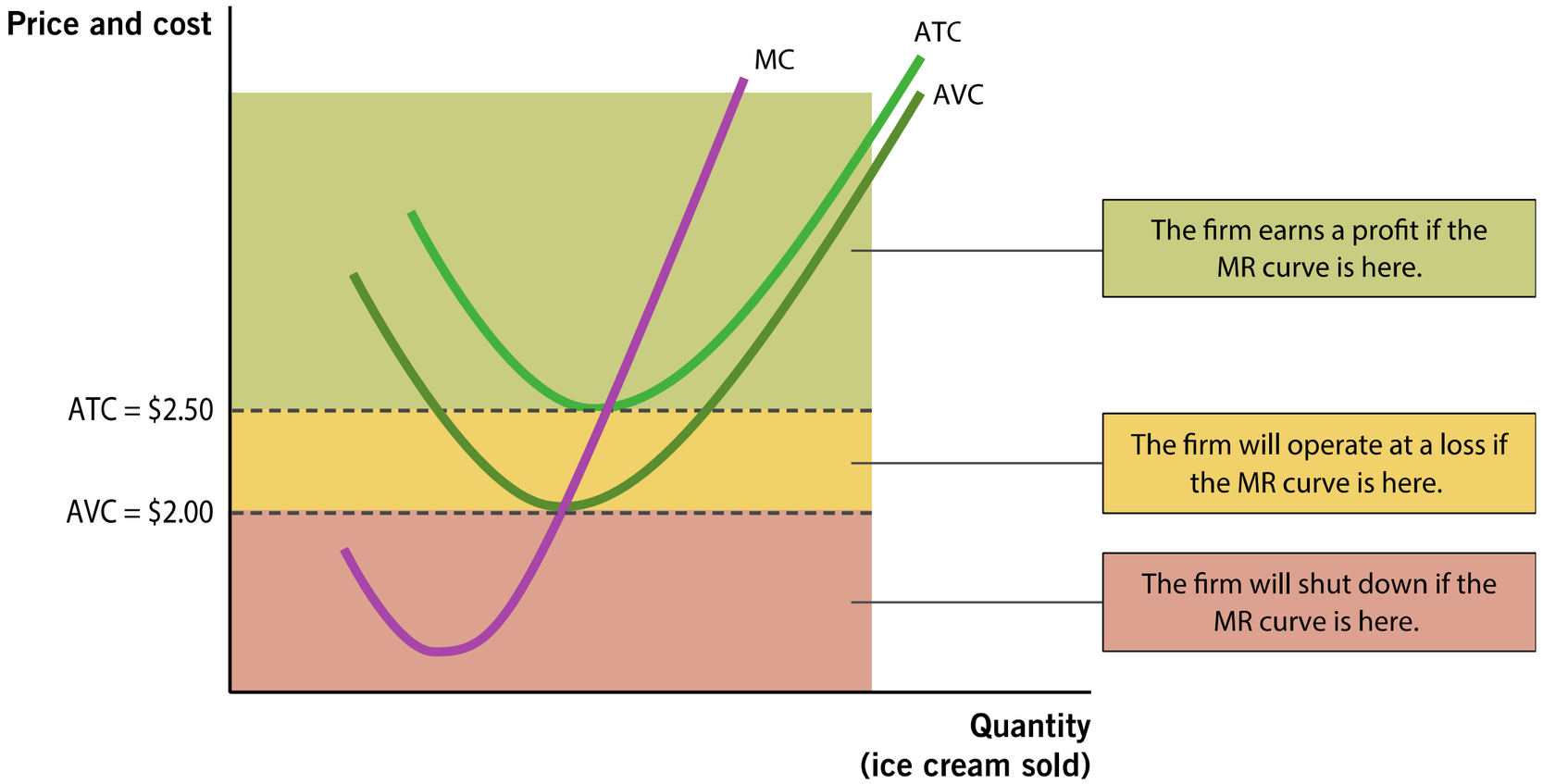
The Decision to Shut Down in the Short Run

- Firms can't always make a profit
  - Ski resort in summer
  - Surf shop in winter
- Shutting down
  - Firm will shut down if it cannot cover variable costs
  - **Shutting down is *not* the same as going out of business and exiting the industry**

Signaling

- Profits and losses act as signals to firms
- Signals
  - Convey information about the profitability of various markets
  - Positive profits
    - A signal of profitability. More firms will enter the industry.
  - Negative profits (losses)
    - A signal that resources could be doing better elsewhere. Firms will exit the industry.

