



# COMPETITIVE MARKETS II

Profit-Maximization & Shutdown (or exit) Decisions

BECO-3310 Fall 2025

Recap

# Sunk Costs

- A cost that has already been incurred and cannot be recovered.
  - It should be ignored when making current decisions.
- In the short-run, fixed costs are sunk costs.

# Sunk Cost Example

- Suppose you place a \$15 value on seeing a new movie.
- You buy a ticket for \$10, but before entering the theater, you lose it.
- Should you buy another ticket, or go home?
  - Buy another ticket! The cost is \$10 and the value is \$15!
  - The fact that you lost the first ticket is irrelevant. It's a **sunk cost!**

# Profit-Maximization

- If **MR** > **MC**, produce more.
- If **MR** < **MC**, produce less
- If **MR** = **MC**, profits have been maximized.
- How do firms make these decisions in practice?



# Ex: Restaurants Open for Lunch?

- Many restaurants have, primarily, dinner hours. Lunch hours are often not as busy.
- During many lunch hours, a lot of tables remain empty (this is costly).
- Need to pay to keep the lights on, pay waiters/waitresses, pay cooks, buy food/ingredients.
- Why, then, do so many restaurants stay open for lunch?

# Ex: Restaurants Open for Lunch?

- Fixed Costs: Not Relevant
  - Are sunk costs already incurred in the *short-run*.
- Variable Costs: Relevant
  - Shutdown if  $P < AVC$
  - Stay open if  $P > AVC$
- Staying open can be profitable, even with empty tables. At the very least, a restaurant may cover some variable costs.



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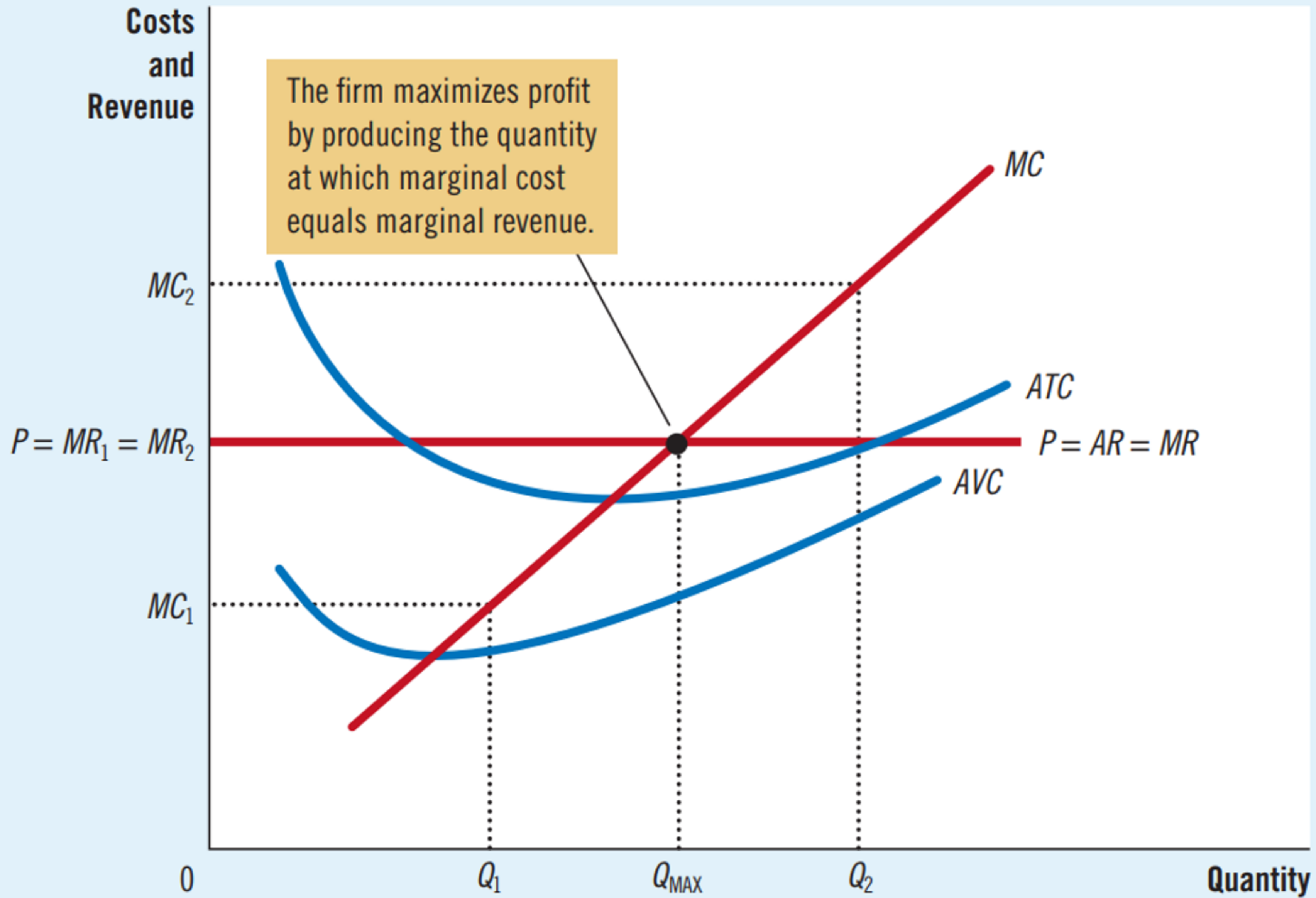
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# Ex: Restaurants & Covid

- Many politicians said that “opening at 25% capacity is better than 0%.”
- Maybe? But economic theory tells us this is not the whole story.
- It could be that if only 25% of people come in, it’s not enough to cover any variable costs.
- It all depends on revenue & costs!

# Profit is **ESSENTIAL**

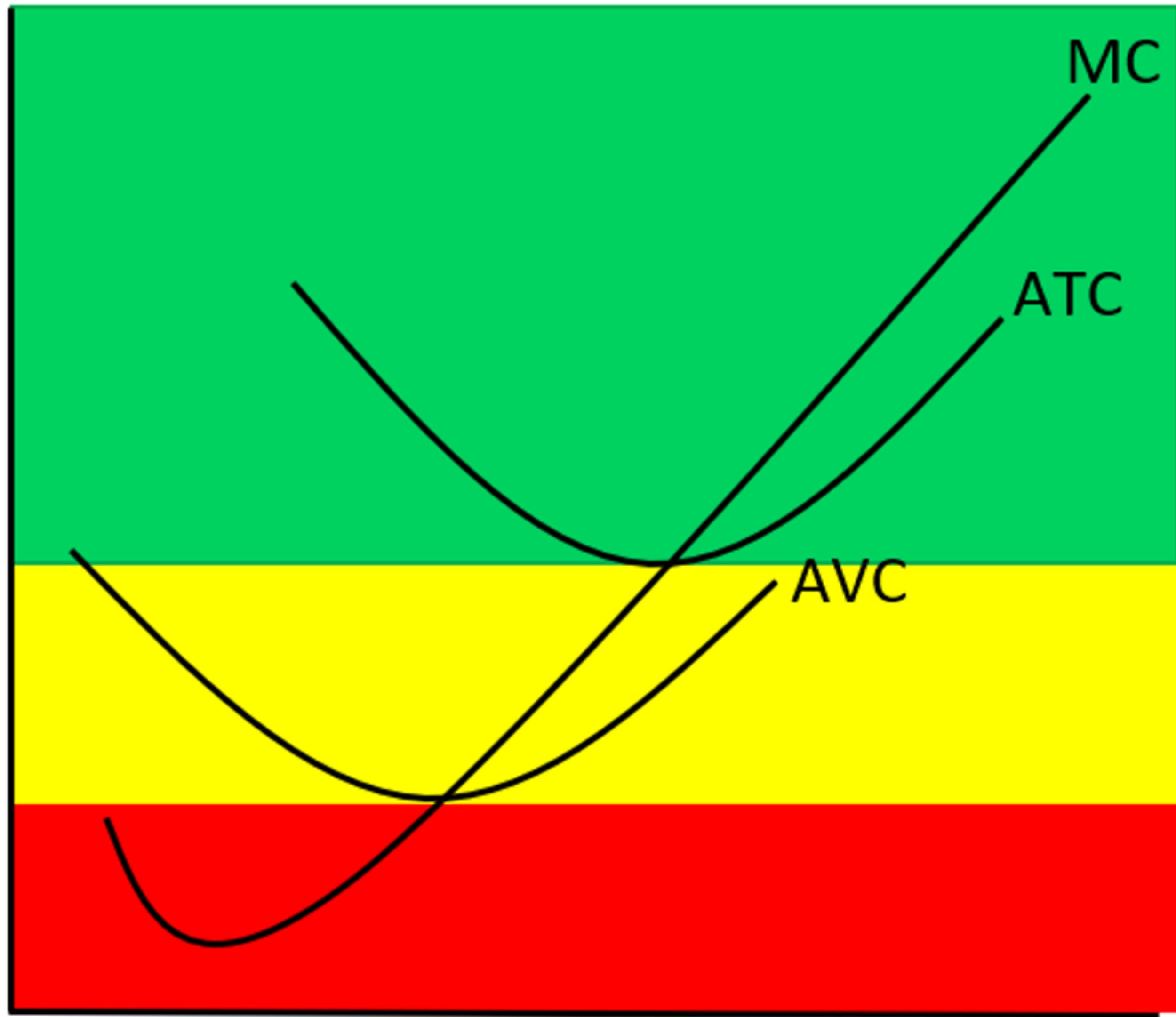
- Profit opportunities reveal relative scarcities and provide the incentives to serve others.
- Profit is one of the key components of economic calculation. It tells us where resources should go!
- Without the reward of profit, the price system fails to function effectively.



