

Perfect Competitive Market

Content

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

Reading list

Mankiw Ch 13-17

└─ 1.1 Details of market

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

1. Definition

Perfect Competitive Market

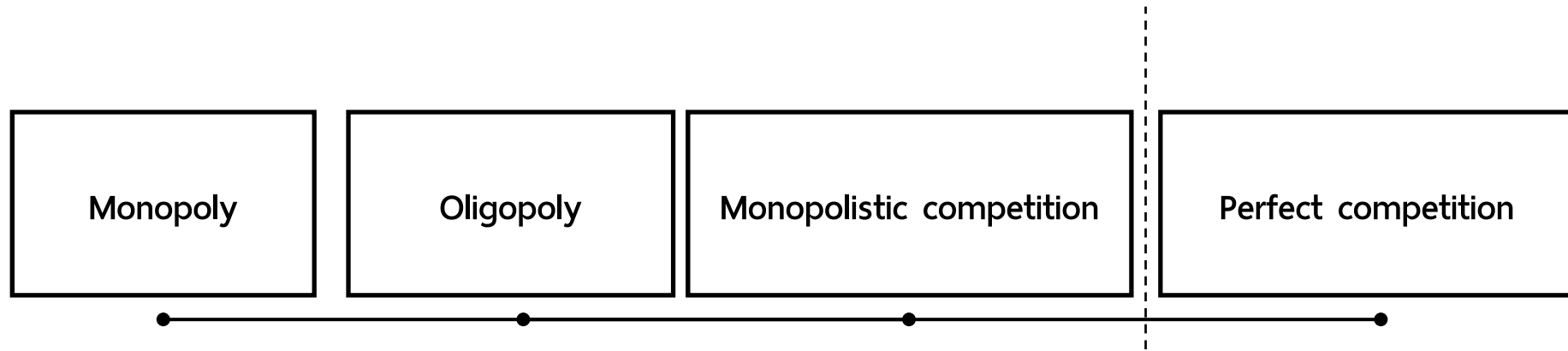
1.2 Market categories

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

1.2 Market categories

Market structure



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

↳ 2.1 Definition

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

↳ 2.1 Definition

Perfect competition market

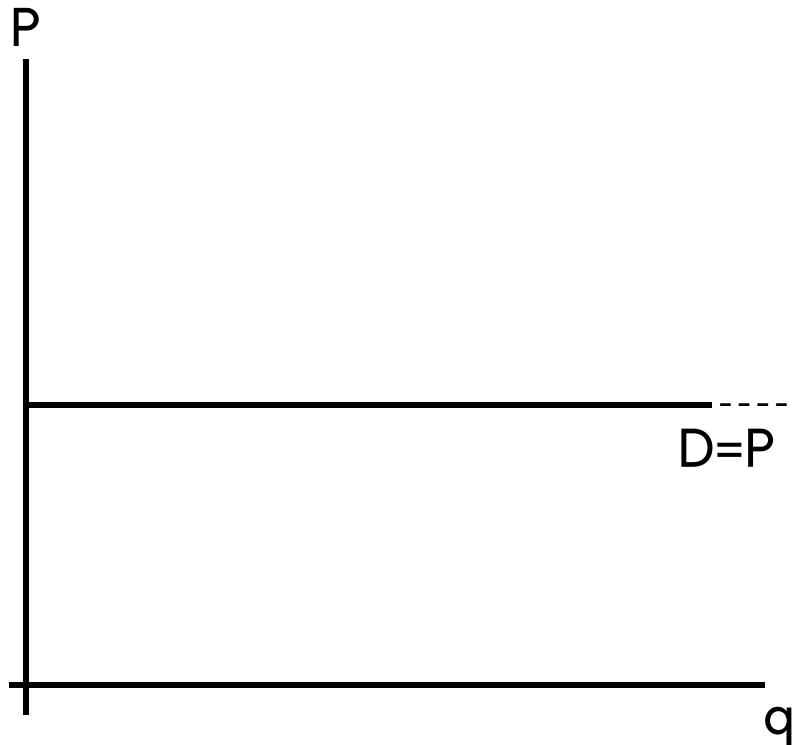
Examples

2. Perfect Competition

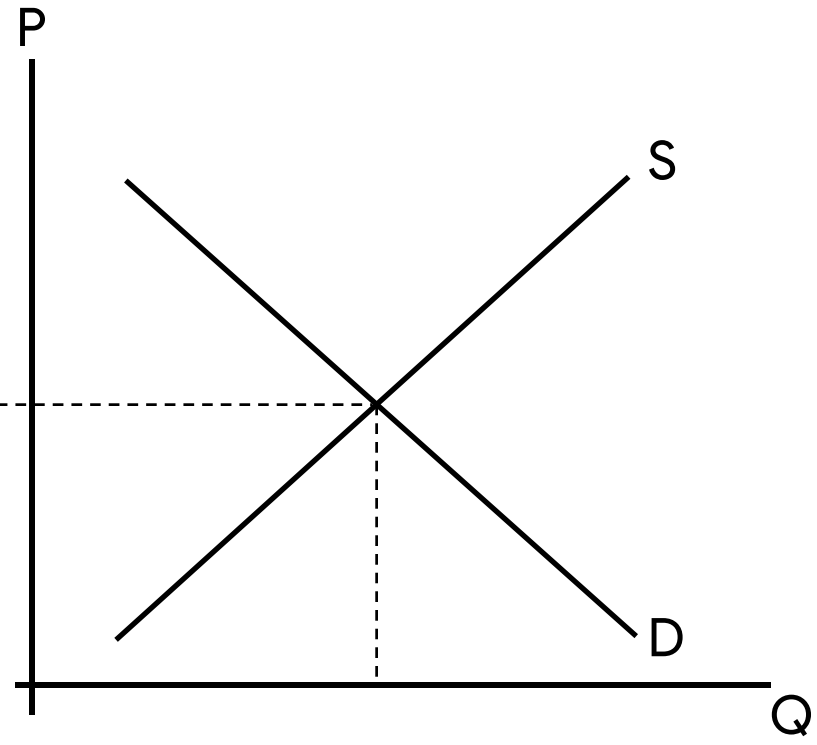
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2.2 Demand line from firm's point of view