When to Operate or Shut Down



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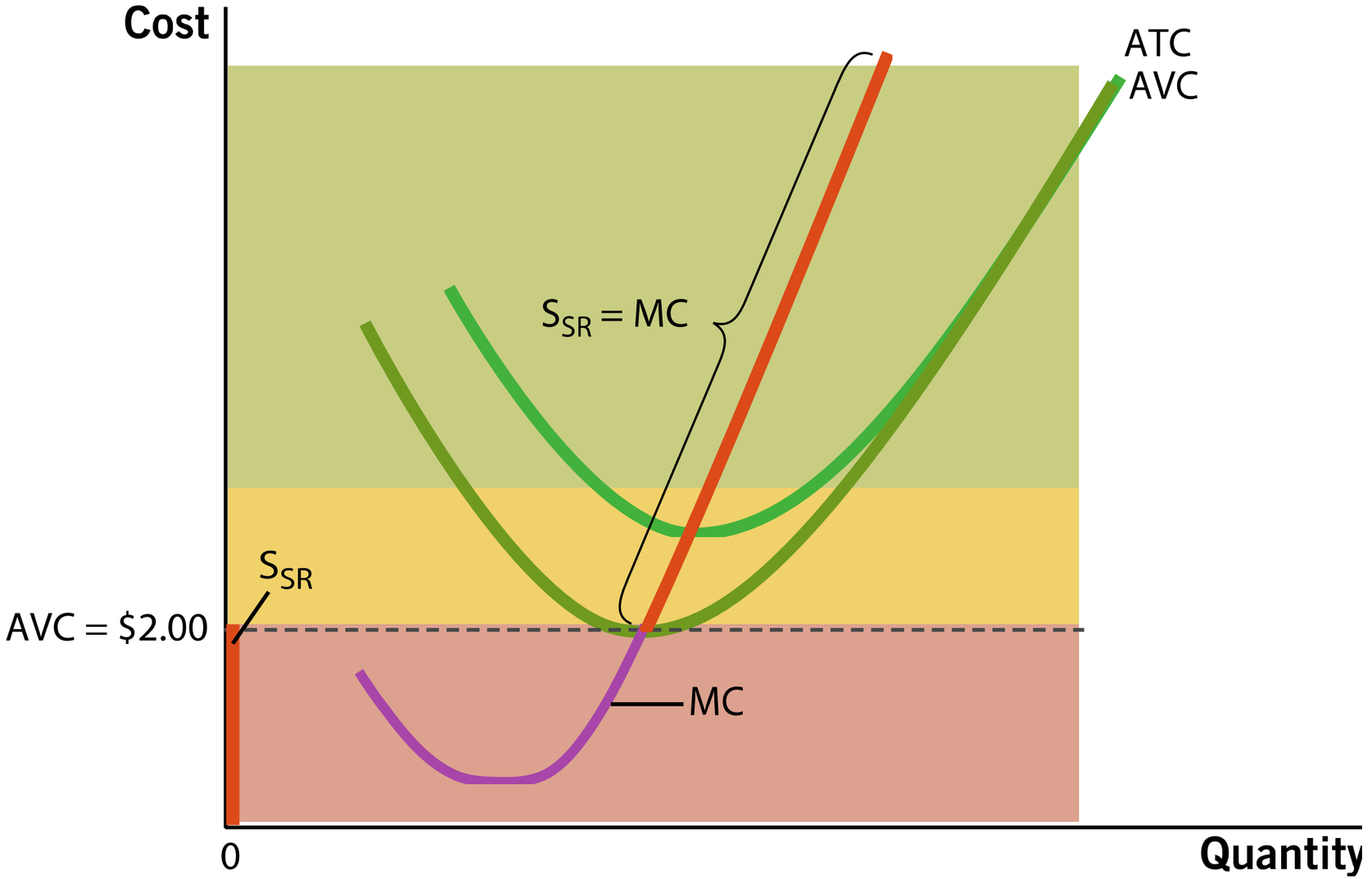
Firms in a Competitive Market:

