Perfect Competitive Market

Content

1. Definition
2. Perfect Competition
3. Monopoly
4. Monopolistic Competition
5. Oligopoly

Reading list

Mankiw Ch 13-17

Market

Market is a context where trades occur.

Components of market

- Buyers, consumers, or households for product market
- Sellers, producers, or firms for product market

Buyers and sellers agree upon a good or service with a price (or prices)

1.2 Market categories

Market structure

- Categorize by number of buyer such as monopsony, oligopsony

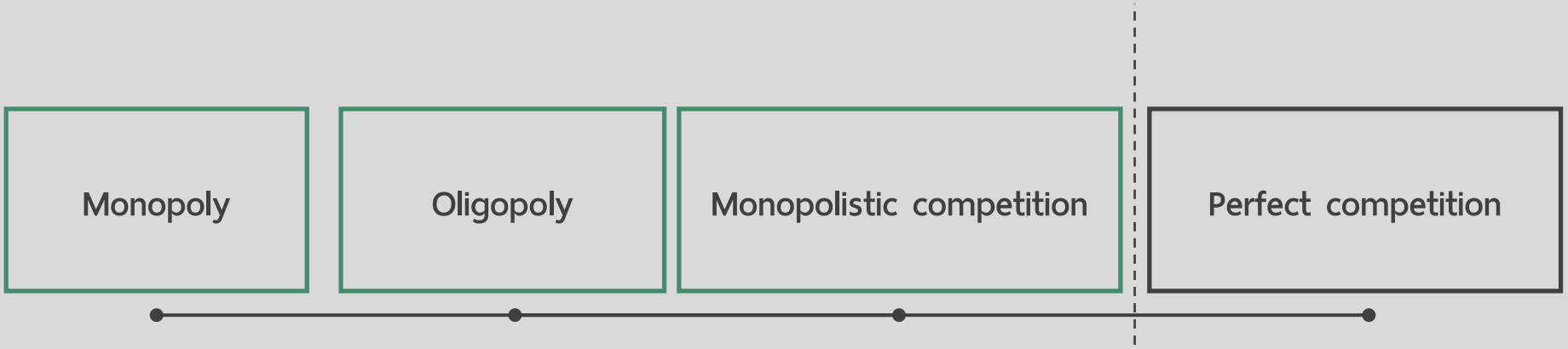
- Categorize by number of seller

  - Perfect competition
  - Monopoly
  - Monopolistic competition
  - Oligopoly

Market structure

Structure	Barrier to entry/exit for seller	Number of seller	Barrier to entry/exit for buyer	Number of buyer
Perfect competition	n/a	A lot	n/a	A lot
Monopolistic competition	n/a	A lot	n/a	A lot
Monopoly	Yes	1	n/a	A lot
Oligopoly	Yes	A few	n/a	A lot
Monopsony	n/a	A lot	Yes	1
Oligopsony	n/a	A lot	Yes	A few

Market structure



This chapter focuses on firm's decision on price, quantity produced, and equilibrium for each type of market structure.

Perfect competition market

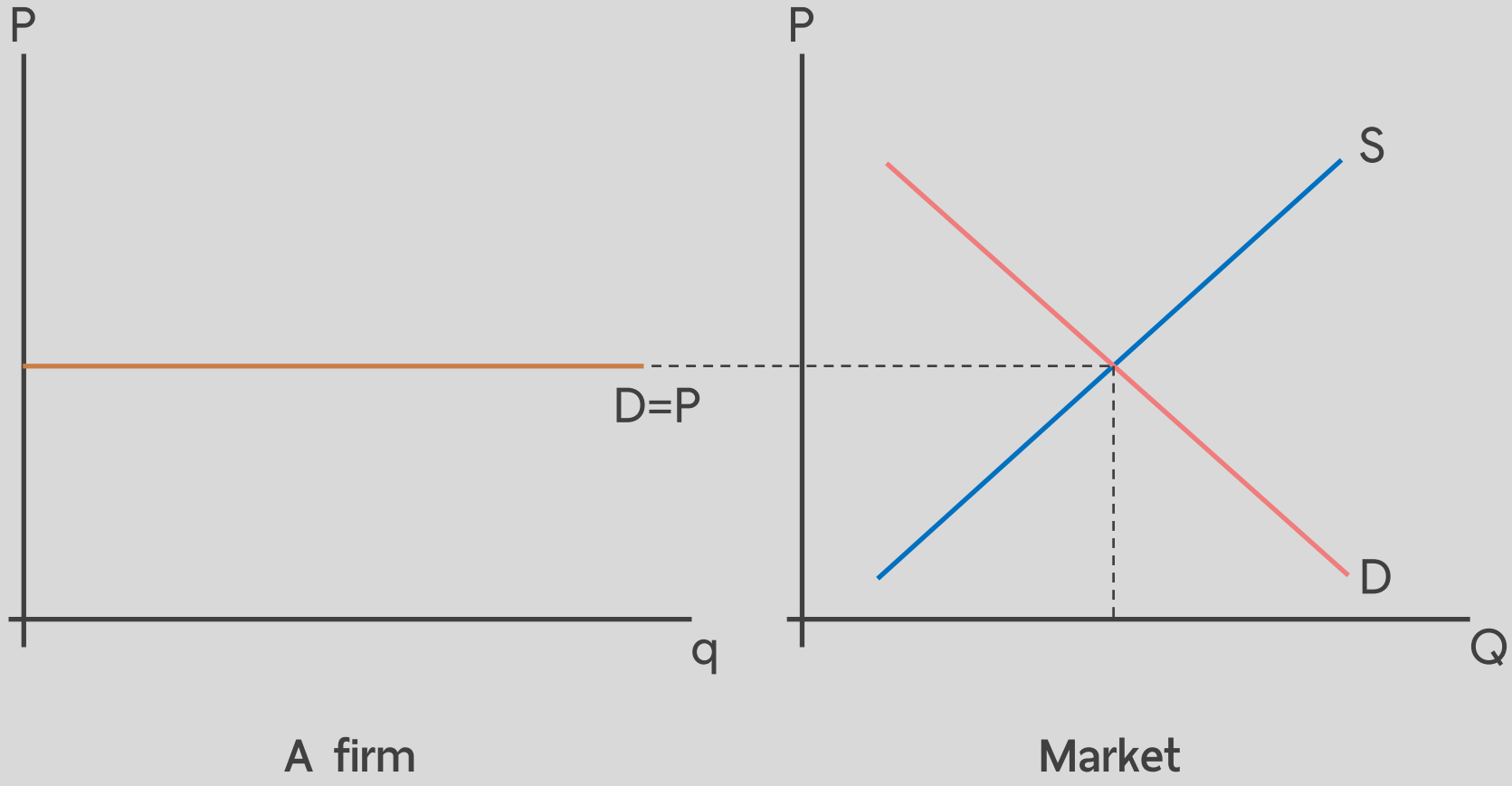
- Infinite number of buyers and sellers (sellers are price taker)
- Homogenous product
- Free-entry, free-exit
- Factors of production can be relocated without cost.
- Perfect information