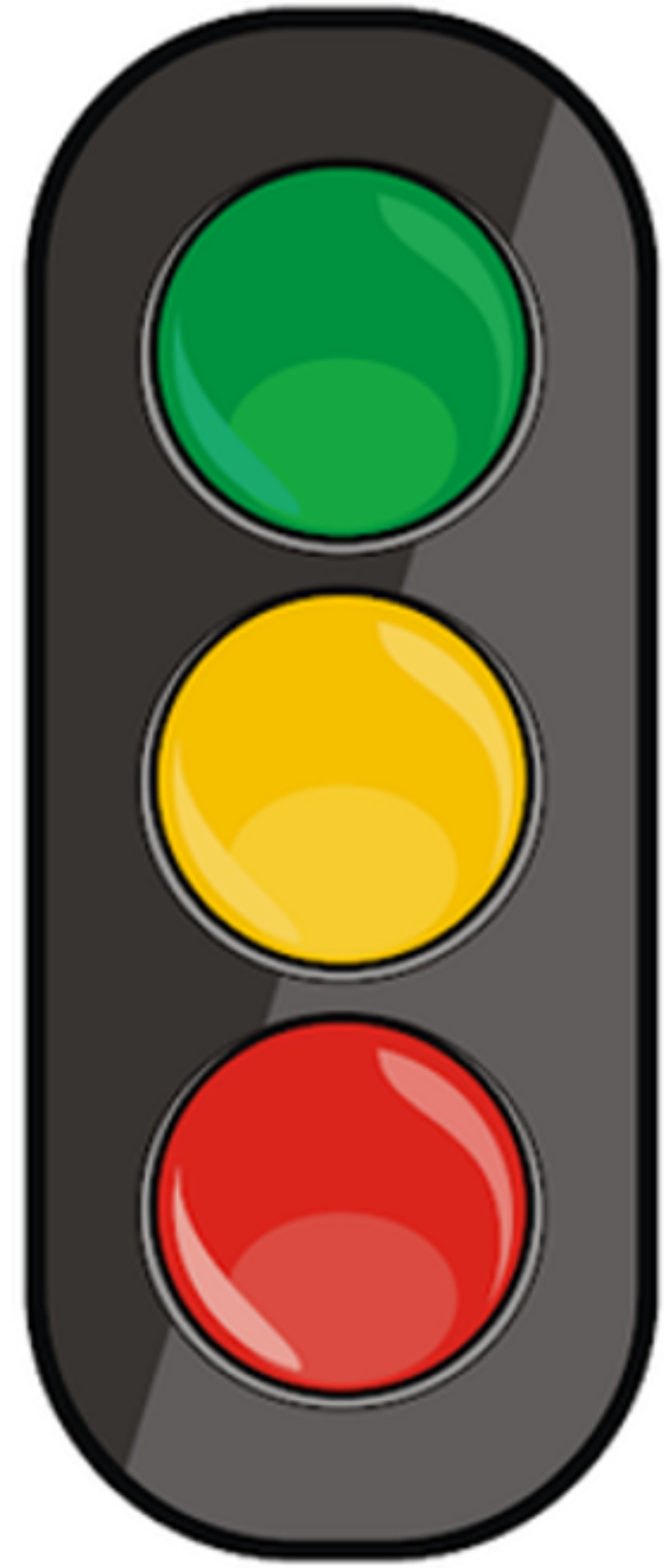
# Profit-Maximization

- If  $MR > MC$ , produce more.
- If  $MR < MC$ , produce less
- If  $MR = MC$ , profits have been maximized.
- If  $P > AVC$ , continue to produce, even if at a loss.
- If  $P < AVC$ , shutdown temporarily.
- **THIS IS IN THE SHORT-RUN!!!**

Cost



Quantity



# Profit-Maximization in the Long-Run

# Shutdown vs. Exit

- **Shutdown**

- **Short-run** decision not to produce anything during a specific period of time.
- Results because of current market conditions.
- The firm still has FC to pay but is temporarily closing its doors to production.

- **Exit**

- **Long-run** decision to leave the market entirely.
- The firm doesn't have any costs to pay.

# Profit-Maximization in the Long-Run

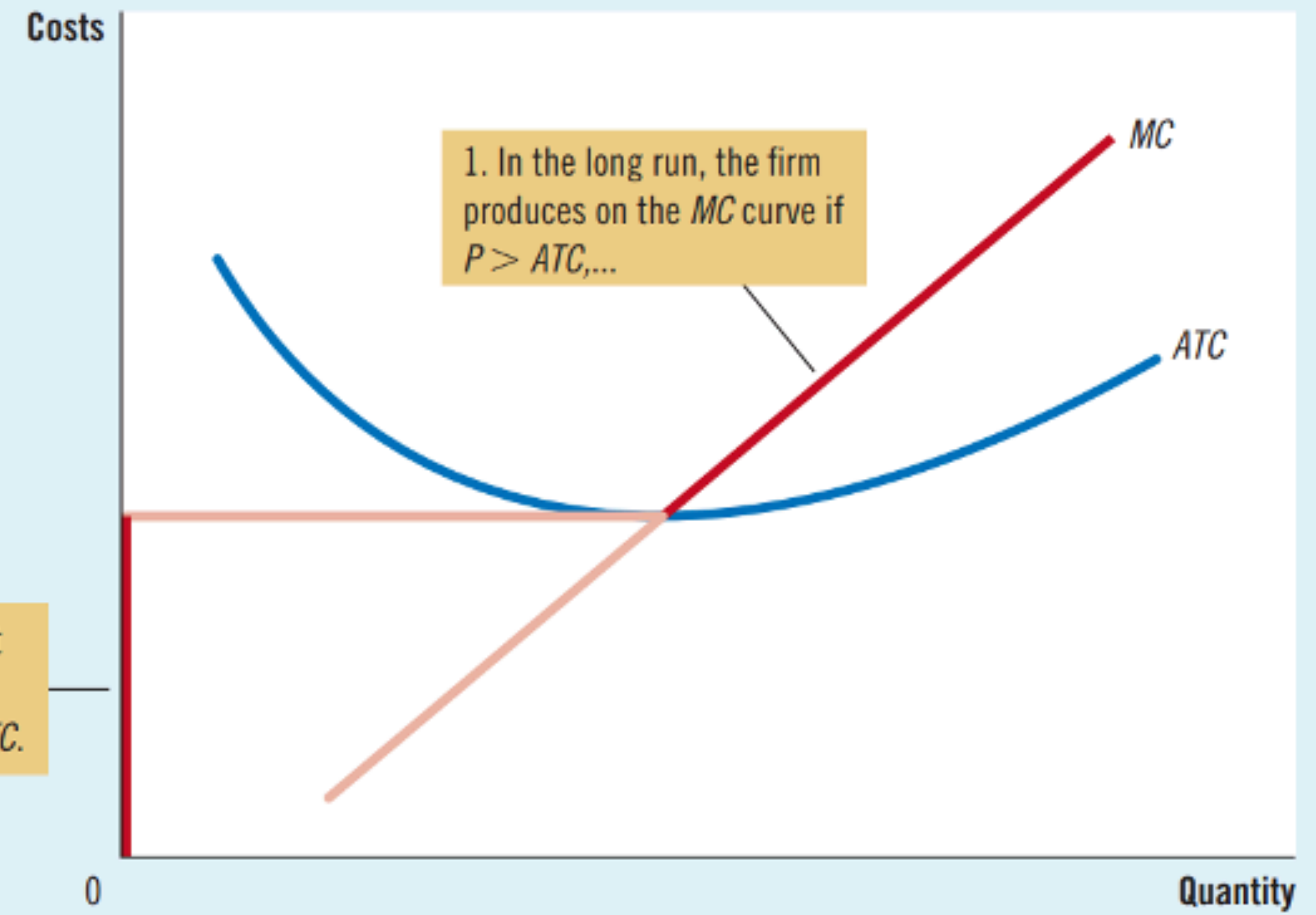
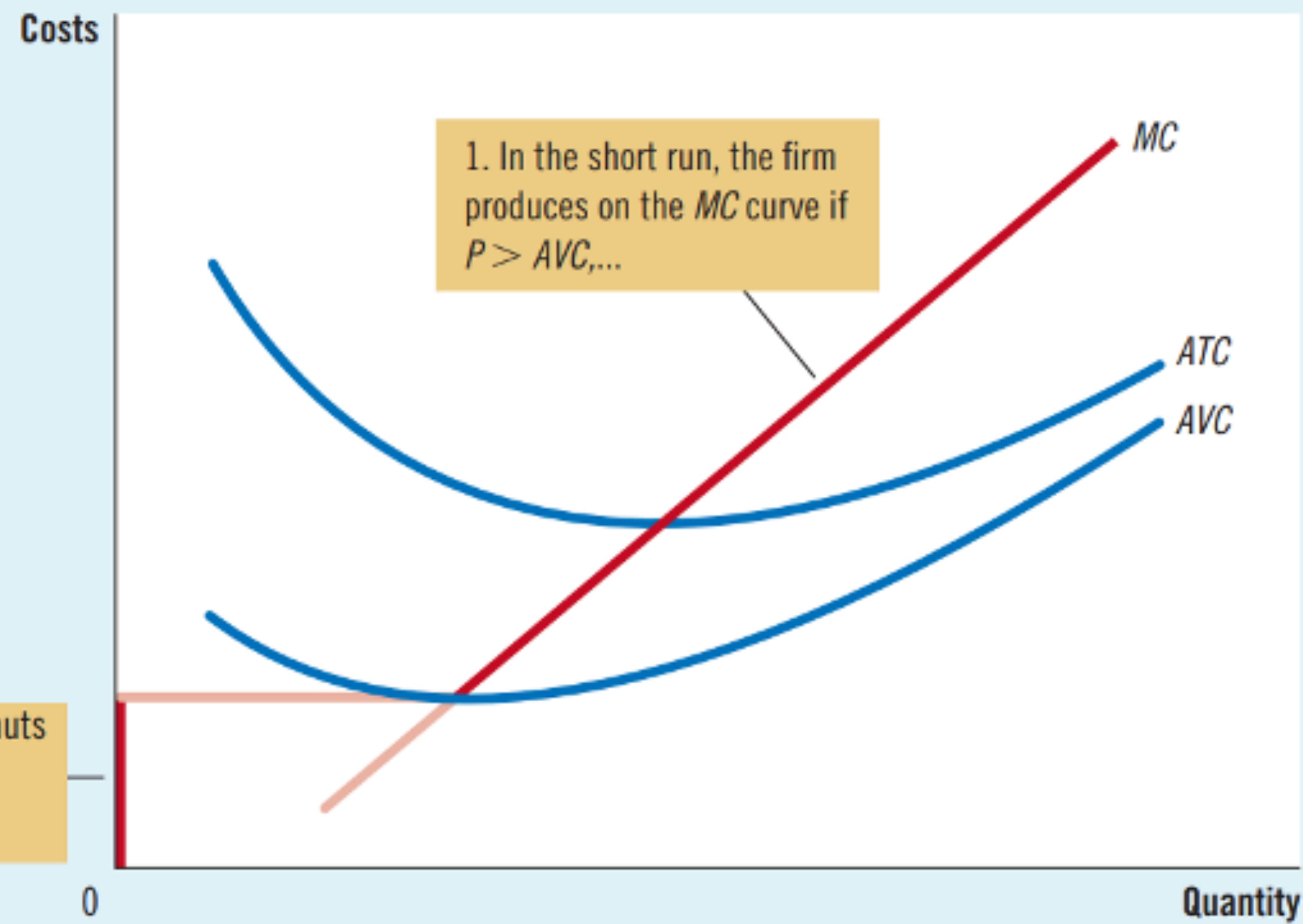
- If **MR > MC**, produce more.
- If **MR < MC**, produce less
- If **MR = MC**, profits have been maximized.
- These are the same as in the short-run! So what is different about the long-run?
- A firm can enter or exit completely in the long-run.