Price taker



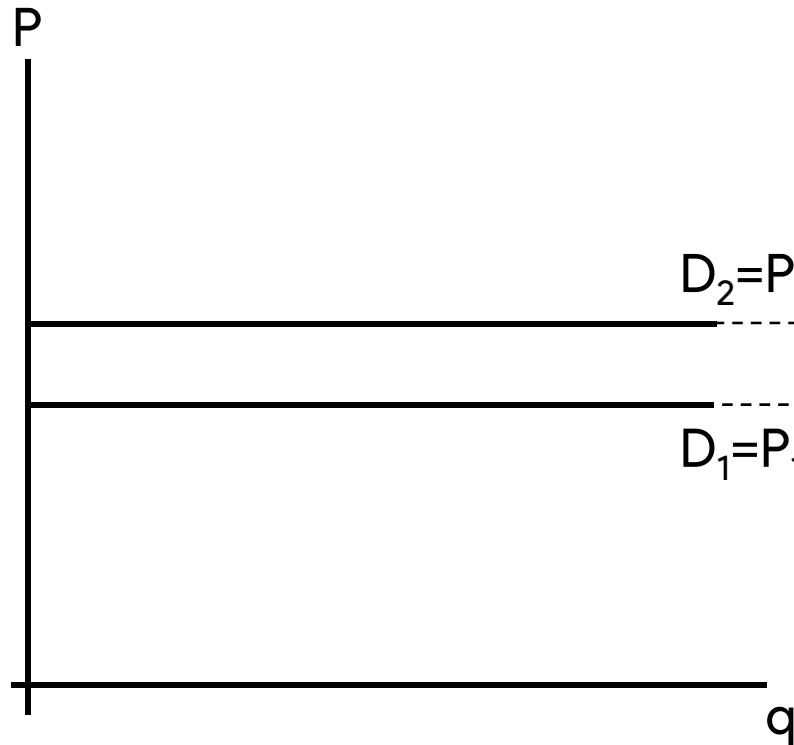
A firm



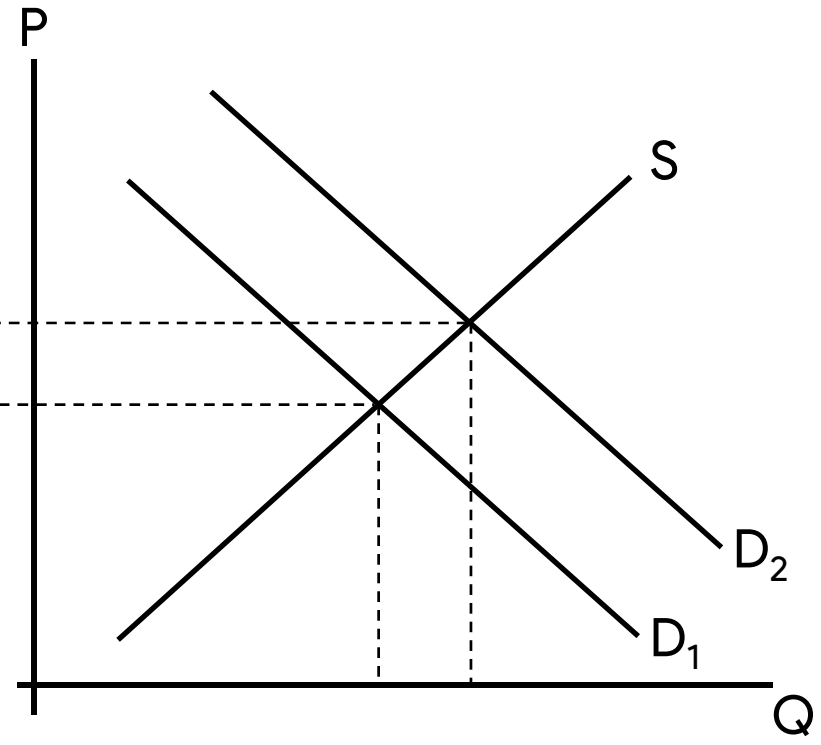
Market

2.2 Demand line from firm's point of view

Price taker



A firm



Market

└─ 2.3 Revenue and profit

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