Perfect competition market

Examples

2.2 Demand line from firm's point of view

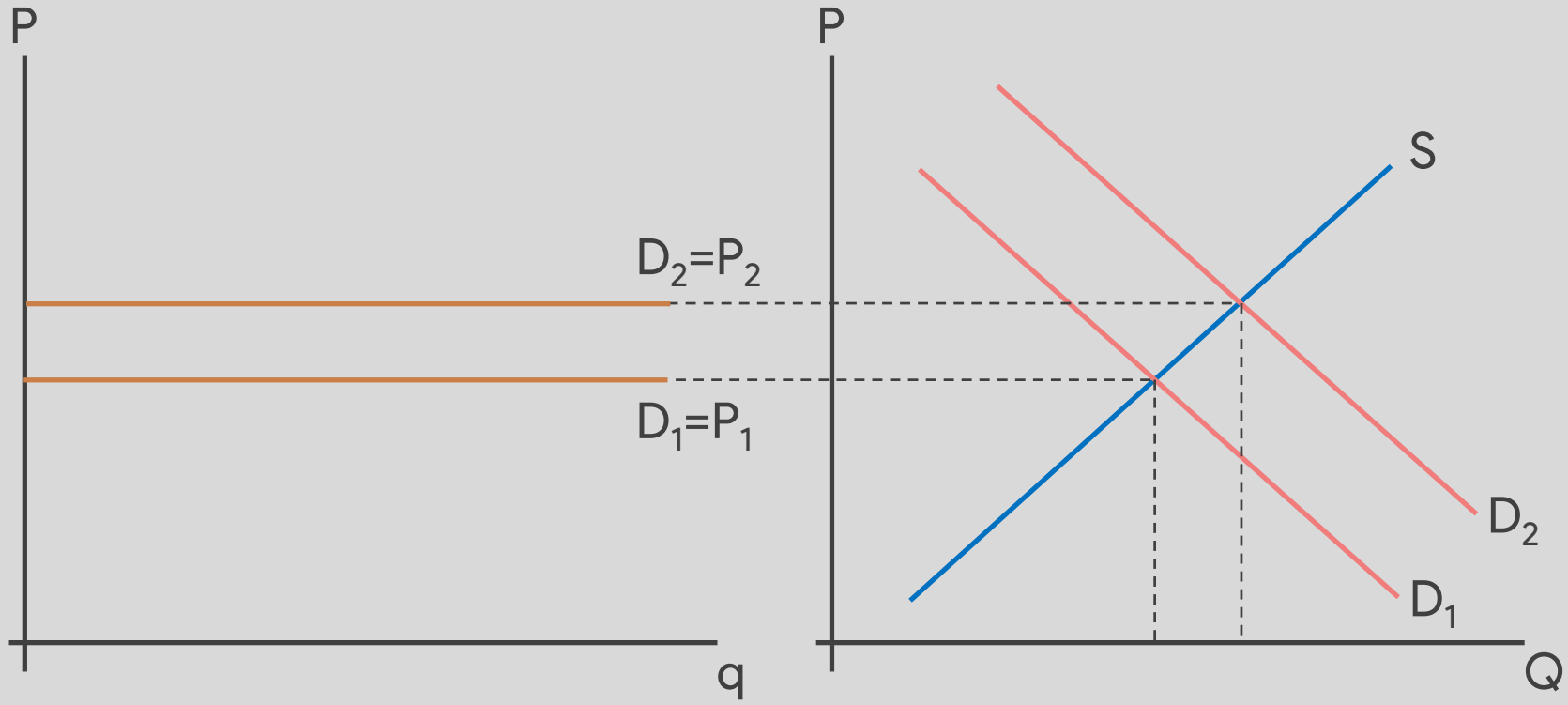
Price taker



A firm

Market

Price taker



Revenue

Value of products sold within a period of time.

Profit (Loss) - π

Profit (loss) is the difference between total revenue and total cost. Economic profit can be categorized as follows.

- Excess profit: total revenue > total cost
- Normal profit: total revenue = total cost
- Loss: total revenue < total cost

(1) Total Revenue (TR)

$$TR = P \cdot q$$

(2) Average Revenue (AR)

$$AR = \frac{TR}{q}$$

Revenue averaged by quantity sold.

(3) Marginal Revenue (MR)

$$MR = \frac{\Delta TR}{\Delta q}$$

An increment revenue when 1 more unit of product sold.

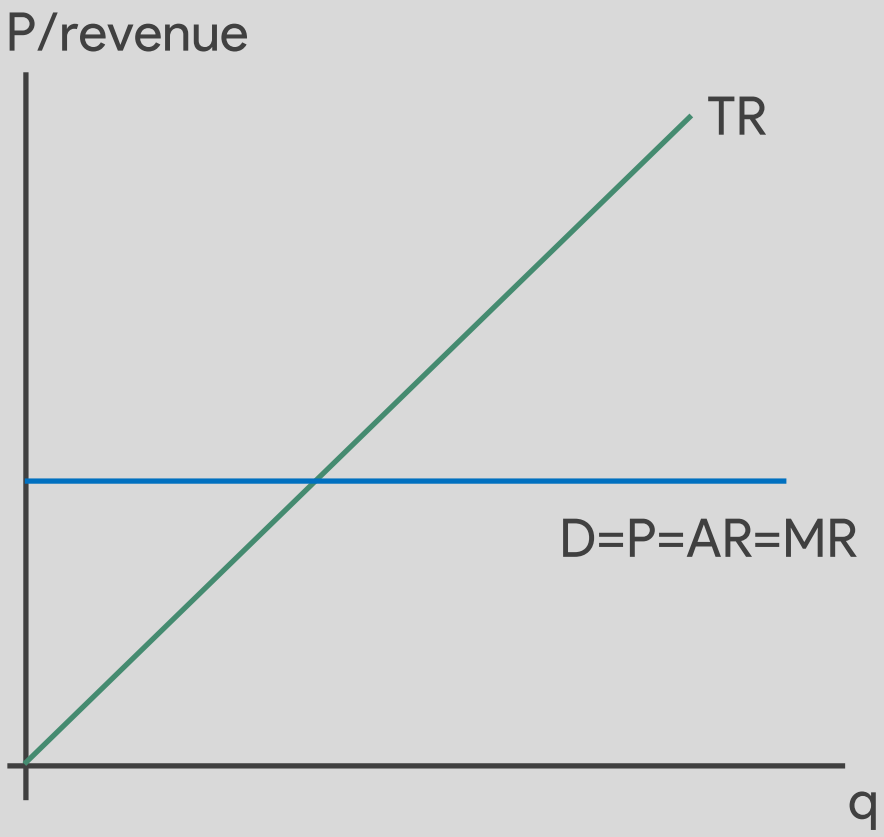
(4) Profit/Loss (π)

$$\pi = TR - TC$$

2.3 Revenue and profit

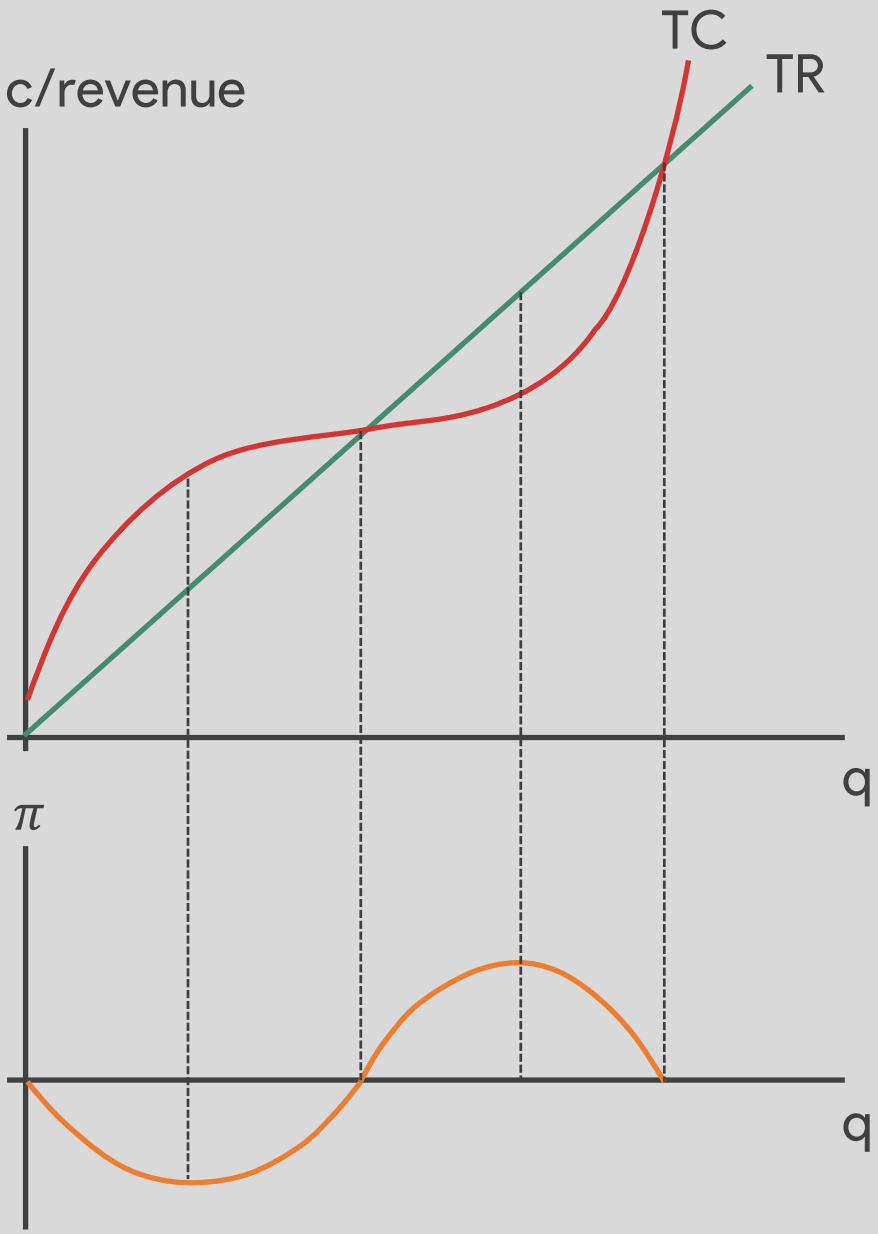
1 (q)	2 (P)	3 (TR)	4 (AR)	5 (MR)
Quantity	Price	Total revenue	Average revenue	Marginal revenue
1	10			
2				
3				
4				
5				