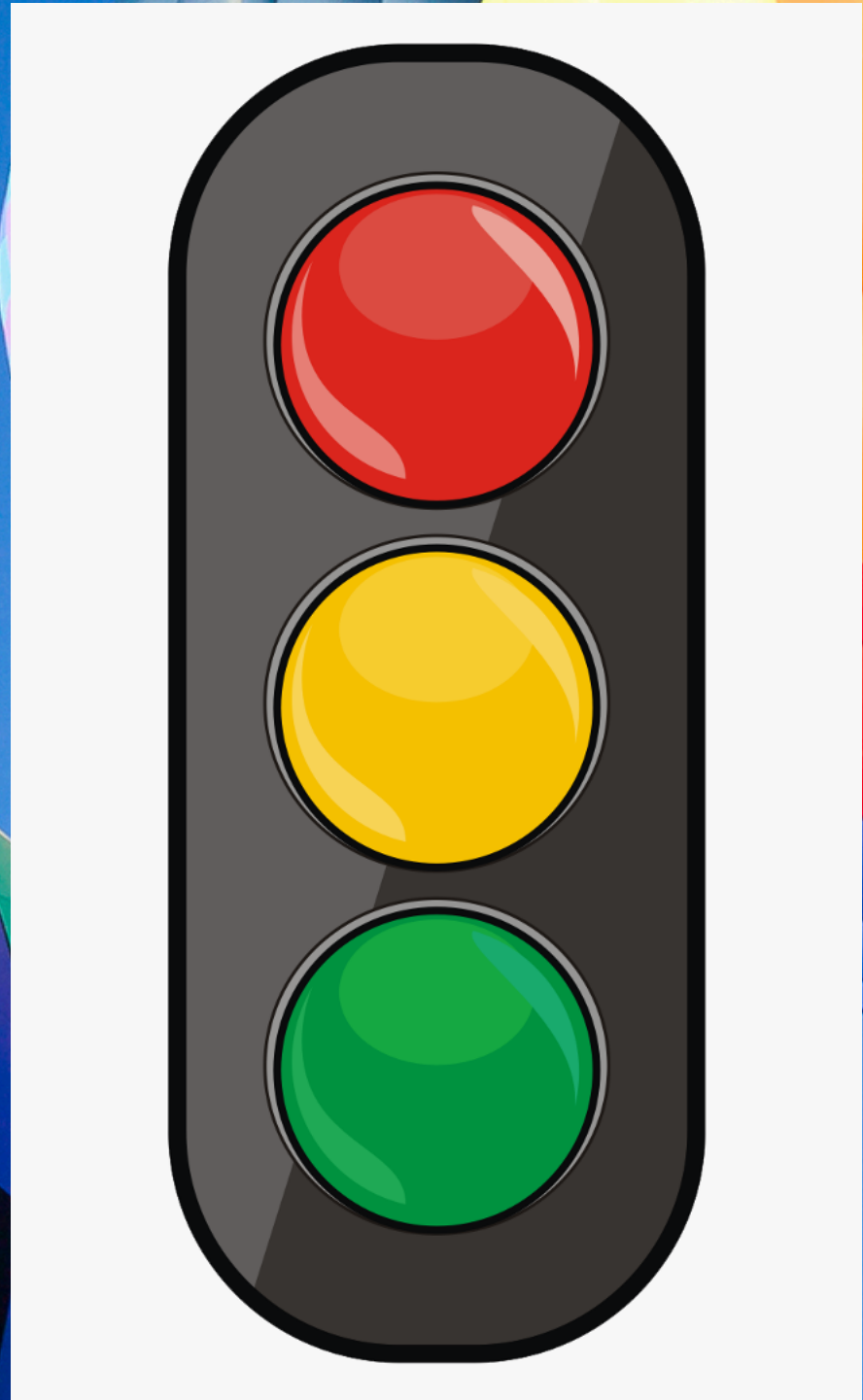
# Profit-Maximization in the Long-Run

- The firm's long-run decision:
  - **Exit** the market if  $TR < TC$ , or  $P < ATC$ .
  - **Enter** the market if  $TR > TC$ , or  $P > ATC$ .
- Why are we looking at ***total costs*** and revenue now, instead of just ***variable costs*** like in the short-run?
  - Because in the long-run all costs are variable costs!