└ 2.3 Revenue and profit

(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)

$$\pi = TR - TC$$

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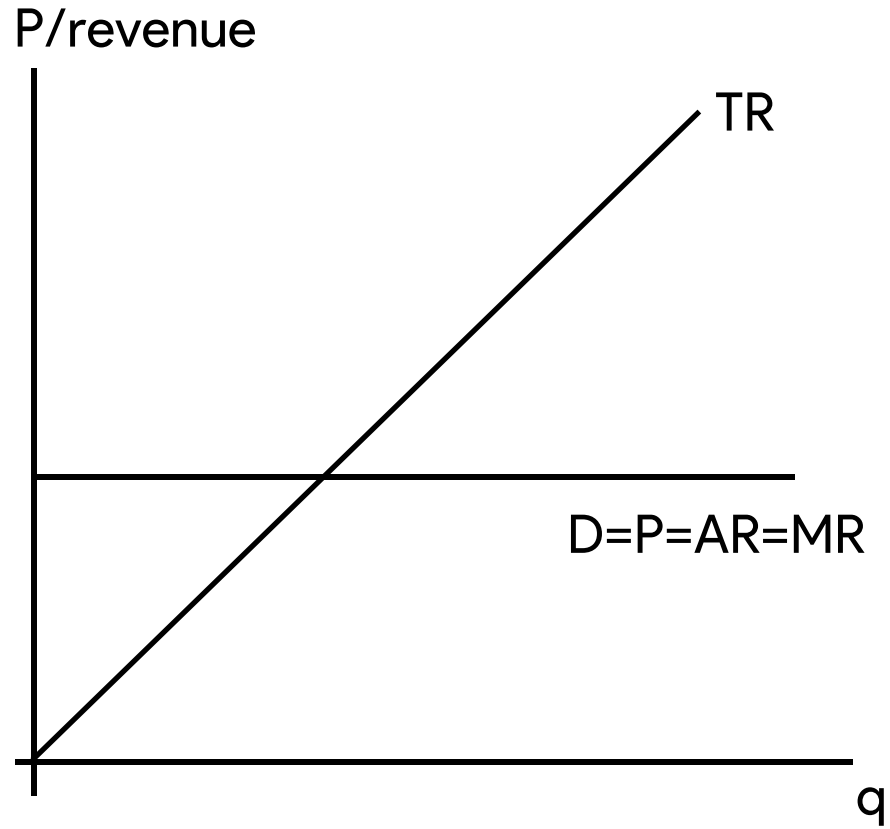
2.3 Revenue and profit