2.3 Revenue and profit



2.3 Revenue and profit

Excess profit

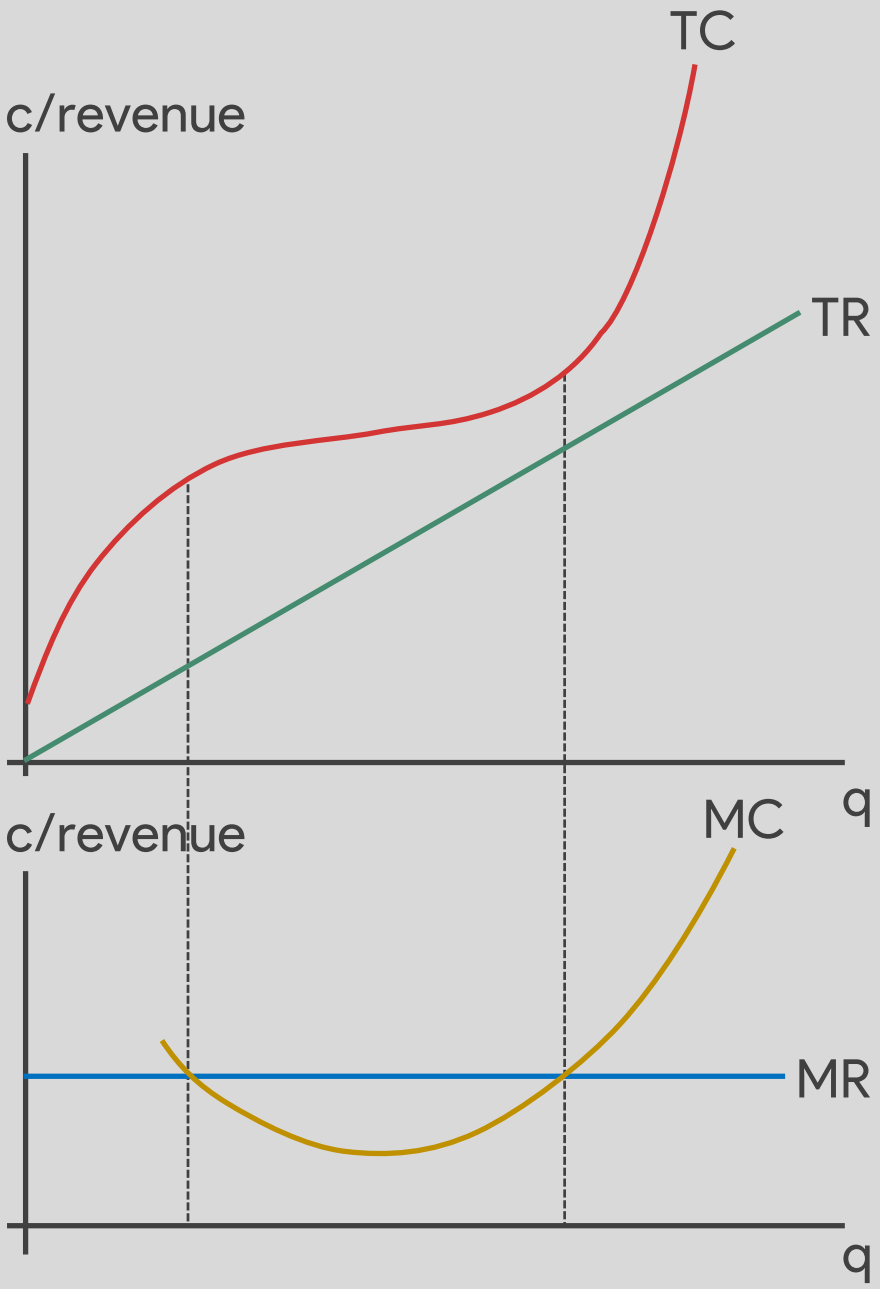


2.3 Revenue and profit

Normal profit

2.3 Revenue and profit

Loss



2.3 Revenue and profit

Optimal quantity for a firm

- Profit equation $\pi = TR - TC$
- The objective function is

$$\max_{q} \quad \pi = TR - TC$$

- Find the derivative with respect to q and set it equal to 0
- Since

2.3 Revenue and profit

Optimal quantity for a firm

- plug in

- The condition that maximize profit is

2.4 Short-run equilibrium

Equilibrium of a firm

Since rational firms are assumed to maximize profit, the short-run equilibrium is firms choosing their optimal quantity to produce.