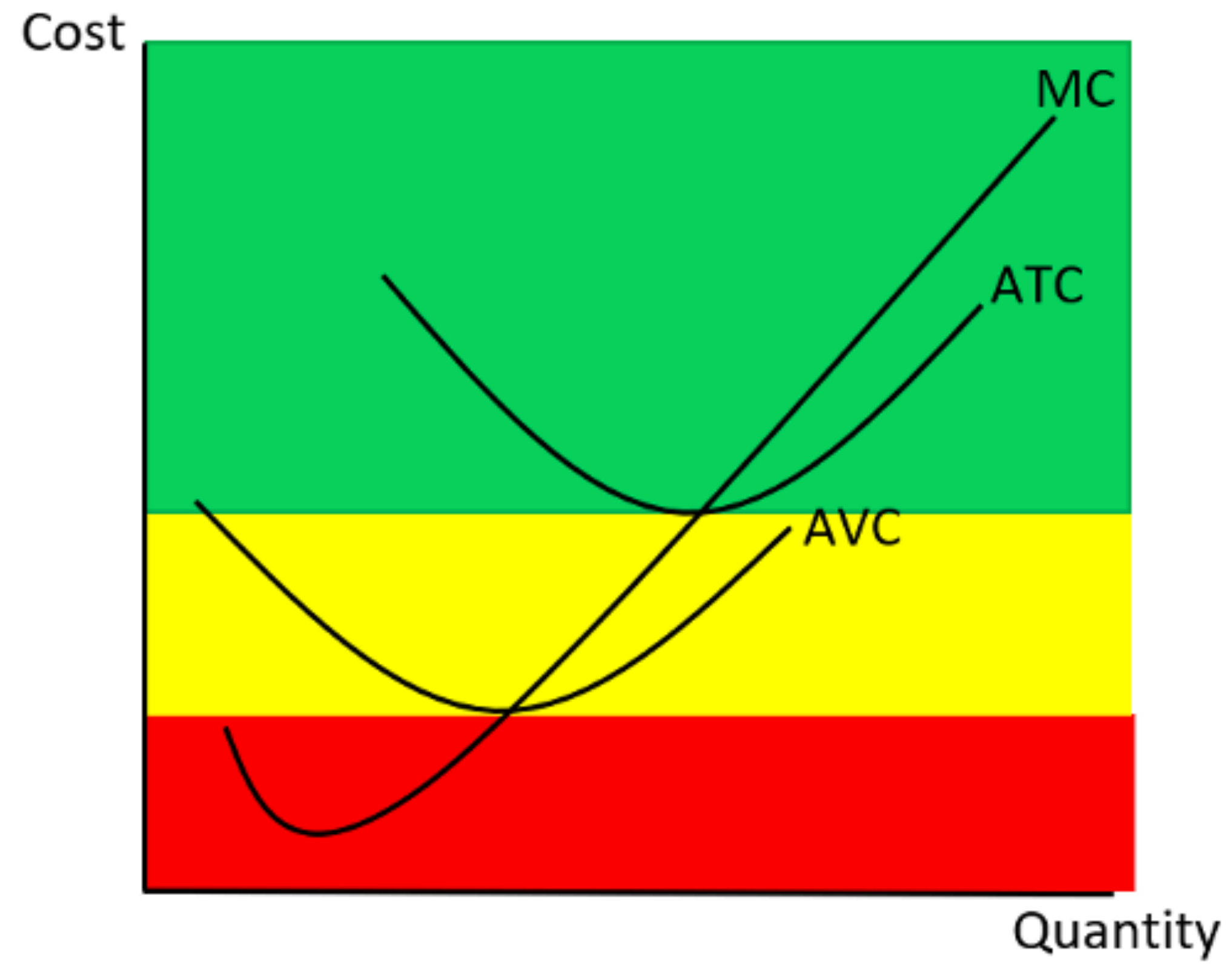
## Short-Run

## Long-Run

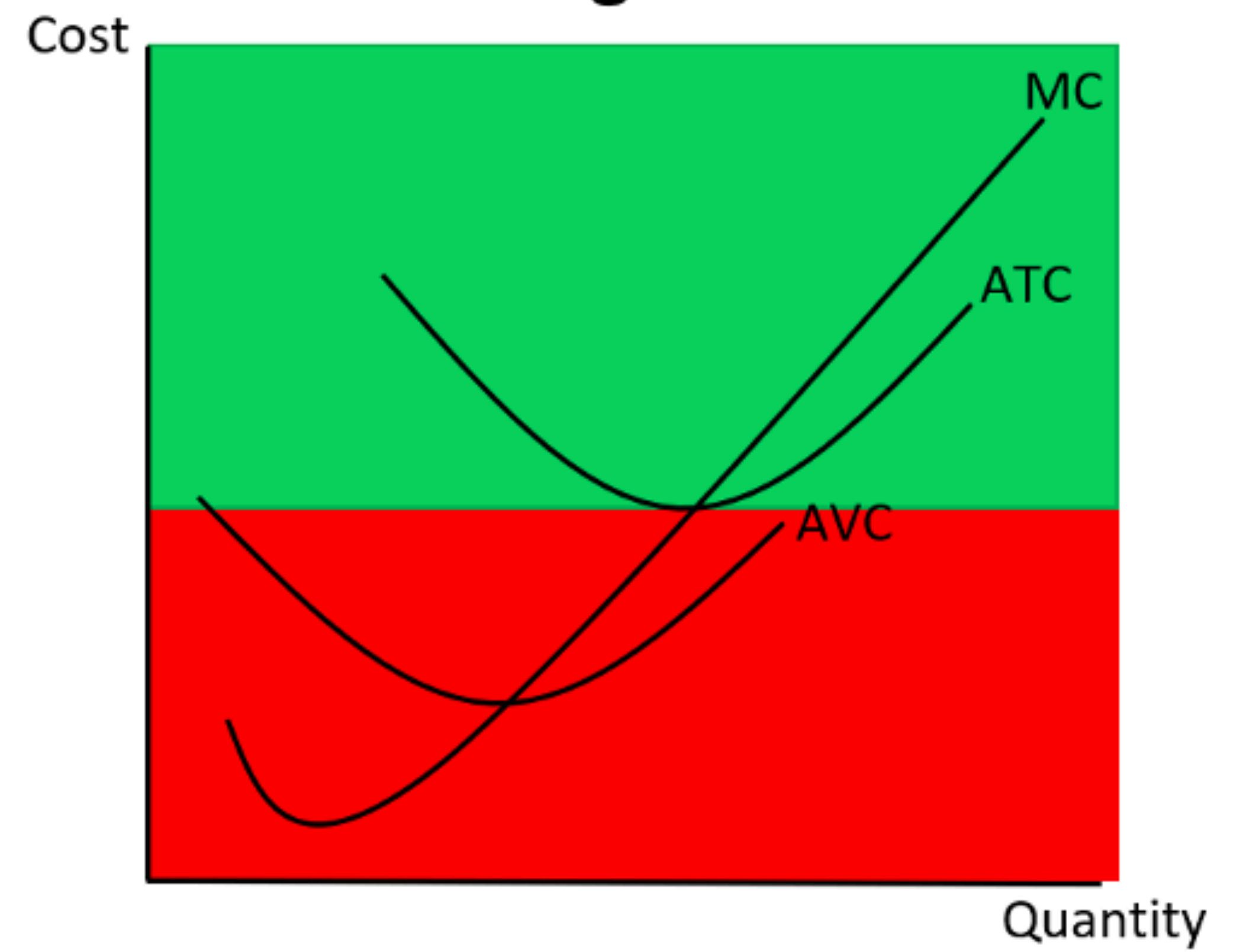




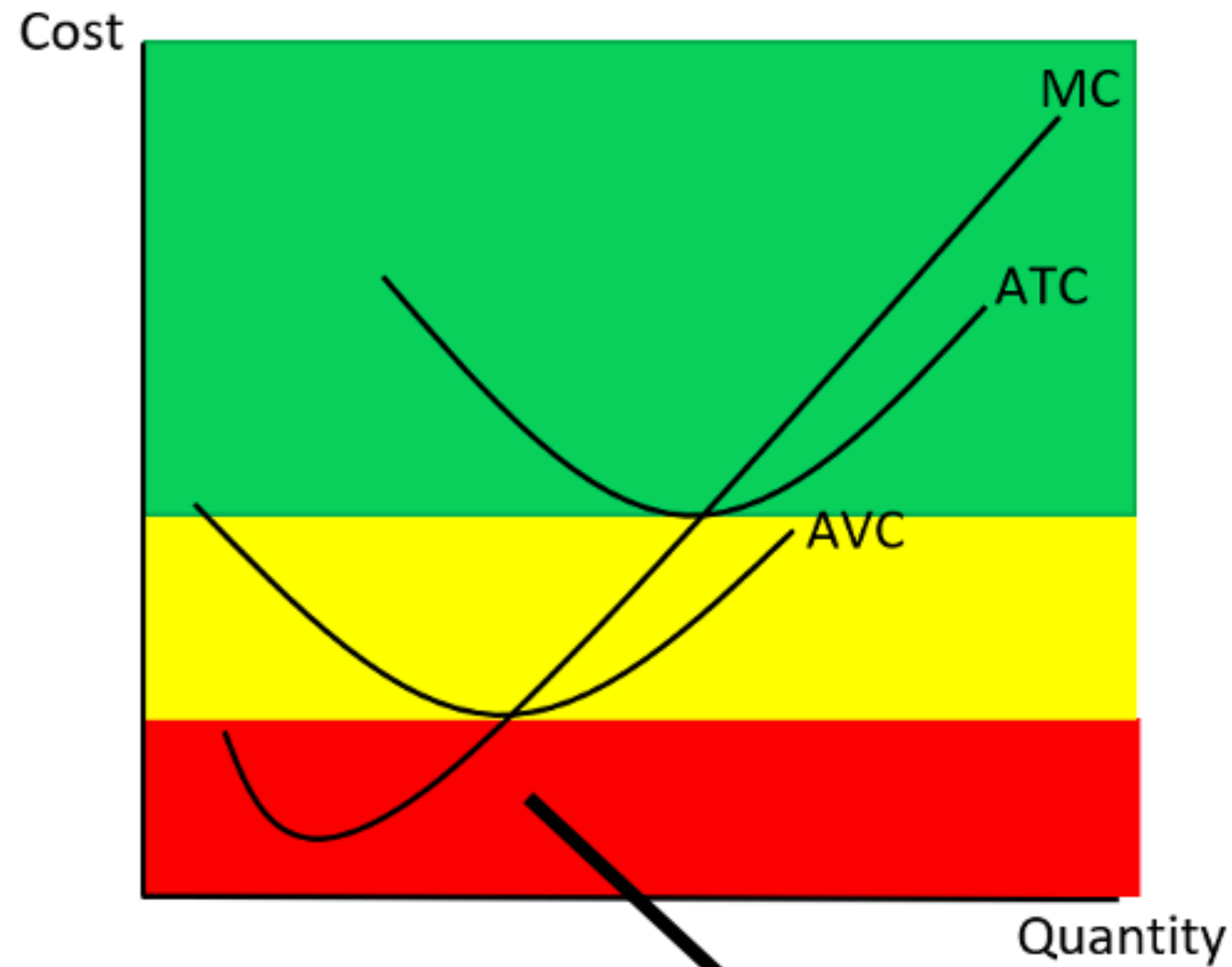
## Short-Run



## Long-Run

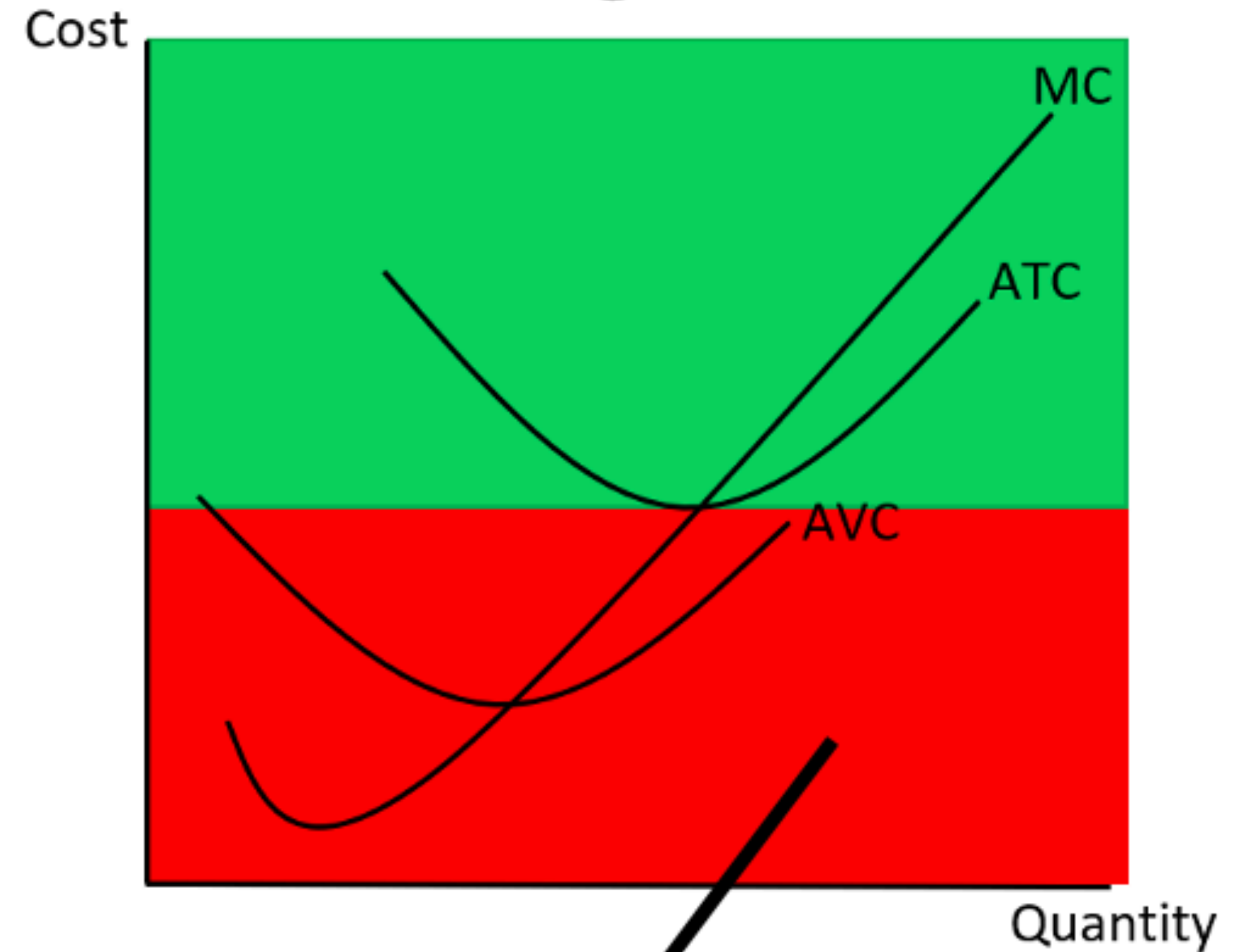


## Short-Run



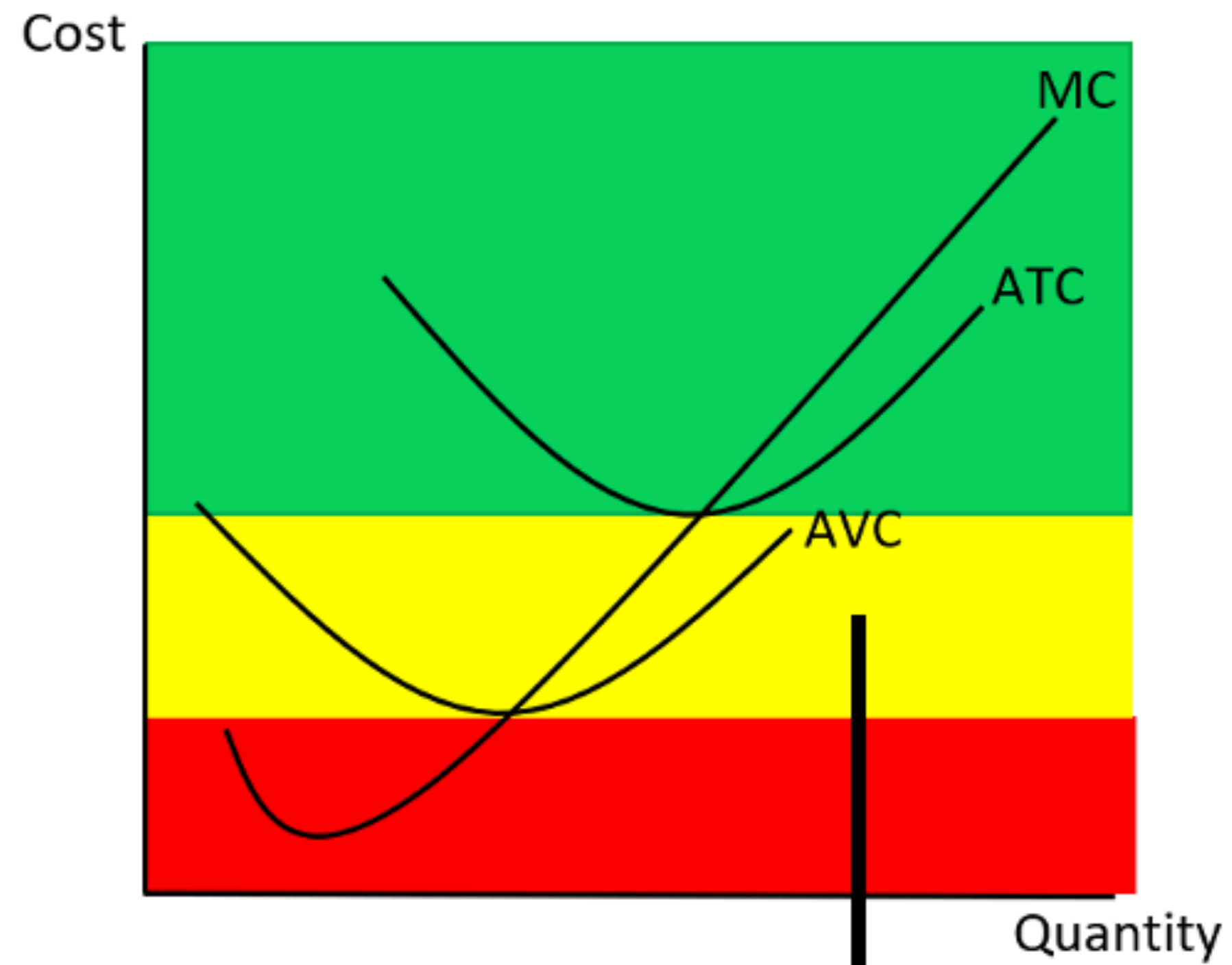
**Temporary decision to shutdown in the short-run.**