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

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2.3 Revenue and profit

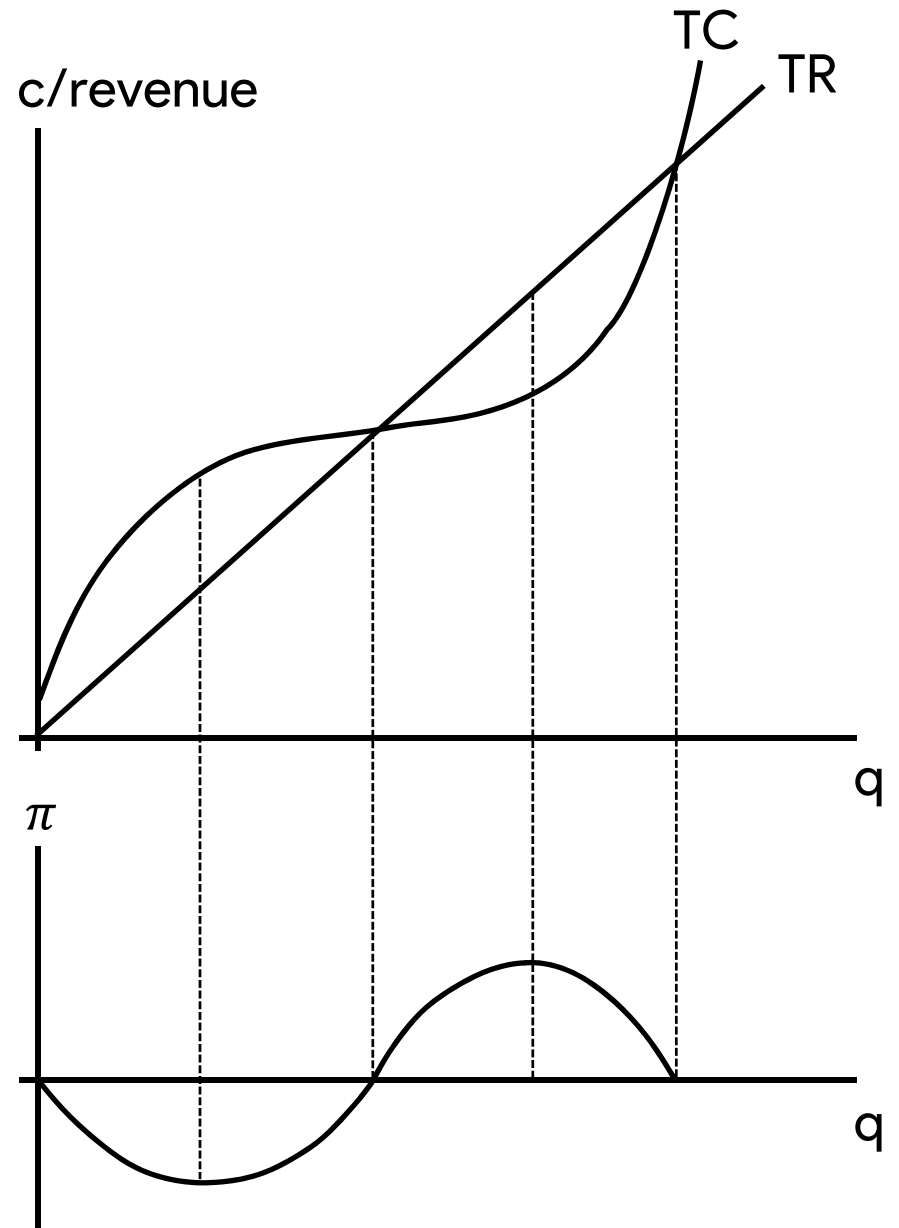


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2.3 Revenue and profit

Excess profit

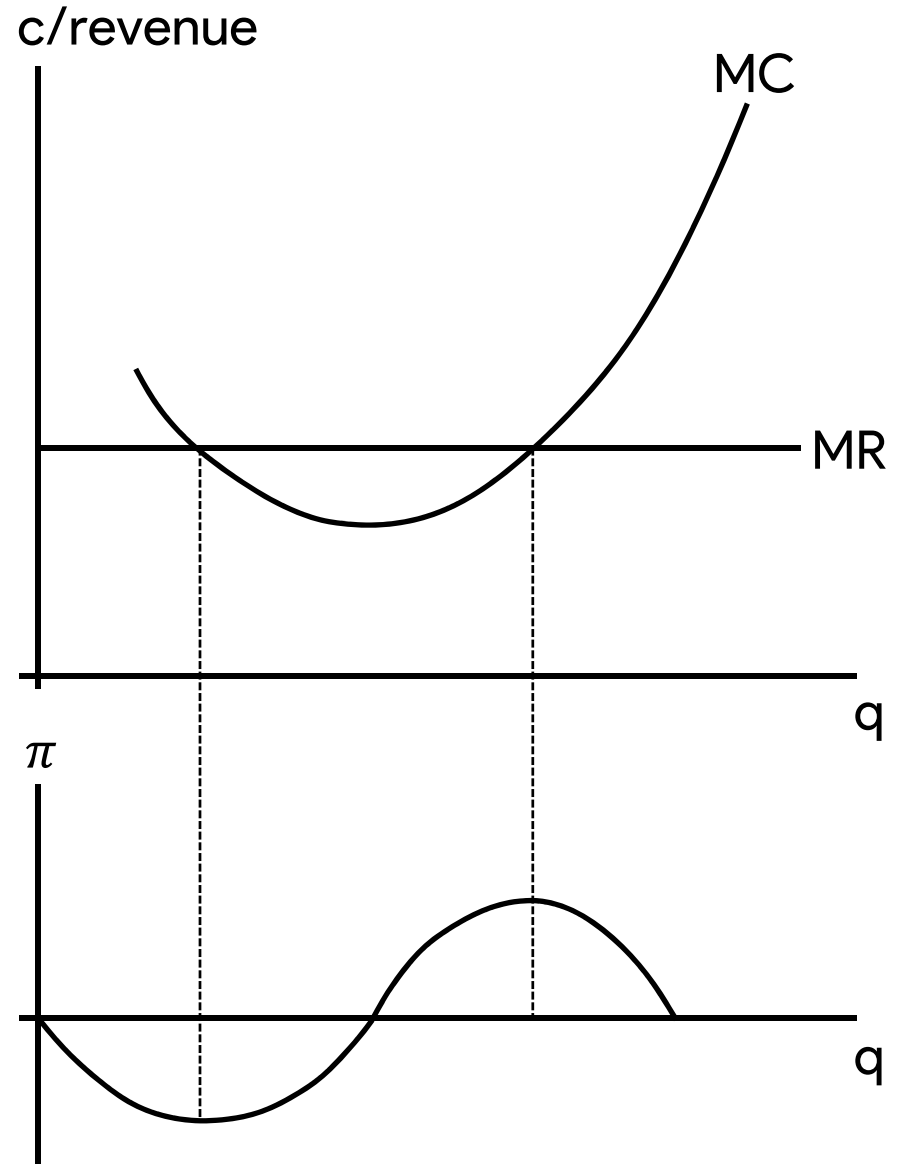