4 situations for firms in perfect competitive market

- Excess profit
- Normal profit
- Loss
- Shut down

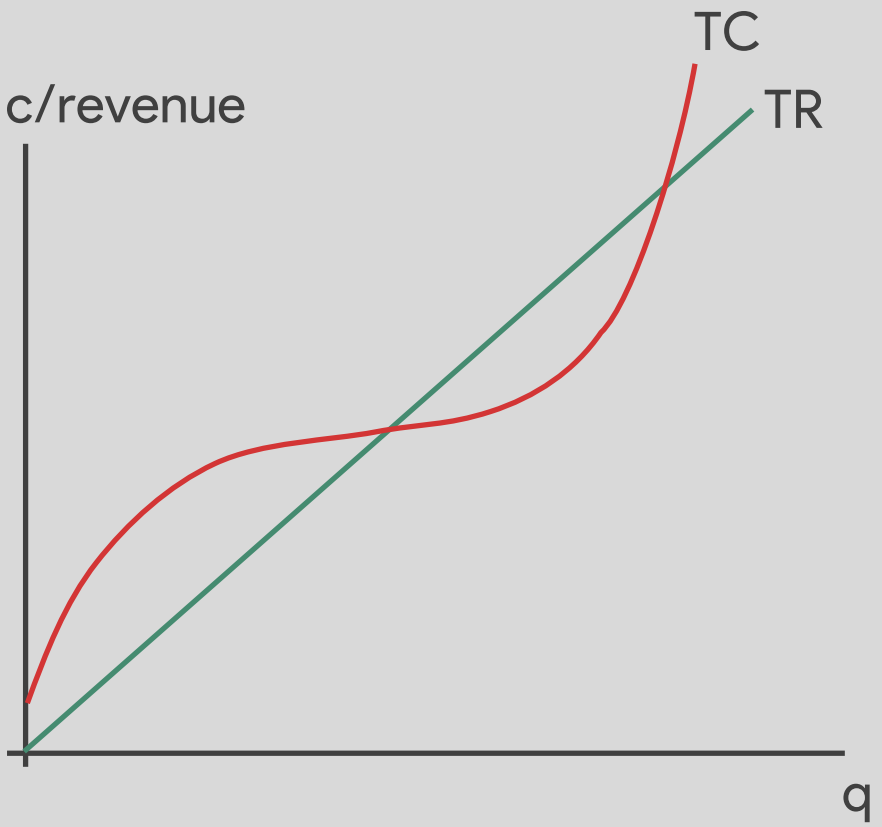
2.4 Short-run equilibrium

(1) Excess profit

Consider from total revenue/cost

- Optimized quantity

- Total profit

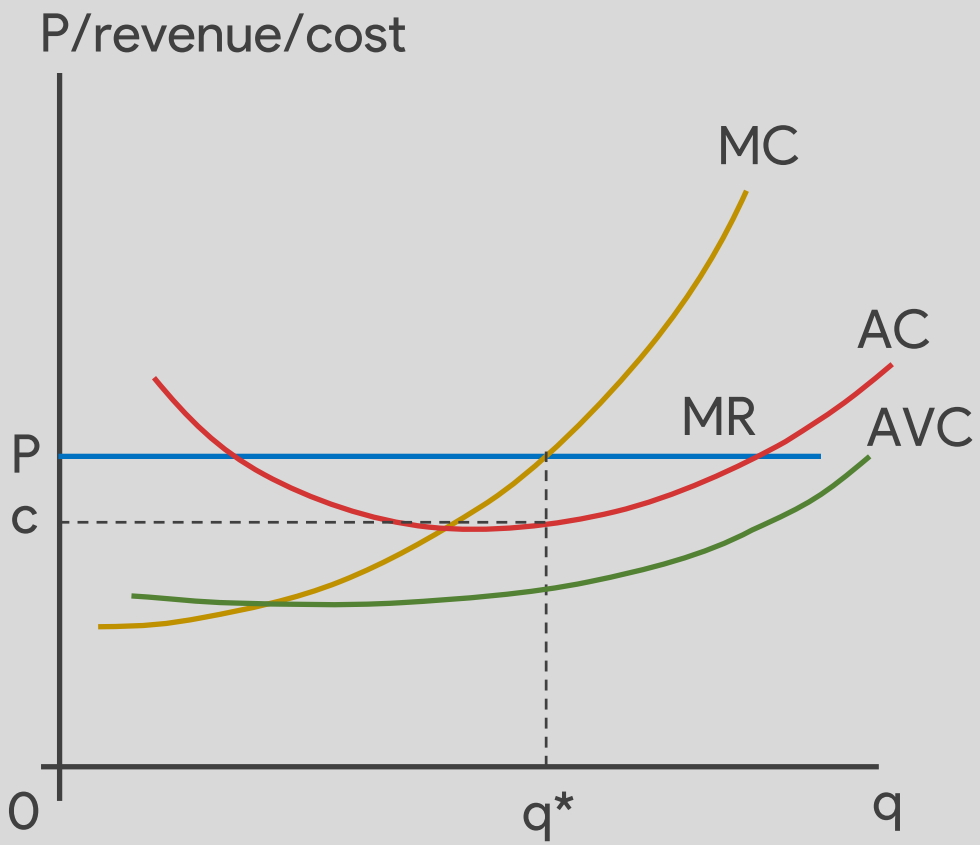


2.4 Short-run equilibrium

(1) Excess profit

Consider from average cost/revenue

- Total revenue
- Total cost
- Profit/loss (TR-TC)

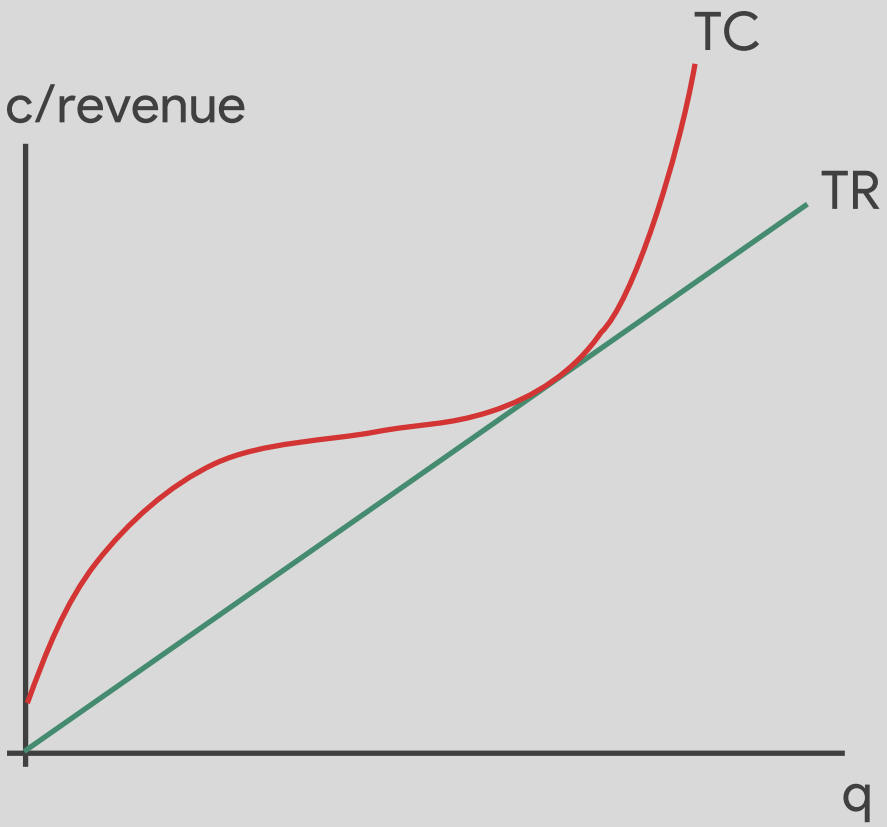


(2) Normal profit

Consider from total revenue/cost

- Optimized quantity

- Total profit

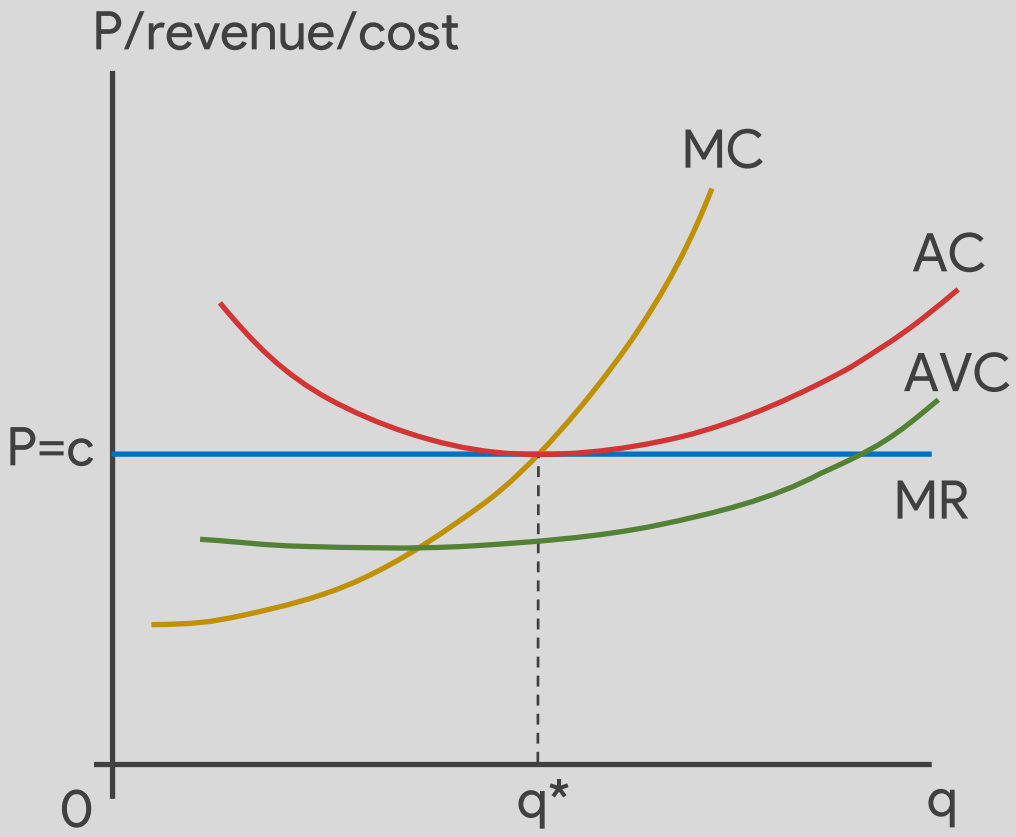


2.4 Short-run equilibrium

(2) Normal profit

Consider from average cost/revenue

- Total revenue
- Total cost
- Profit/loss (TR-TC)