## Long-Run



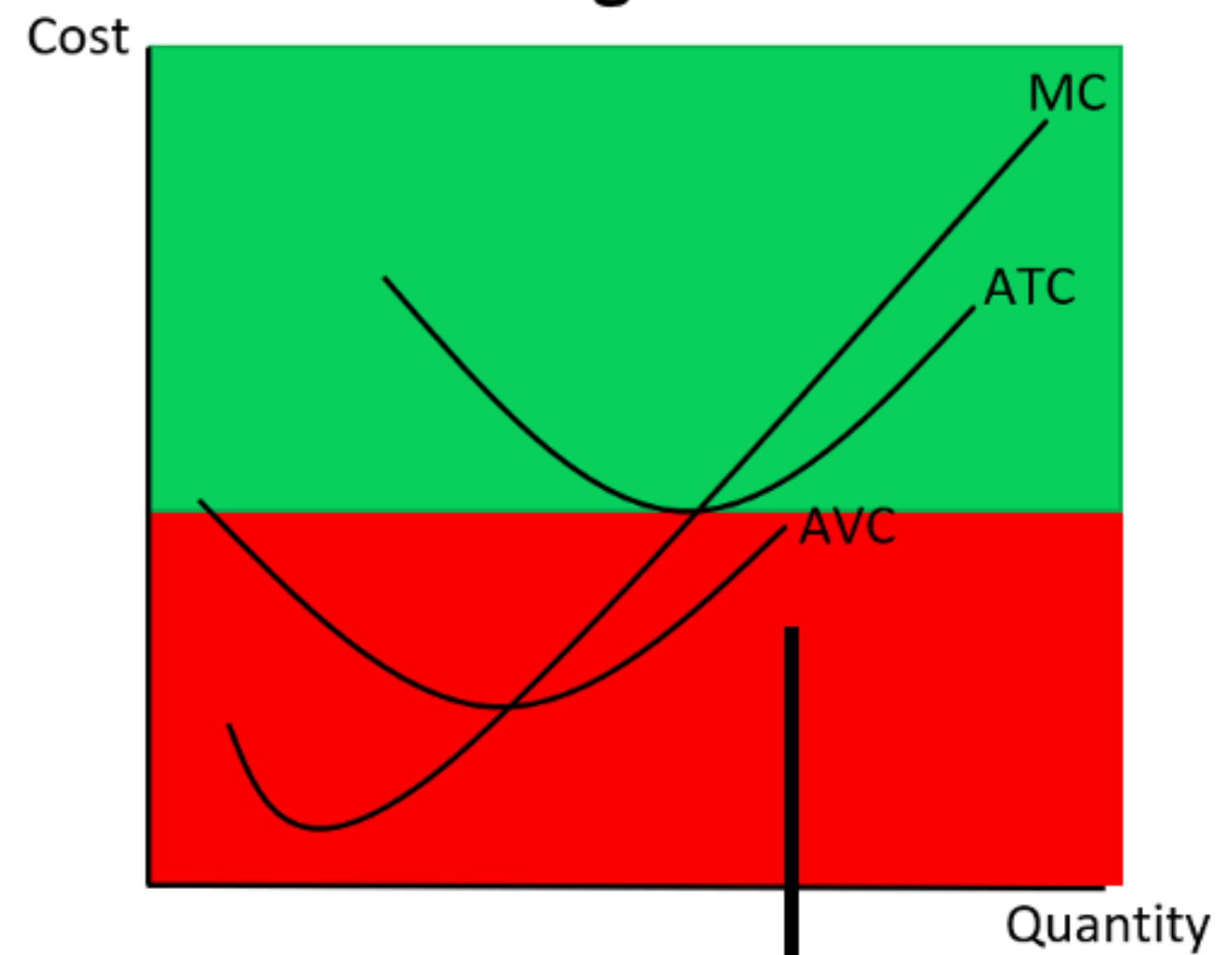
**Permanent decision to exit the market entirely in the long-run.**

## Short-Run



**In the short-run, you can produce at a loss.**

## Long-Run



**You never produce at a loss in the long-run.**

# Profit-Maximization (Short-Run)

- If **MR > MC**, produce more.
- If **MR < MC**, produce less
- If **MR = MC**, profits have been maximized.
- If **P > AVC**, continue to produce, even if at a loss.
- If **P < AVC**, shutdown temporarily.
- There are both fixed & variable costs.

# Profit-Maximization (Long-Run)

- If **MR > MC**, produce more.
- If **MR < MC**, produce less
- If **MR = MC**, profits have been maximized.
- If **P > ATC**, continue to produce, or enter the industry.
- If **P < ATC**, exit the industry, or don't enter at all.
- There all costs are *variable* costs.

# MEASURING PROFIT

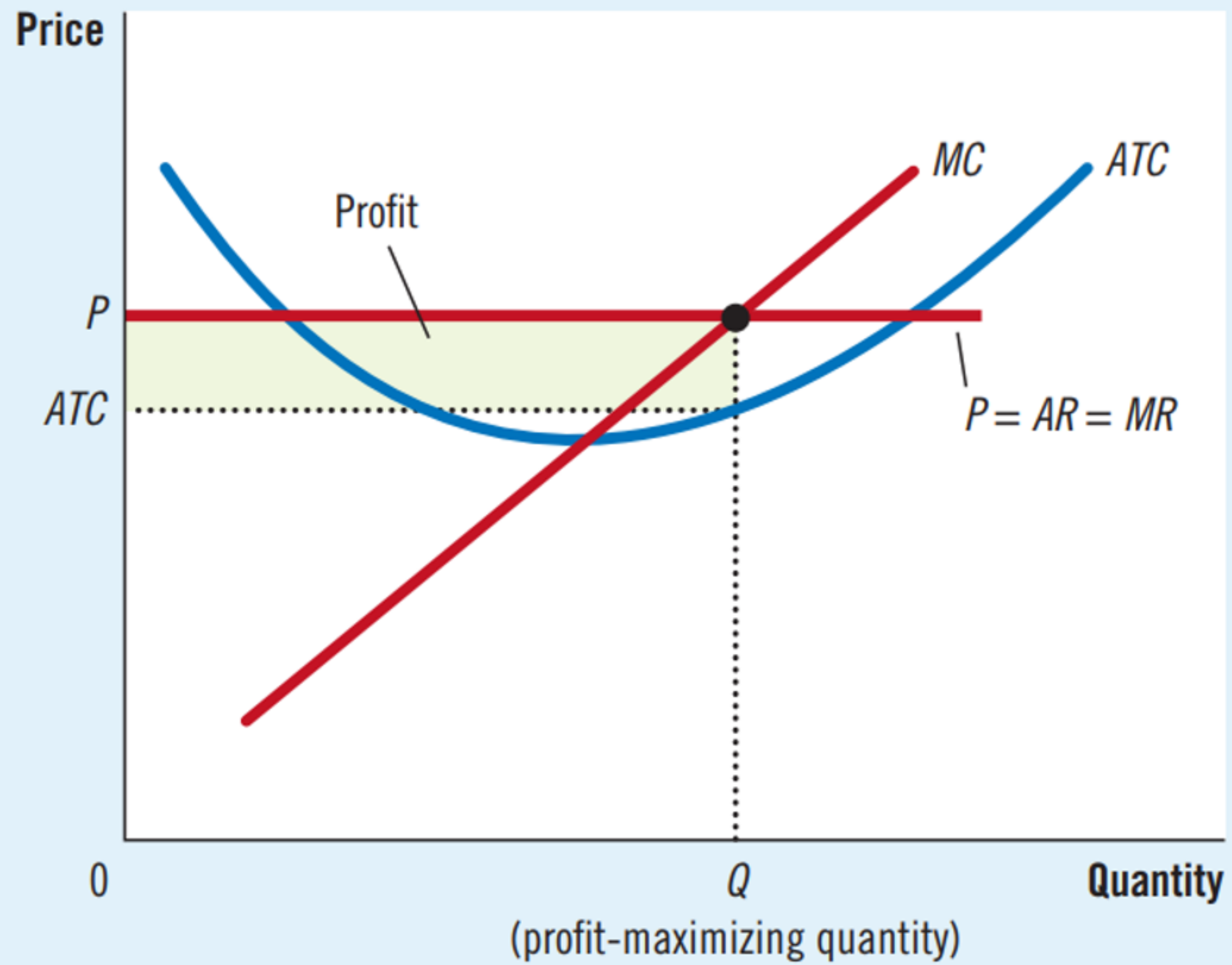
# Max Profit & ATC

- $AC = TC/Q$ 
  - We can rearrange this so that  $TC = AC*Q$
- Profit = TR – TC
  - Profit =  $P*Q - AC*Q$
  - Profit =  $(P-AC)*Q$