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2.3 Revenue and profit

Normal profit

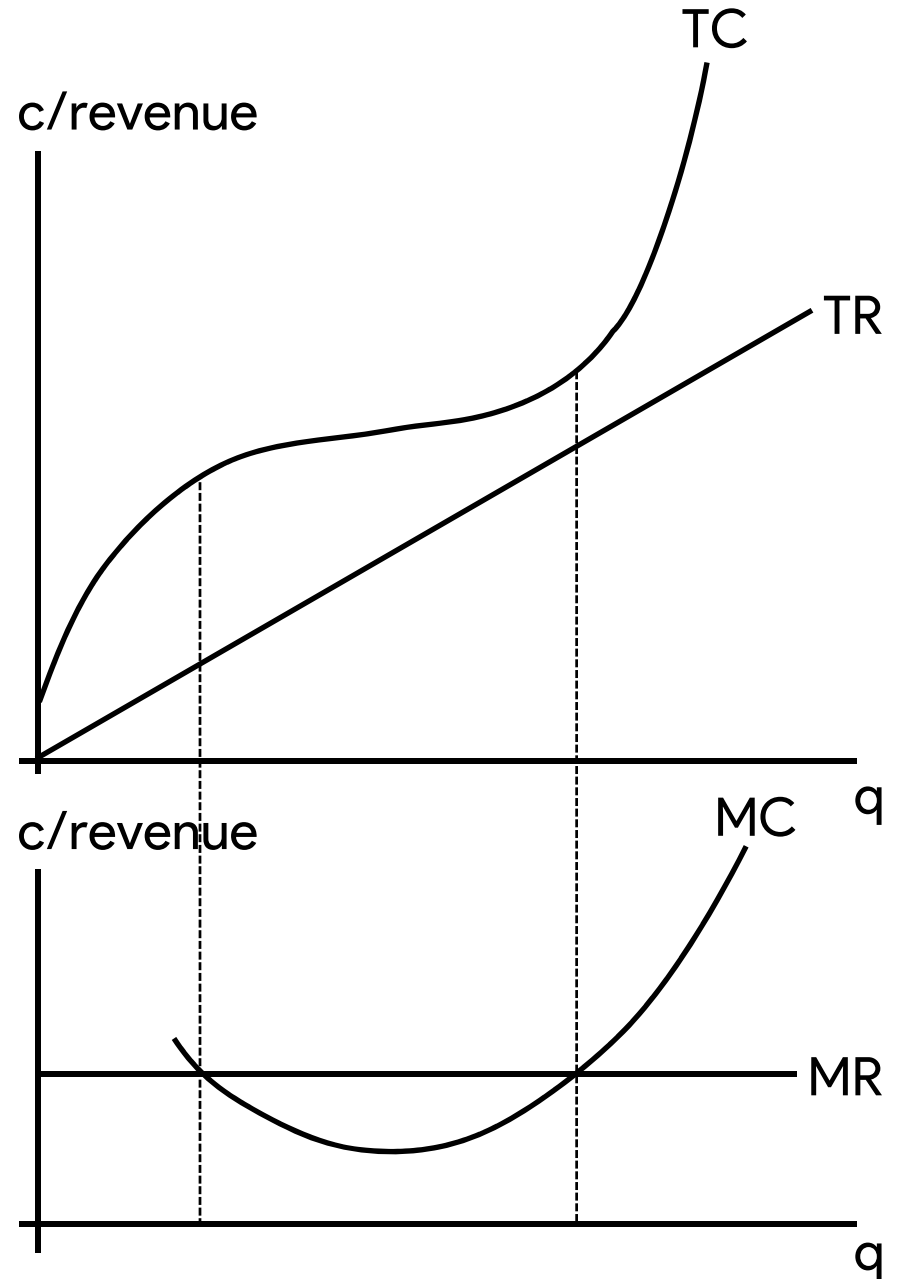


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2.3 Revenue and profit

Loss



↳ 2.3 Revenue and profit

Optimal quantity for a firm

⦿ Profit equation $\pi = TR - TC$

⦿ The objective function is