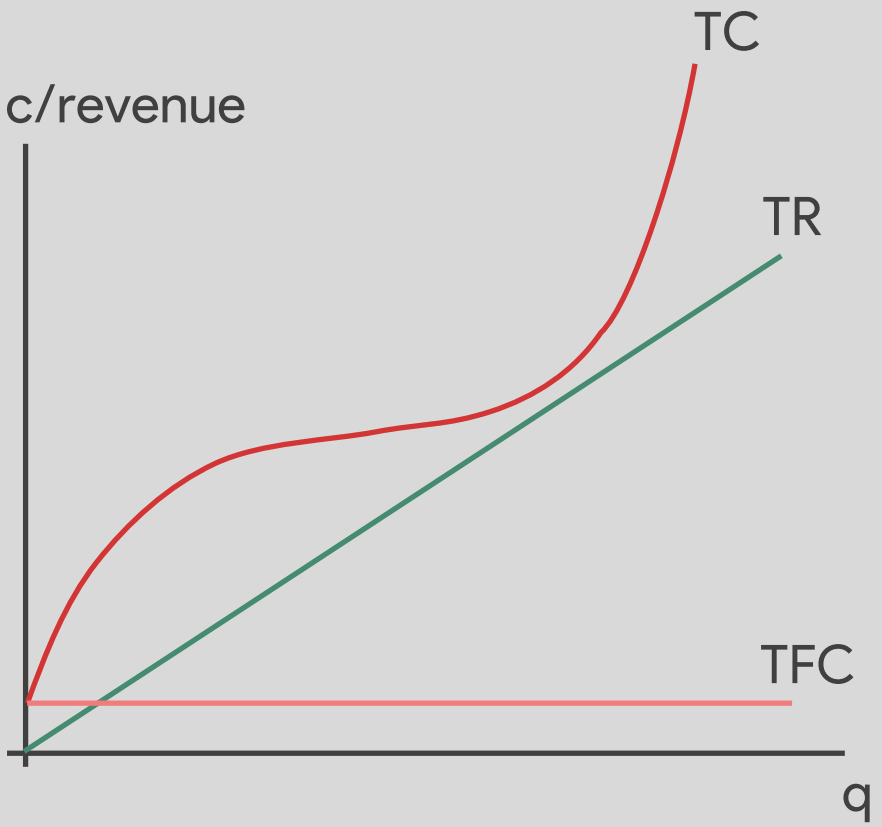
2.4 Short-run equilibrium

(3) Loss

Consider from total revenue/cost

- Optimized quantity

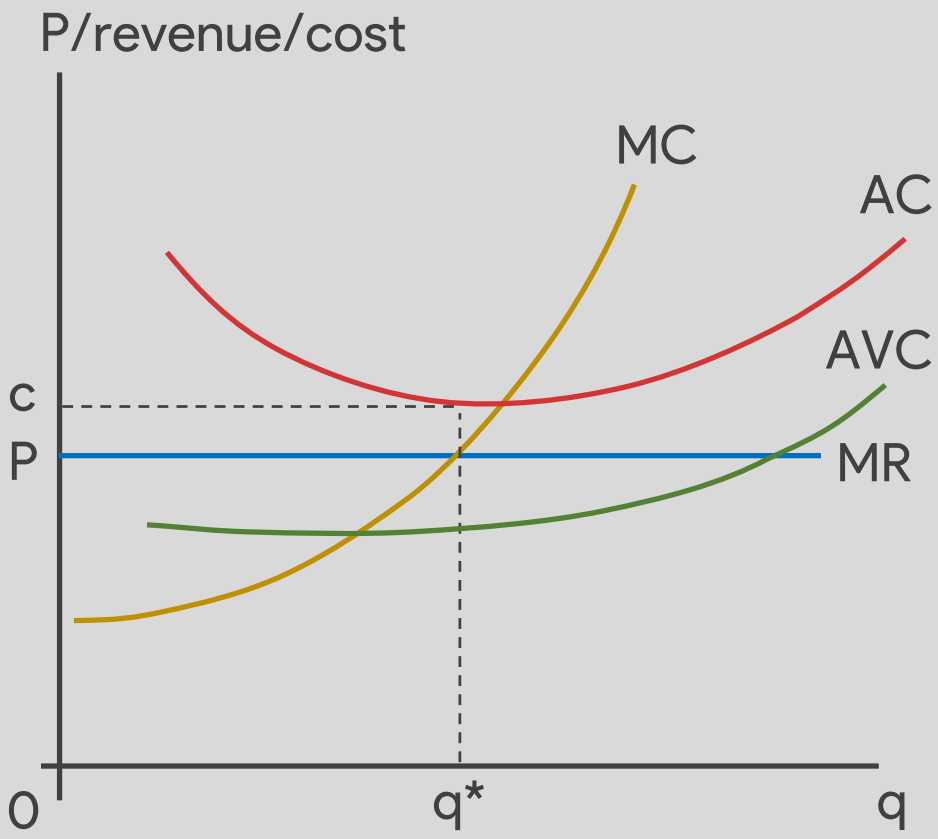
- Total profit



(3) Loss

Consider from average cost/revenue

- Total revenue
- Total cost
- Profit/loss (TR-TC)