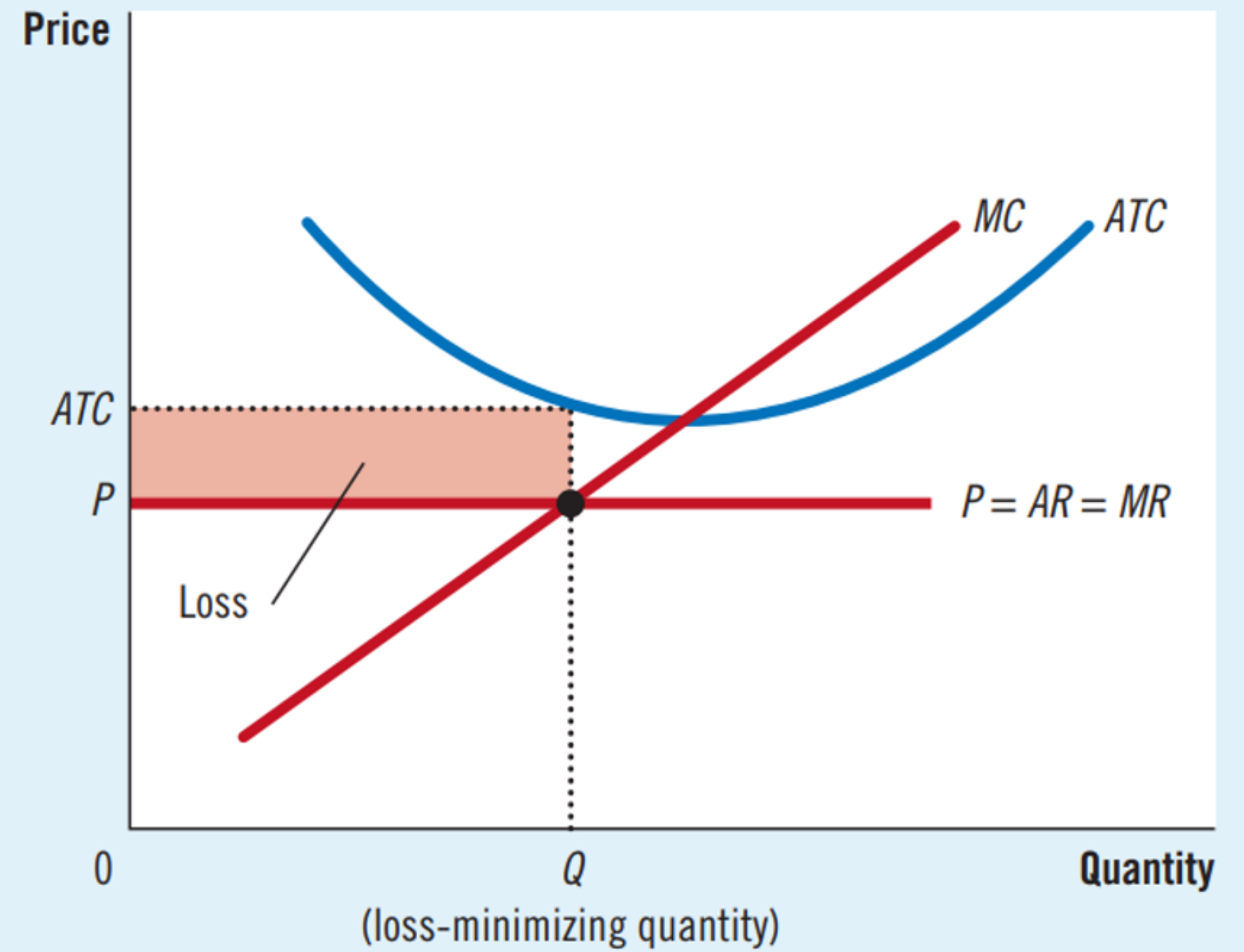
# Measuring Profit

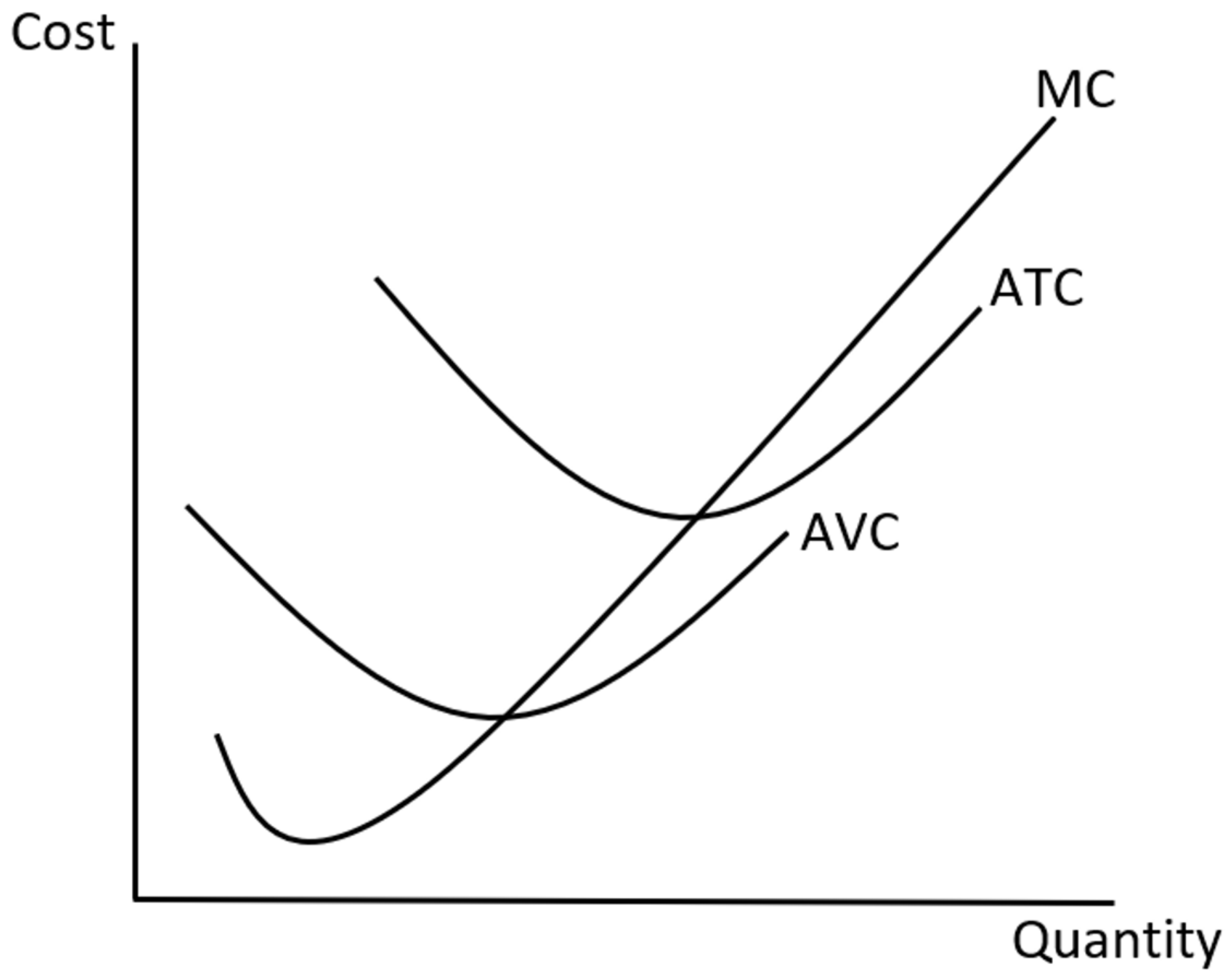
- If  $P > ATC$ ...
  - Profit =  $TR - TC$
  - Profit =  $(P - ATC) \times Q$
- If  $P < ATC$ 
  - Profit =  $TC - TR$
  - Profit =  $(ATC - P) \times Q$
  - Loss or negative profit.