$$\max_q \pi = TR - TC$$

⦿ 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

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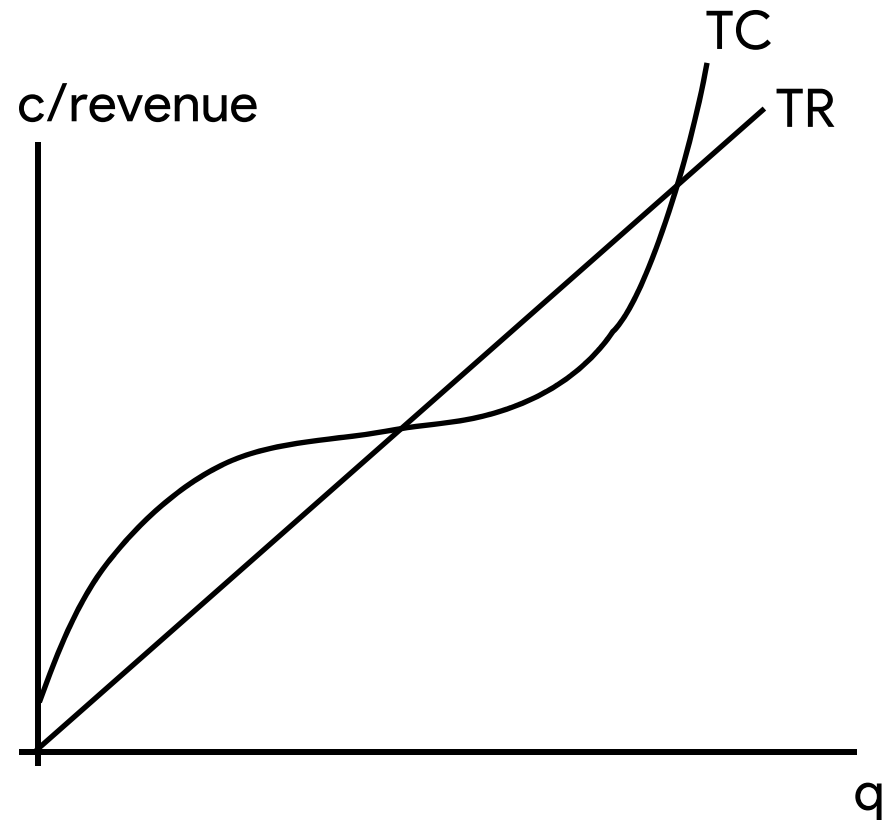
2.4 Short-run equilibrium

(1) Excess profit

Consider from total revenue/cost

● Optimized quantity

● Total profit