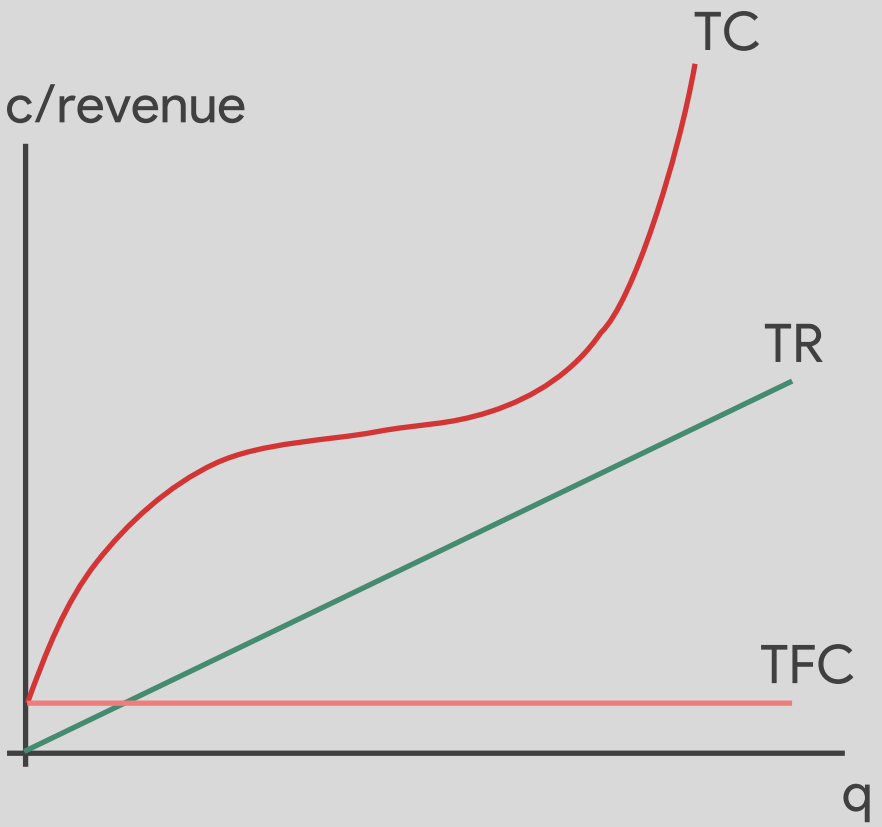
2.4 Short-run equilibrium

(4) Shut down

Consider from total revenue/cost

- Optimum quantity

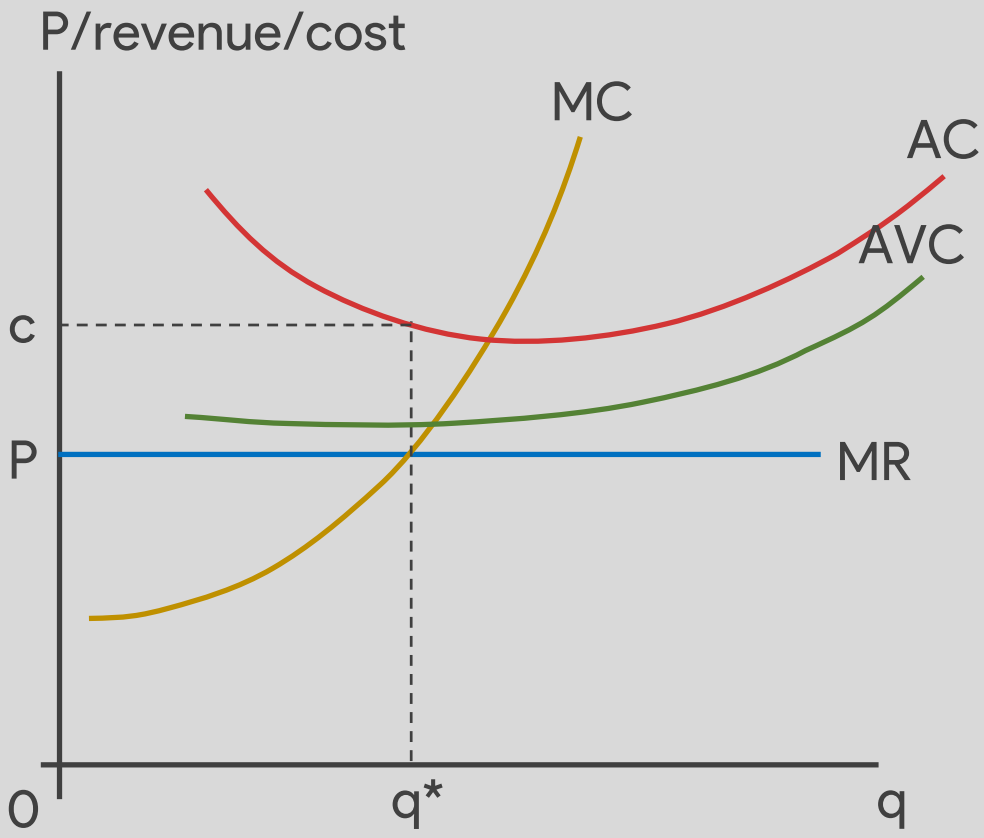
- Total loss



(4) Shut down

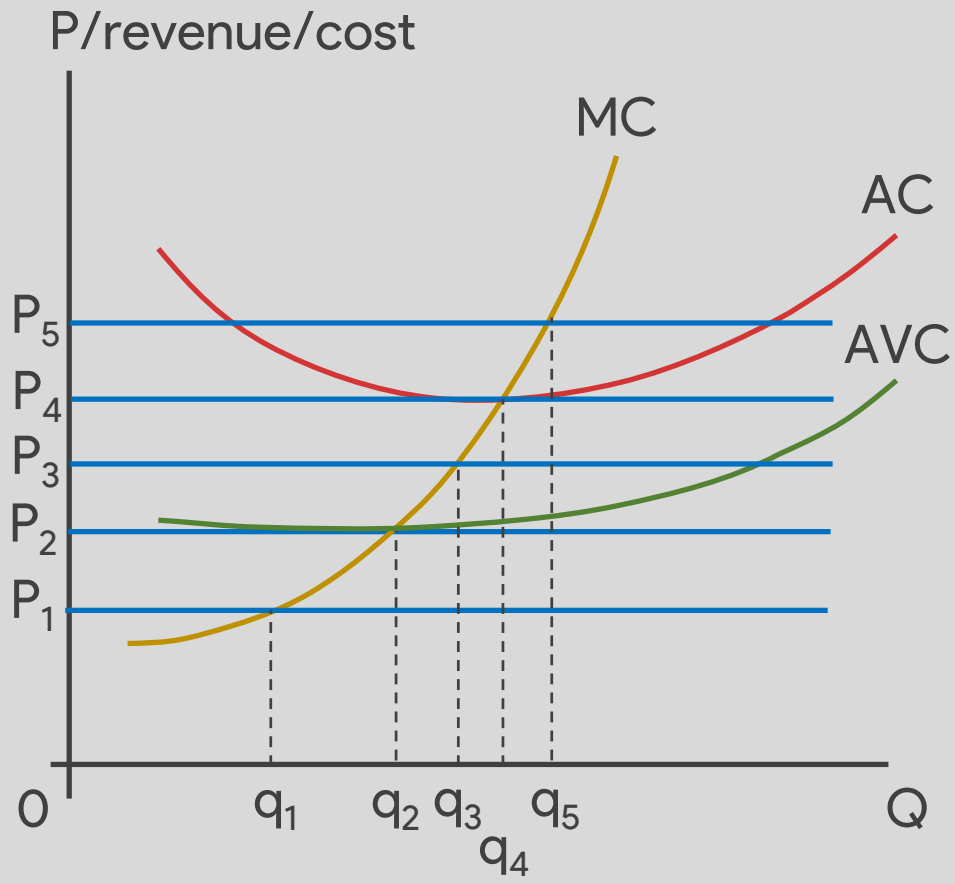
Consider from average cost/revenue

- Total revenue
- Total cost
- Profit/loss (TR-TC)



2.5 Marginal cost

- Break-even
- Shut down
- Short-run firm supply



2.6 Example

Supposed that there are 10 firms in a competitive market. All of them share equivalent cost structure as follows.

$$TC = 32 + 20q + 8q^2$$

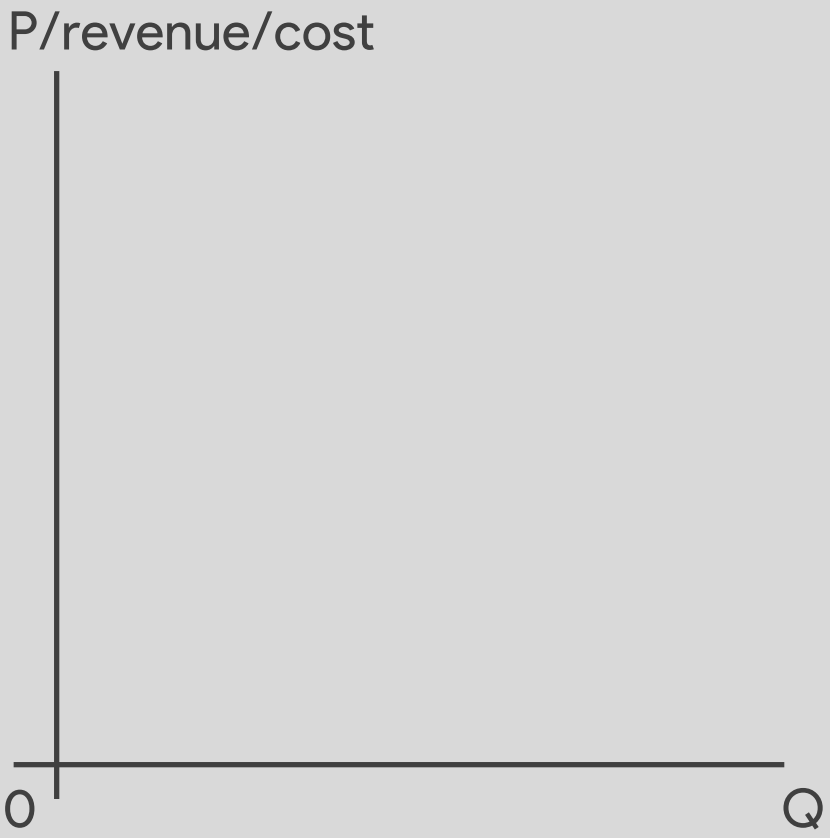
Market demand is given

$$P = 200 - 2Q$$

(1) How much is each firm's fixed cost?