Firms in the Short Run versus the Long Run

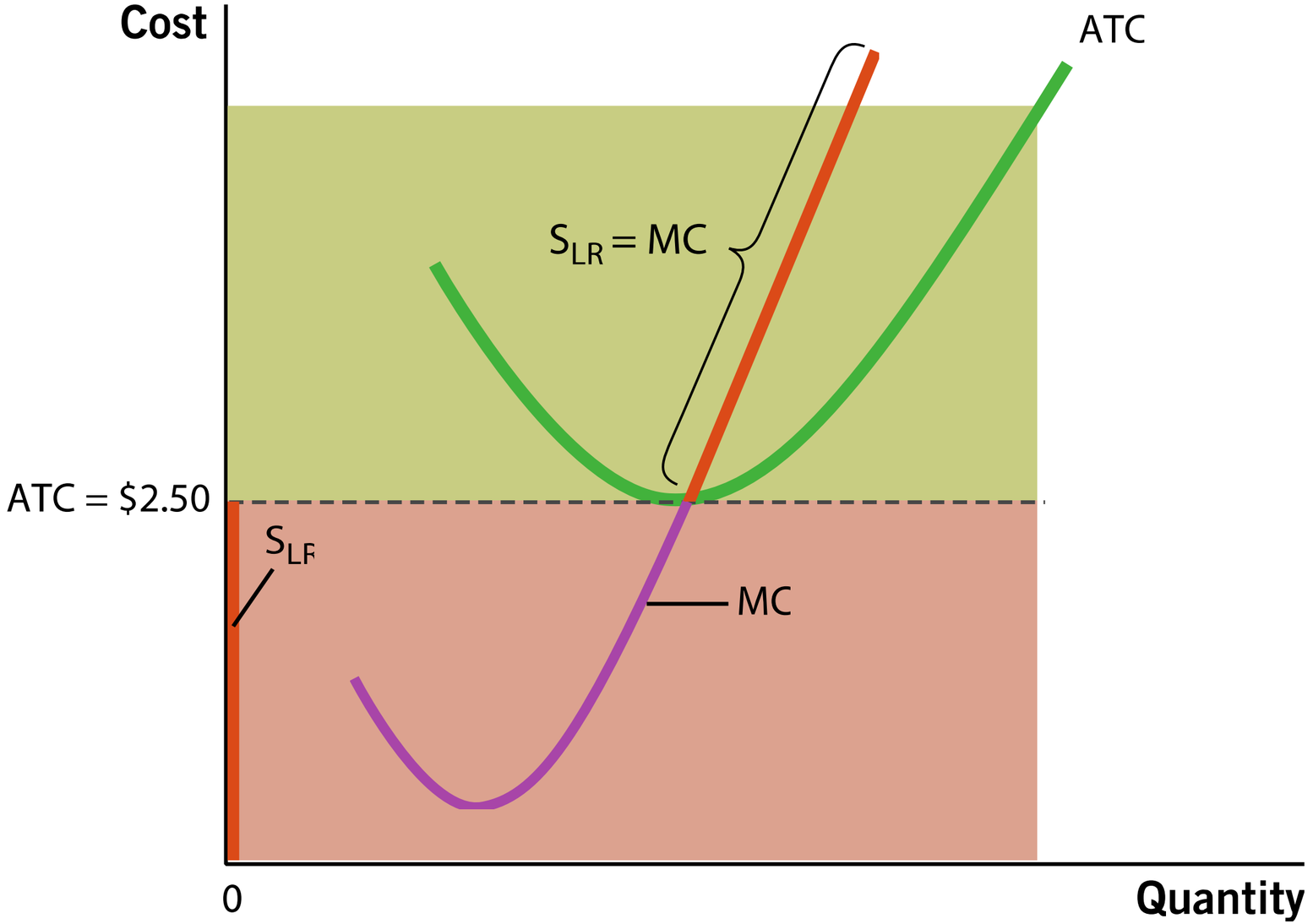
Profit and Loss in the Short Run

Condition	Outcome
P > ATC	The firm makes a profit
ATC > P > AVC	The firm will operate to minimize loss
AVC > P	The firm will temporarily shut down