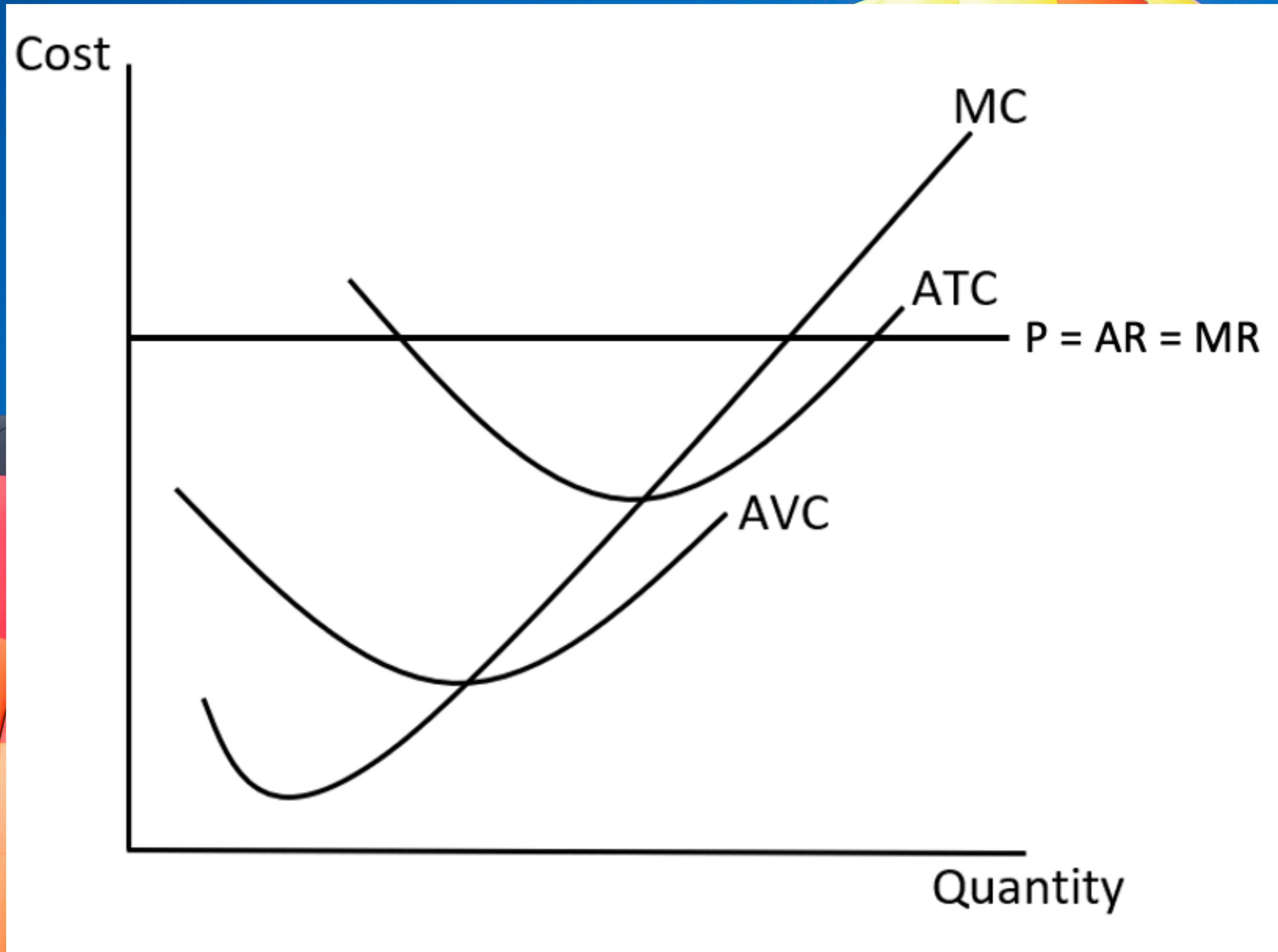
(a) A Firm with Profits

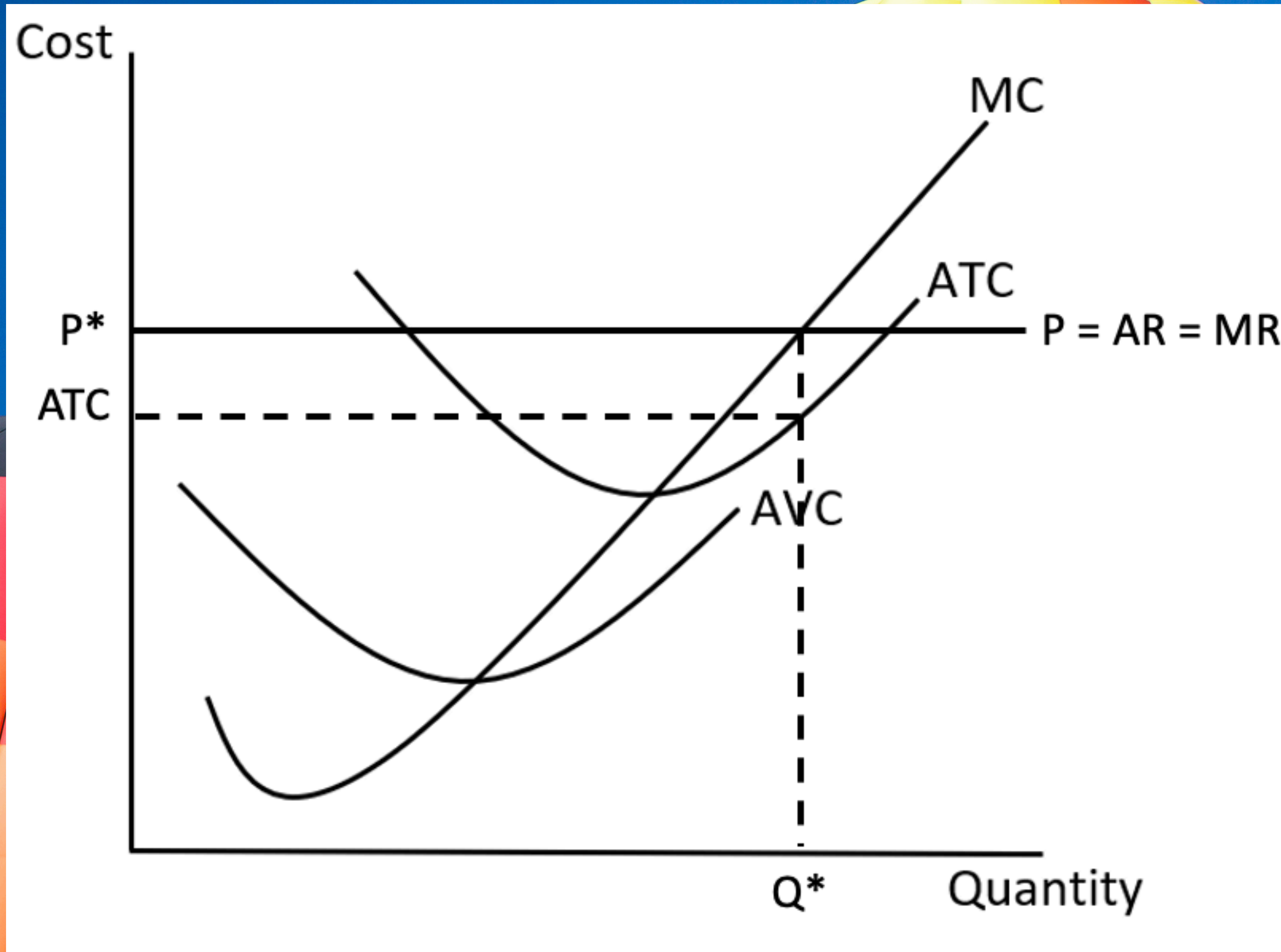


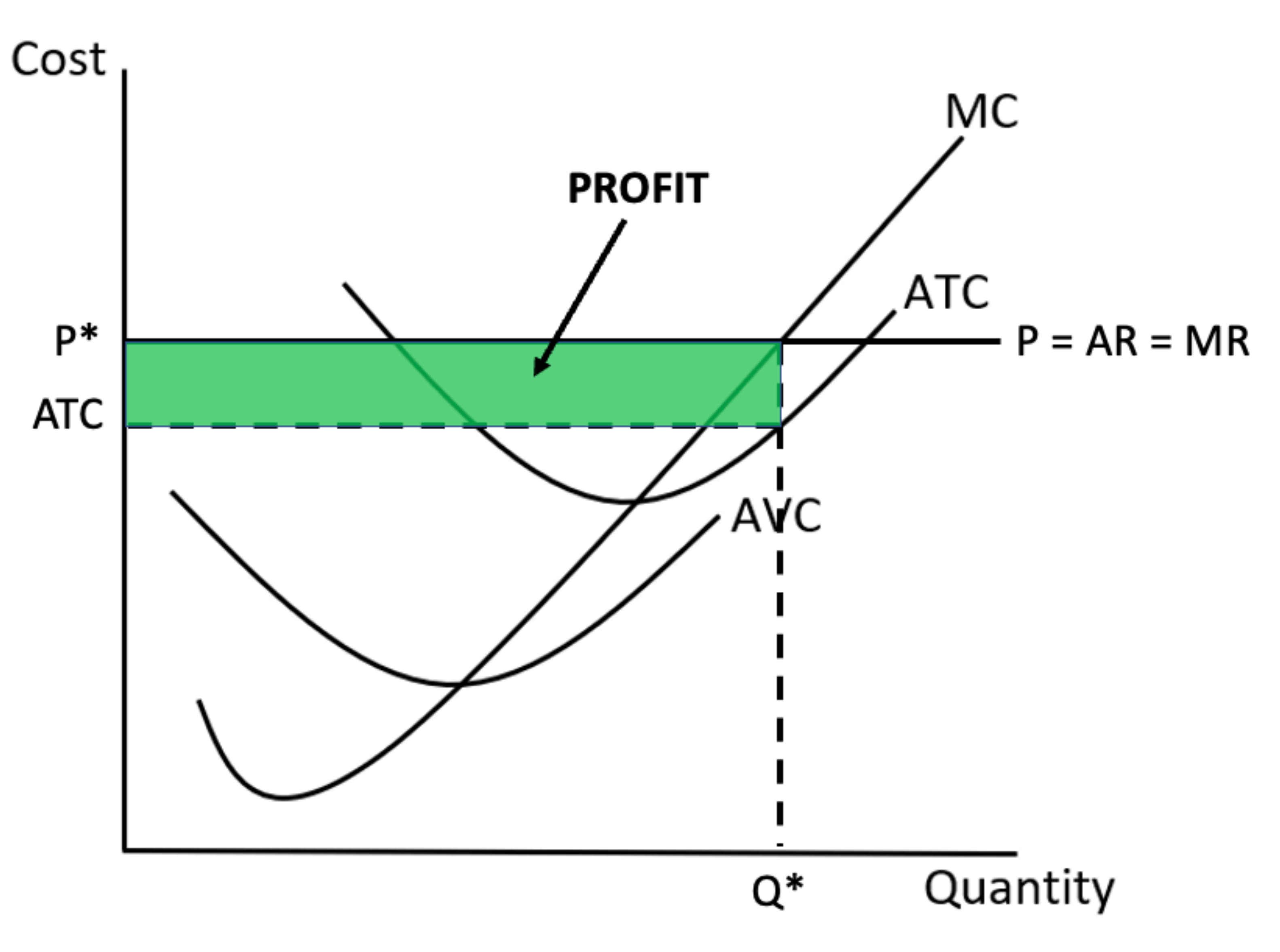
(b) A Firm with Losses

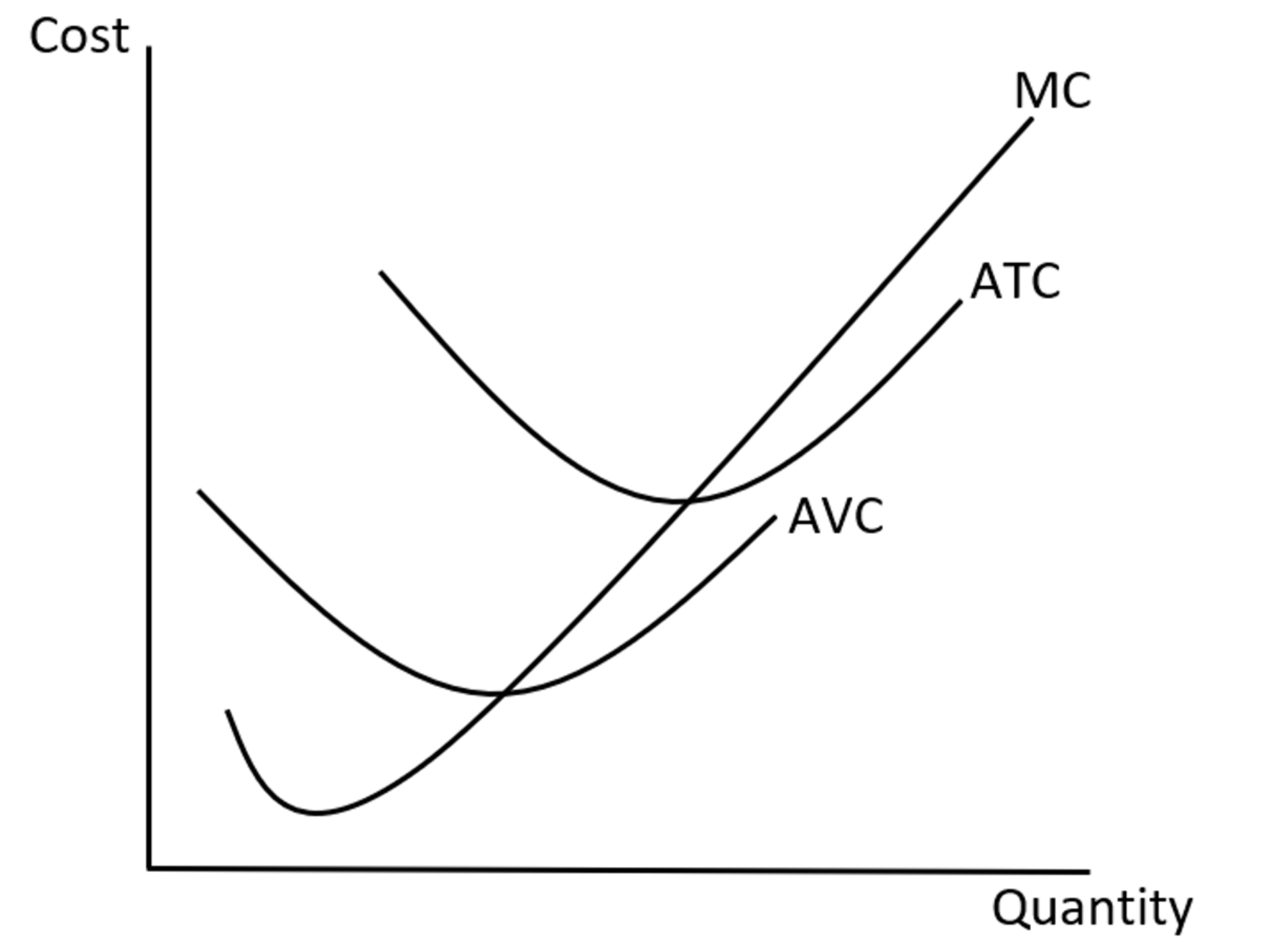


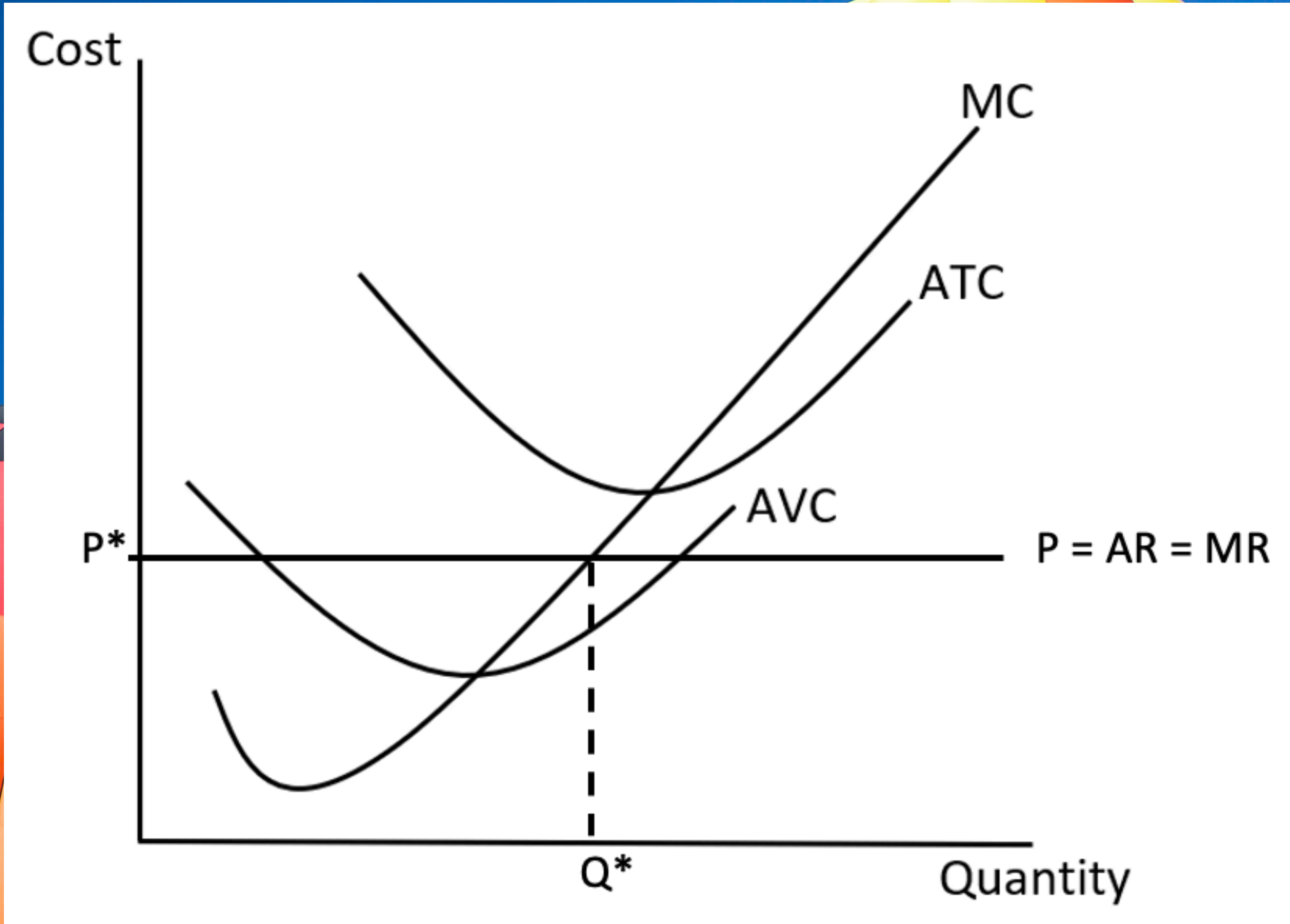


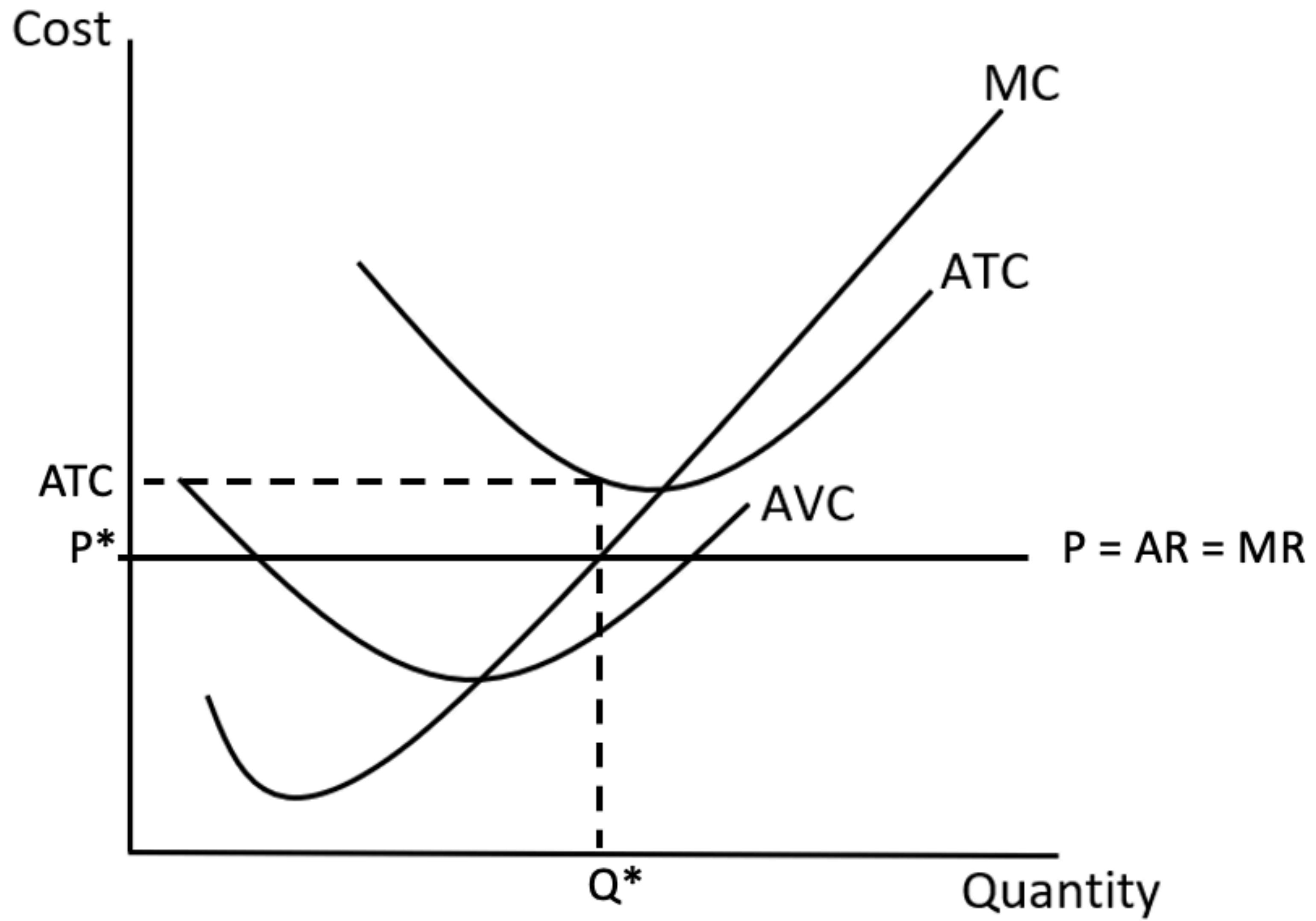


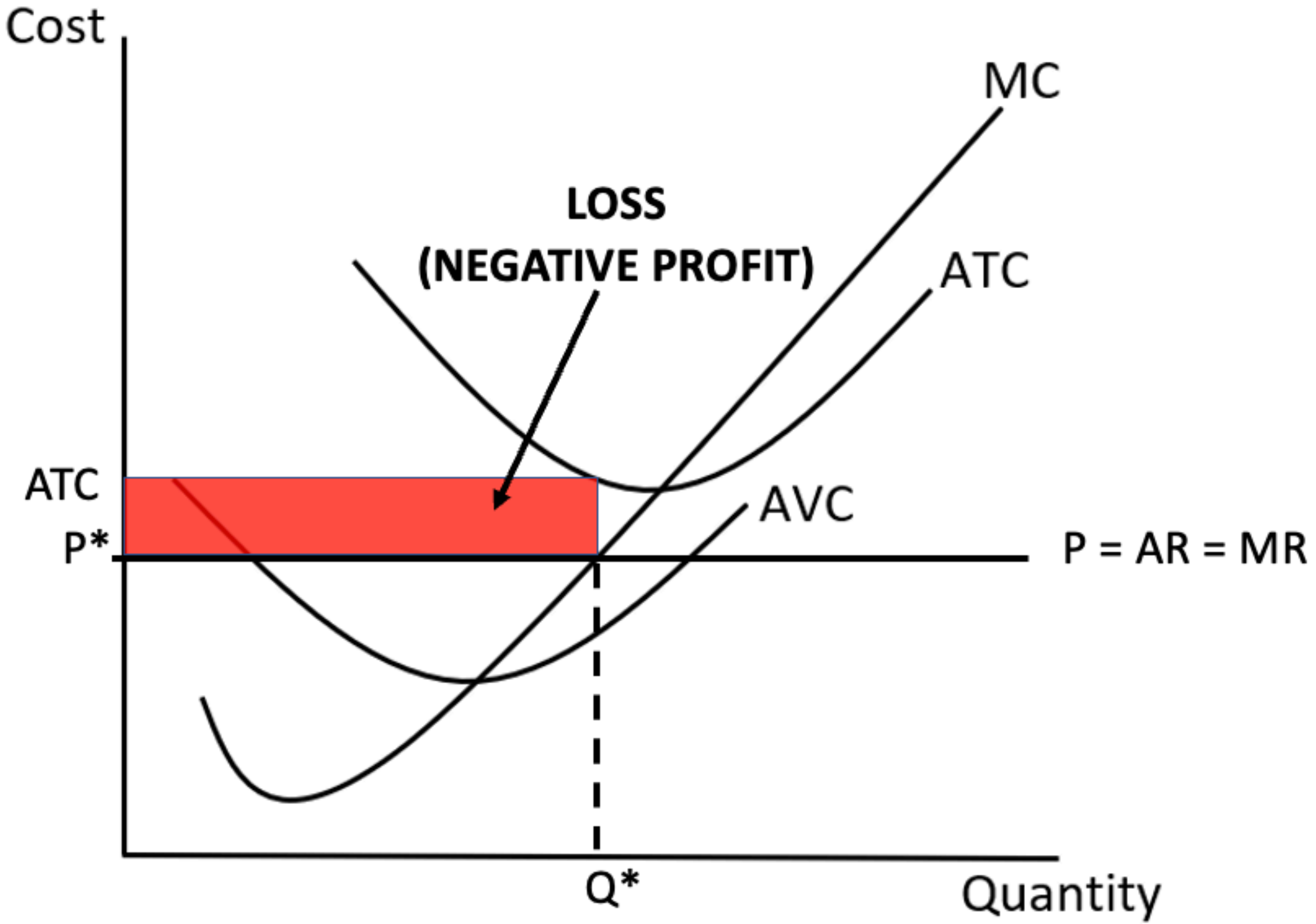


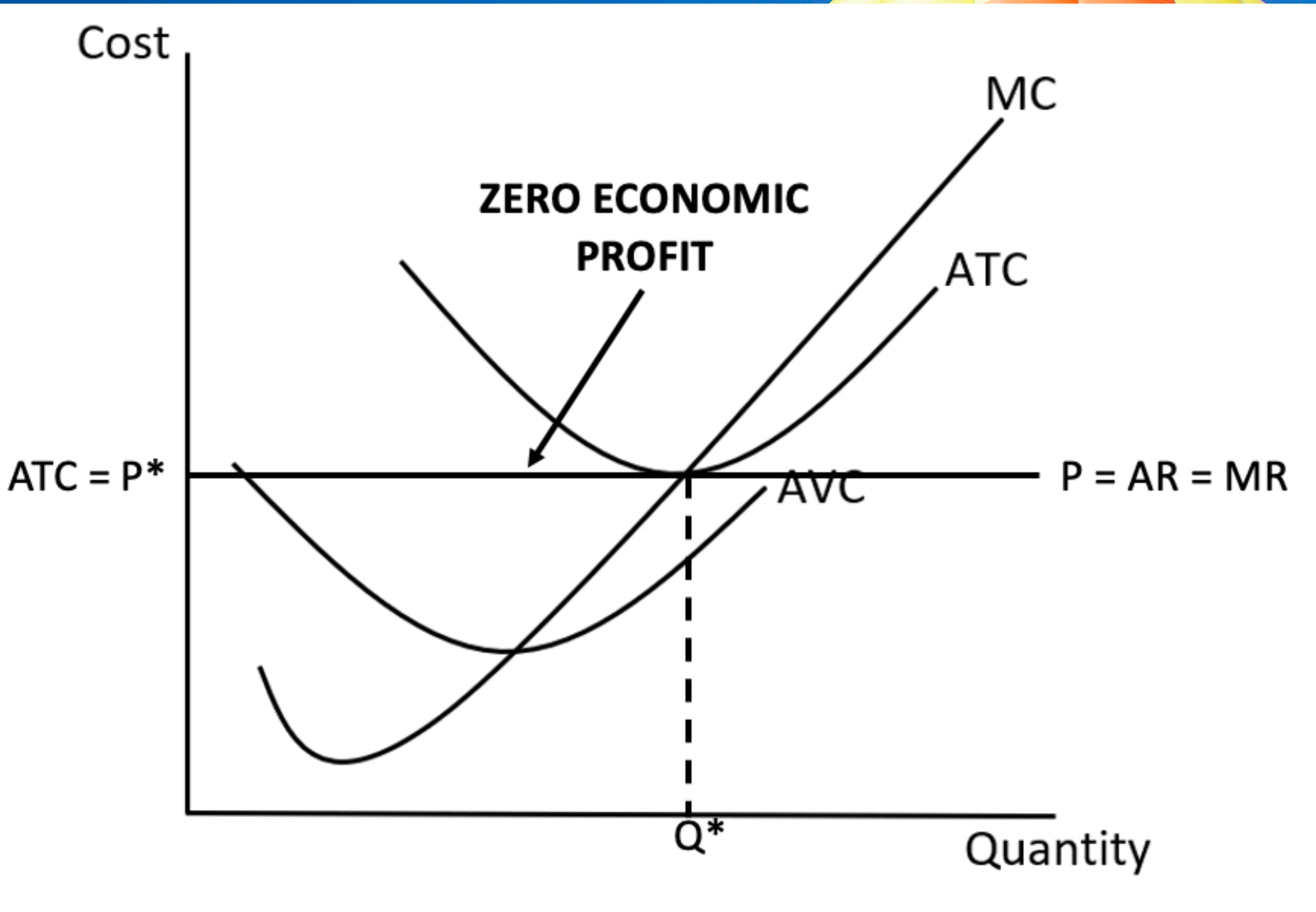












# Max Profit & ATC

- We can use ATC to help us measure profit!
- The area between P & ATC is the profit, whether the profit is positive or negative (loss).

# Summary: Profit-Maximization

- Find the  $Q$  at which  **$P = MC$** .
  - This is because  **$P = AR = MR$**  for the perfectly competitive firm.
  - And  **$MR = MC$**  is the profit-maximization point.
- If  **$P < AVC$** , shutdown!
- If  **$AVC < P < ATC$** , operate in the short-run but exit in the long-run.
- If  **$P > ATC$** , stay in the industry and profit.

**Quiz!**