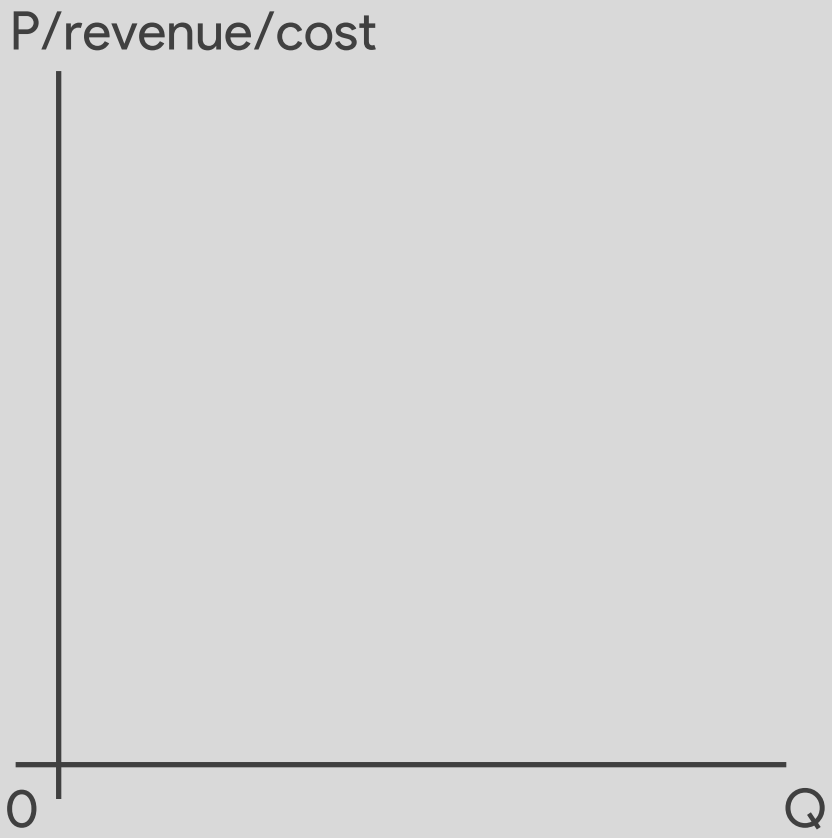
2.6 Example

(2) Find short-run supply equation and curve.



2.6 Example

(3) Find the equilibrium price and quantity of this market.

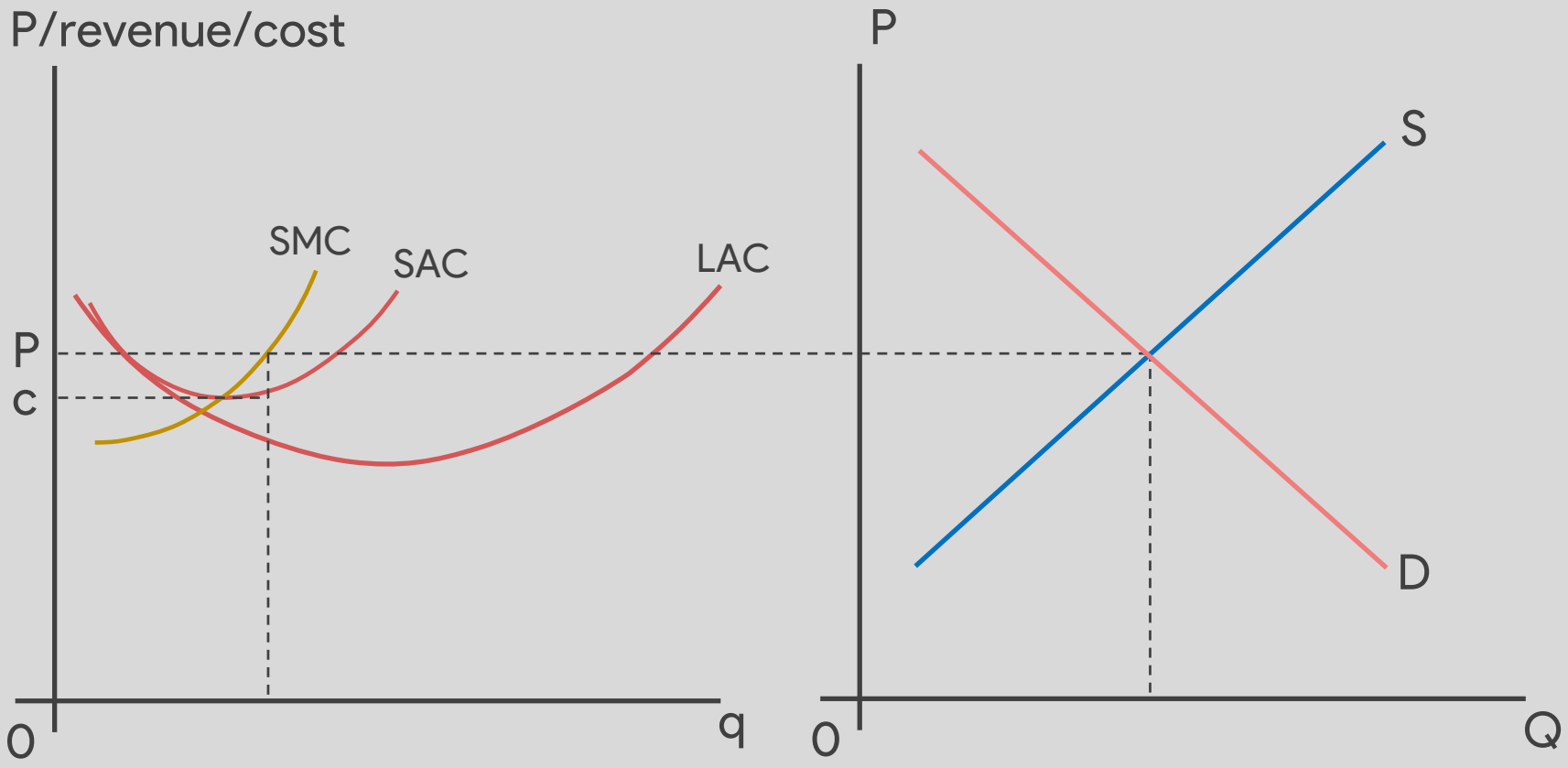


2.6 Example

(4) How much product does each firm produce?