Short Run Supply Curve



Long Run Supply Curve



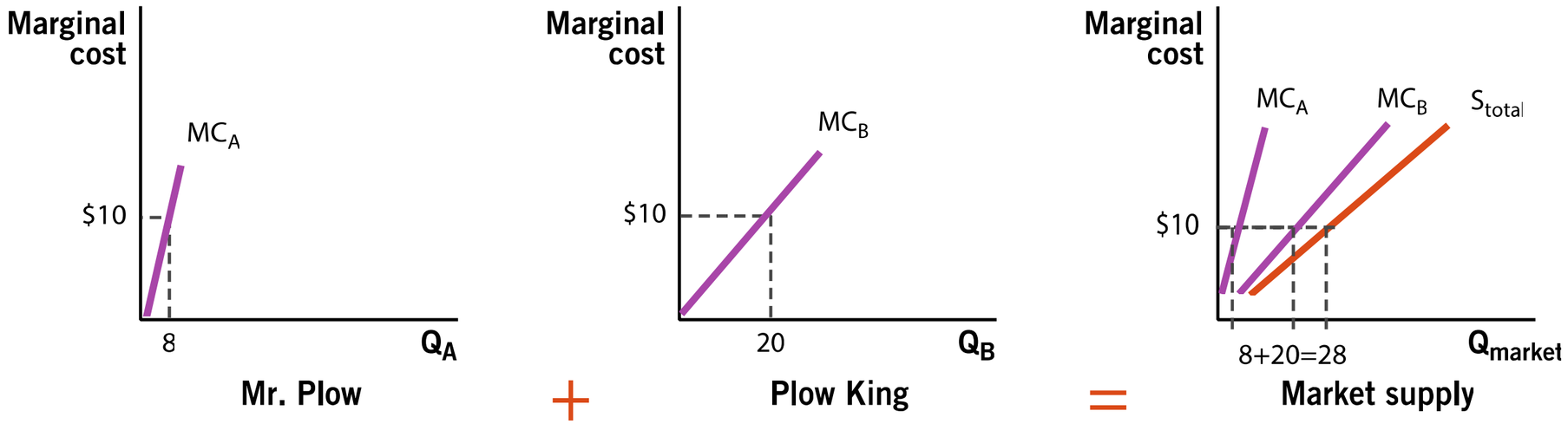
Long Run Shut Down Criteria

Condition	Outcome
P > ATC	The firm makes a profit
P < ATC	The firm should shut down