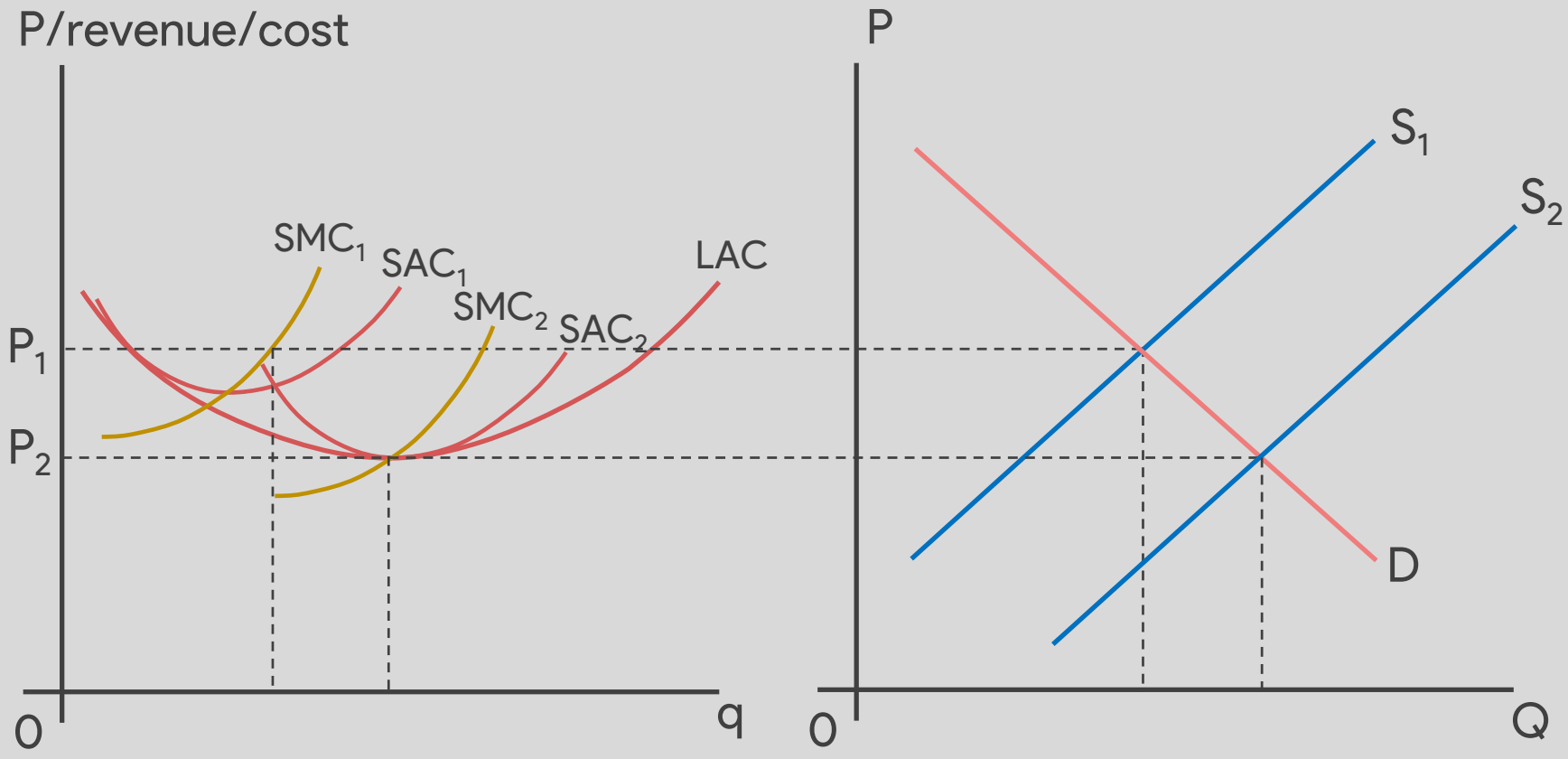
(5) How much profit does each firm gain?

2.7 Long-run equilibrium



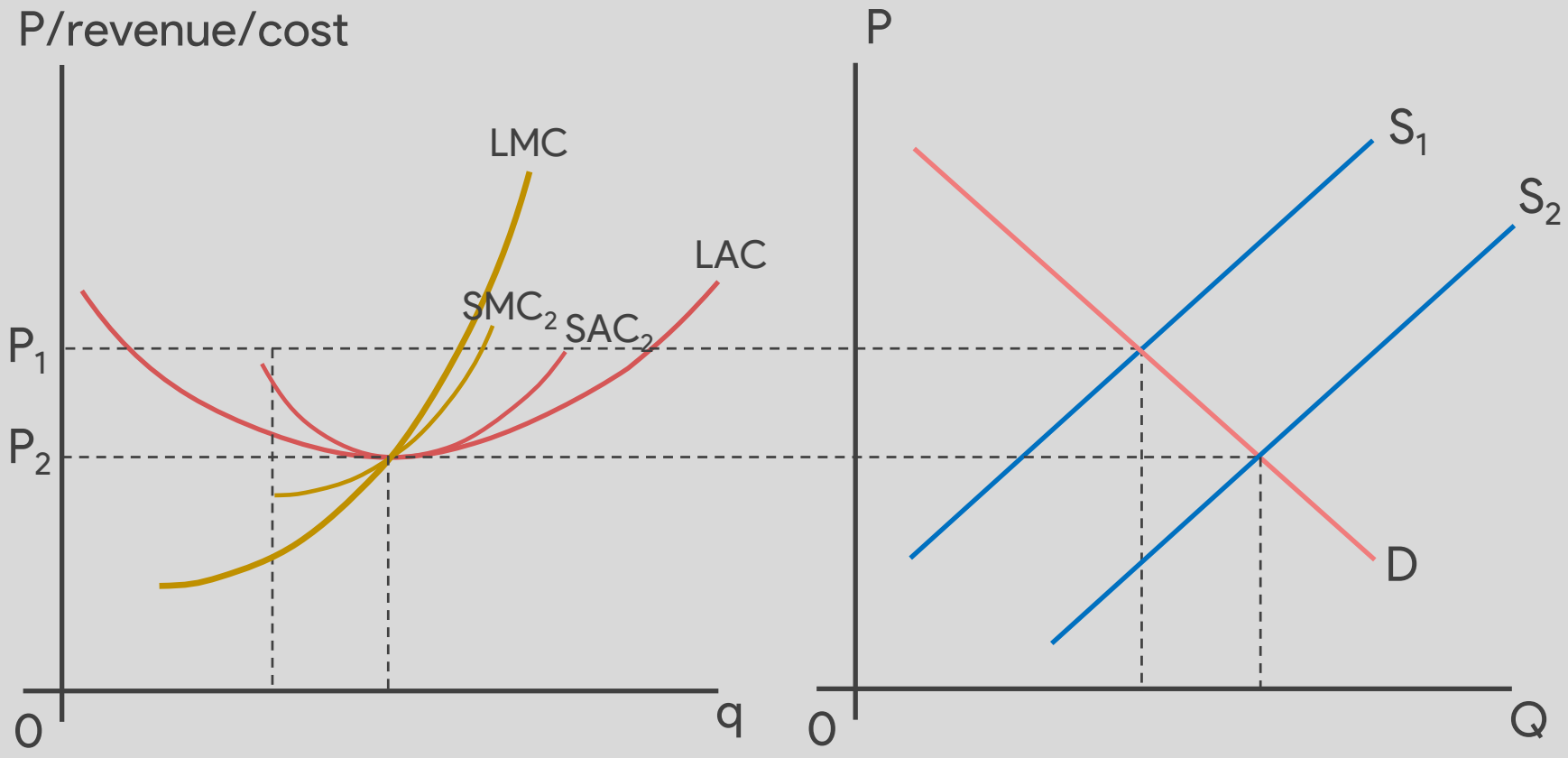
◉ If firms gain excess profit in the short-run, this market will attract new entries since there is no barrier of entry or exit.

2.7 Long-run equilibrium



◉ New entries shift the supply outward. Firms in the competitive market must be efficient to stay in the market.

2.7 Long-run equilibrium



- Quantity produced by a firm in the long-run satisfies

$$P_c = LAC = LMC$$

2.8 Conclusion

◉ If consumers' preference differ causing a shift towards other substituting goods, how would it affect considering market?

◉ $P_c = LAC = LMC$: What does this statement mean?