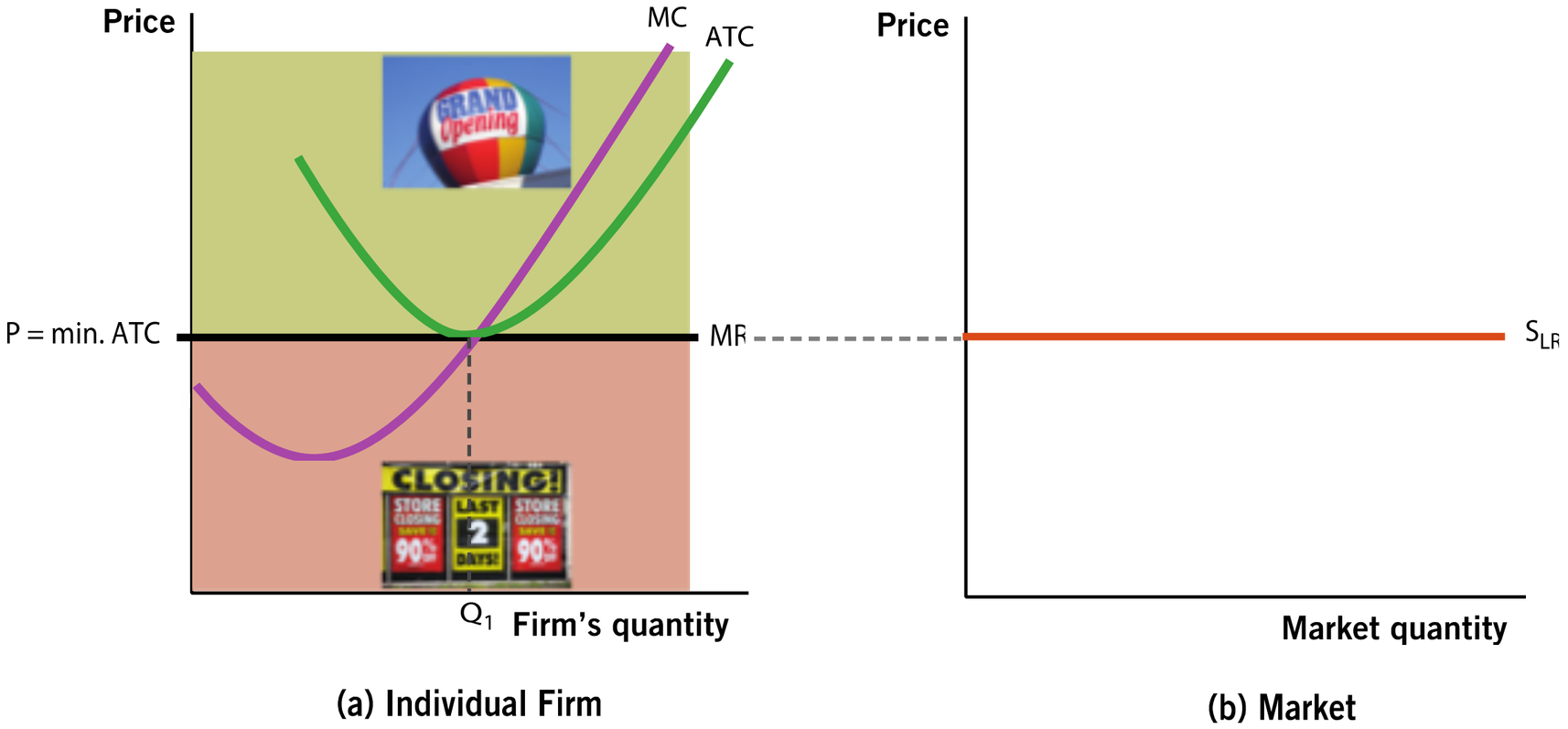
Sunk Costs

- Sunk costs
  - Costs that have been incurred as a result of past decisions
  - Unrecoverable
- Sunk-cost fallacy
  - Considering sunk costs when making new decisions at the margin
  - Can lead to using out-of-date facilities and incurring large opportunity costs

Short Run Market Supply



Long Run Market Supply



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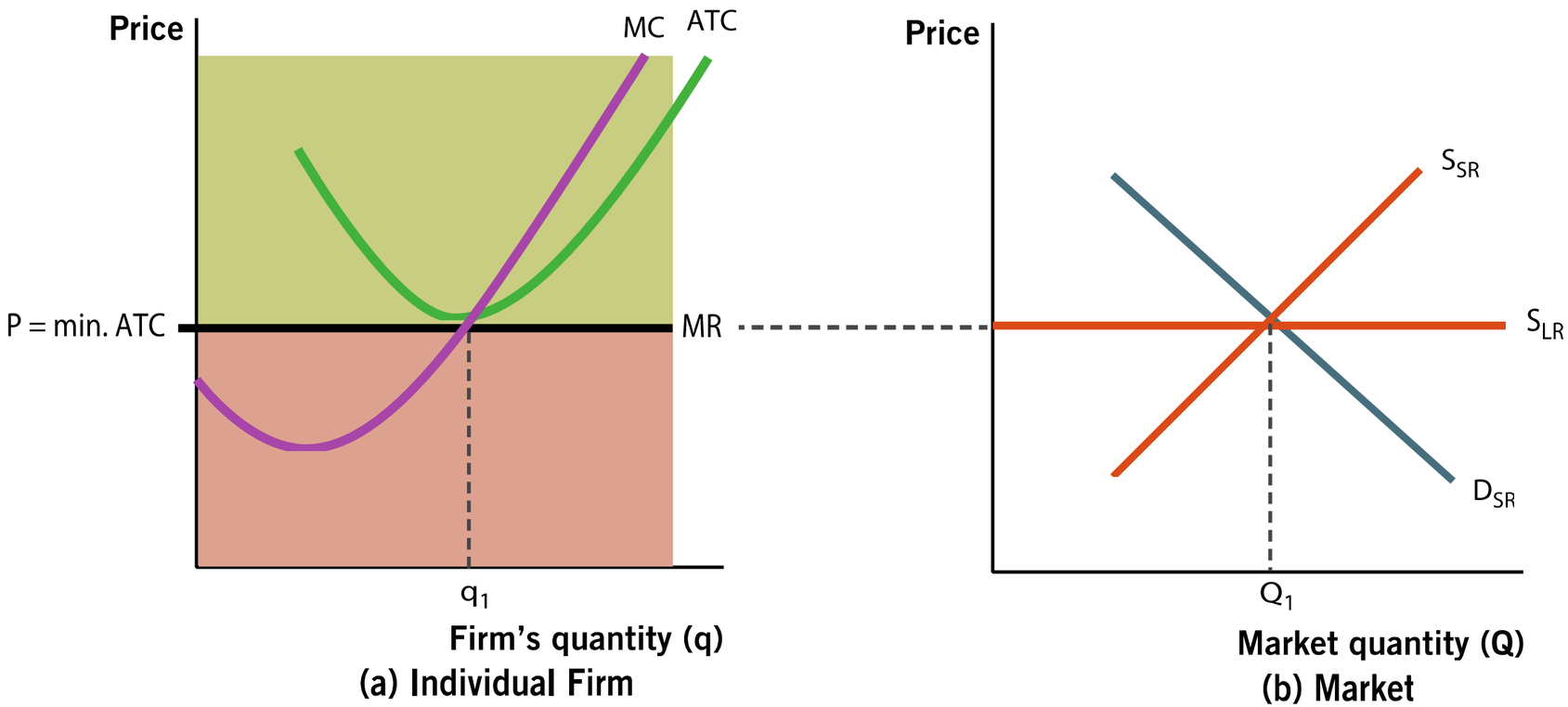
Firms in a Competitive Market:

Firms in the Short Run versus the Long Run

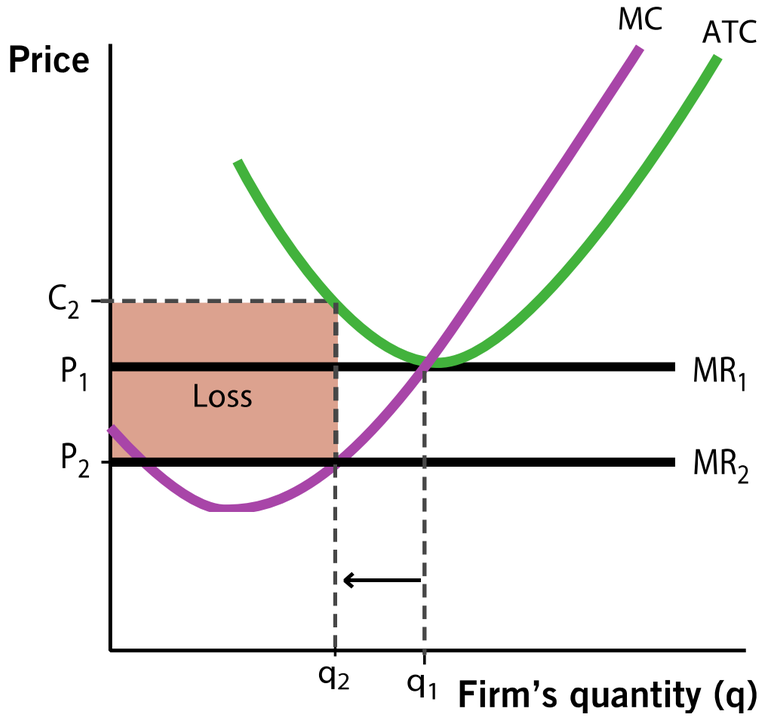
Economic Profits

- Why join an industry if you can't maintain long run economic profits?
  - Remember the difference between accounting and economics profits
- Economics profits
  - Include opportunity costs
  - Zero economic profits means that your opportunity costs are the same as your accounting profits

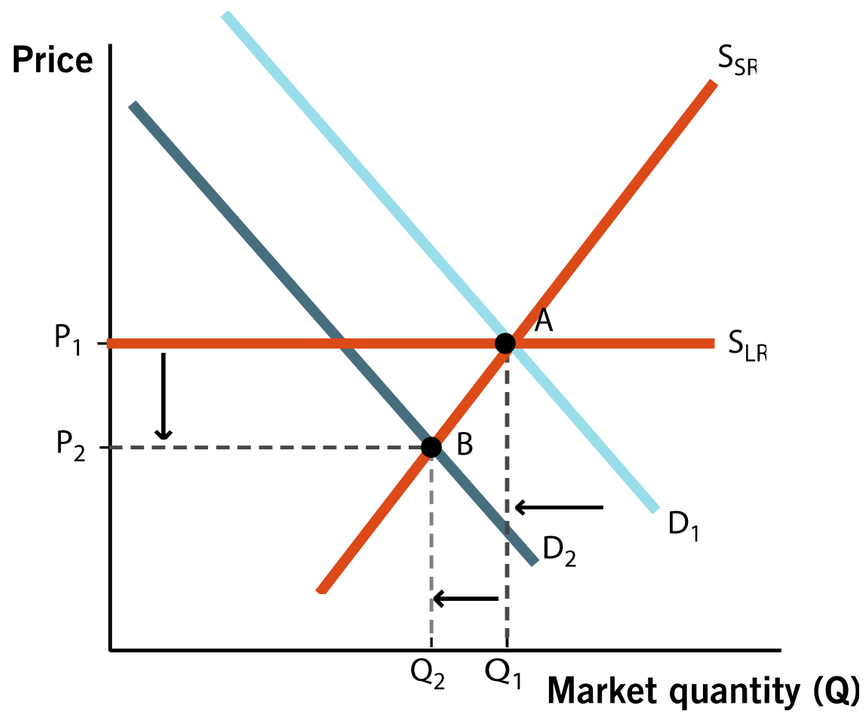
Market in Equilibrium



Short Run Adjustment to Demand Decrease

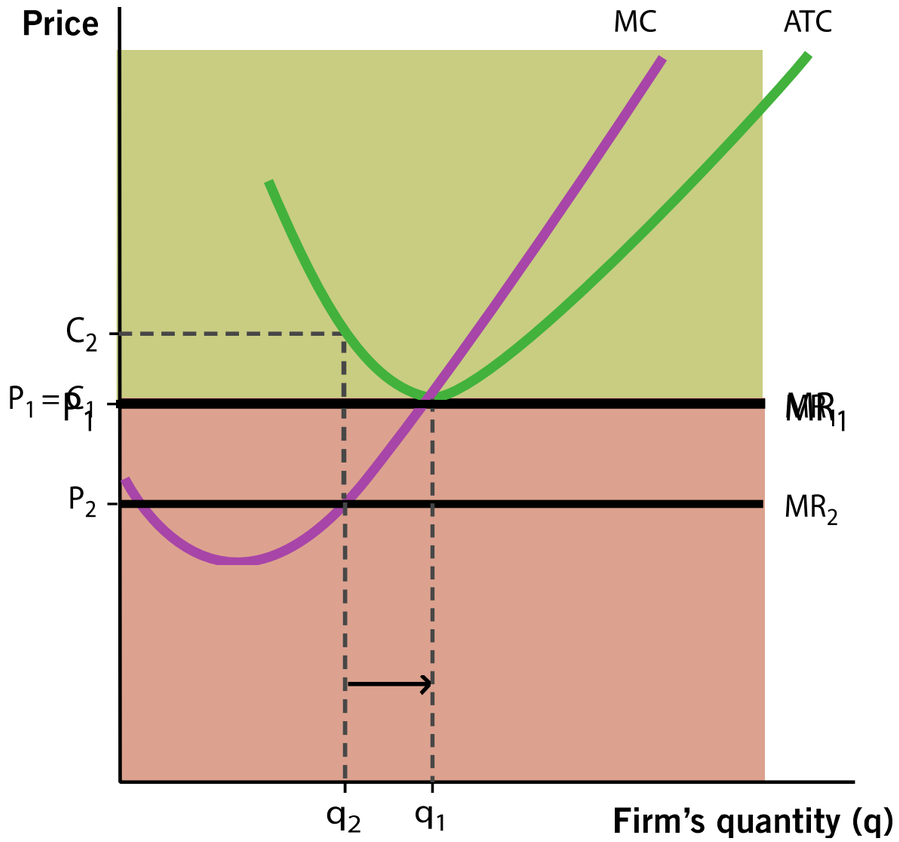


(a) Individual Firm

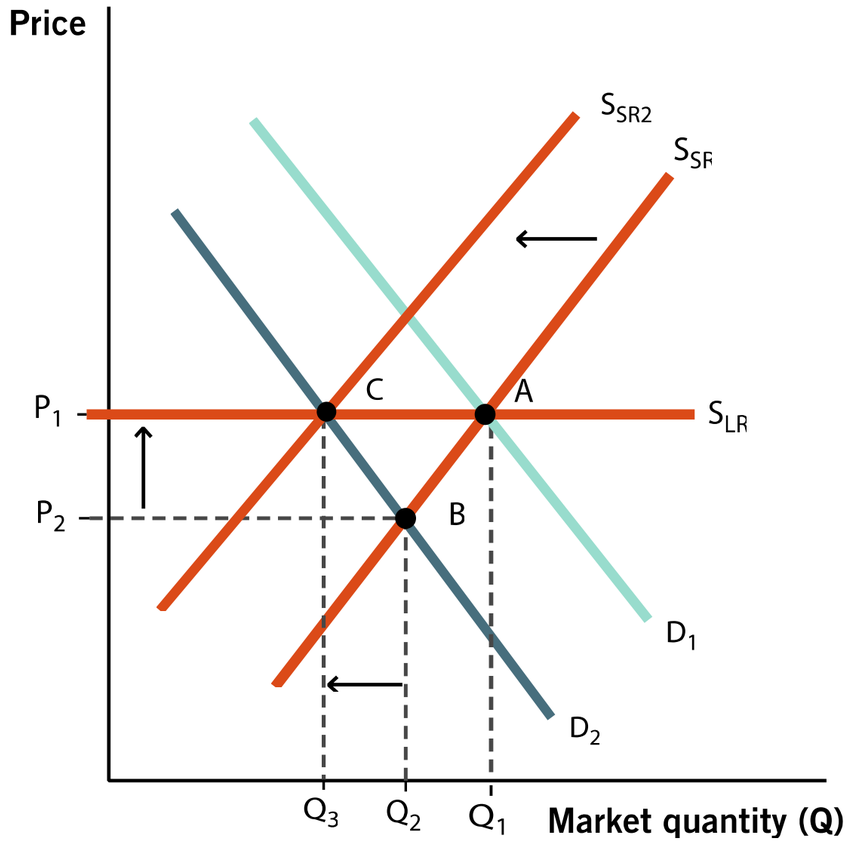


(b) Market

Long Run Adjustment to Demand Decrease



(a) Individual Firm



(b) Market

Long Run Supply

- Previous graph showed LR supply as horizontal
- LR supply may be upward-sloping because
  - Resources may be limited—think about land for farming
  - Opportunity costs of labor. When expanding production, may have to increase wages to attract more workers

Conclusion

- Profits and losses act as signals in a perfectly competitive market
  - Profits = green light. This is a good industry to enter.
  - Losses = red light. Time to get out of this industry.
- Producers can survive in the long run by creating goods that consumers value.