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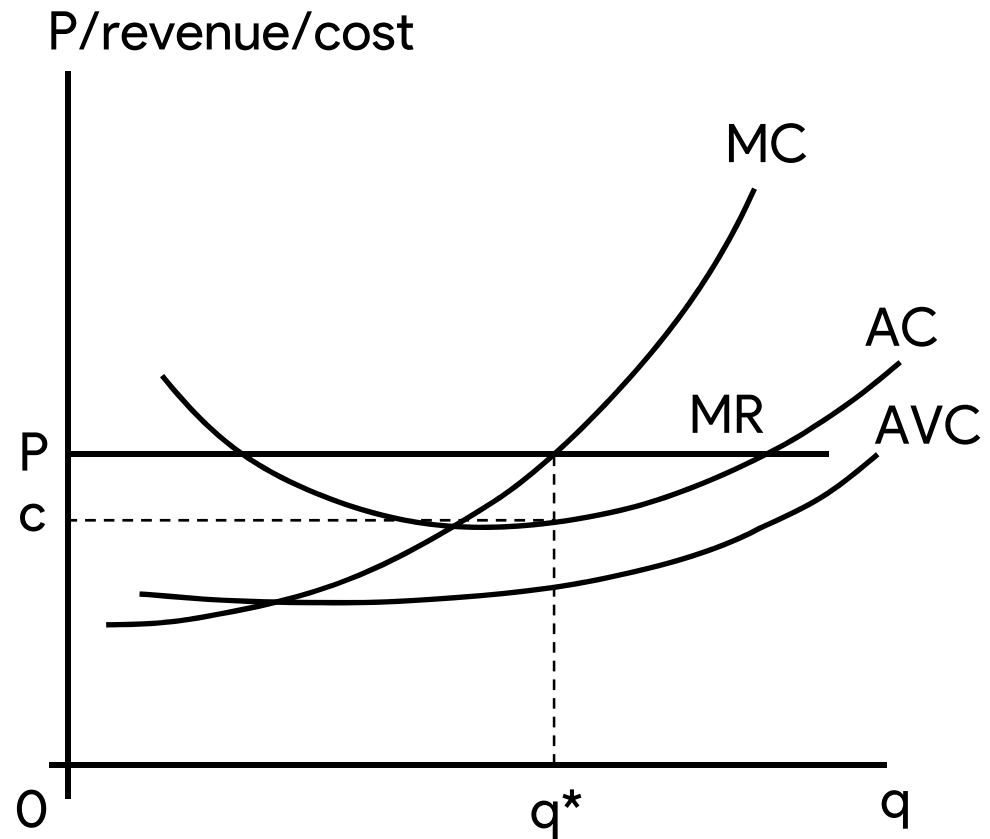
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2.4 Short-run equilibrium

(1) Excess profit

Consider from average cost/revenue

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



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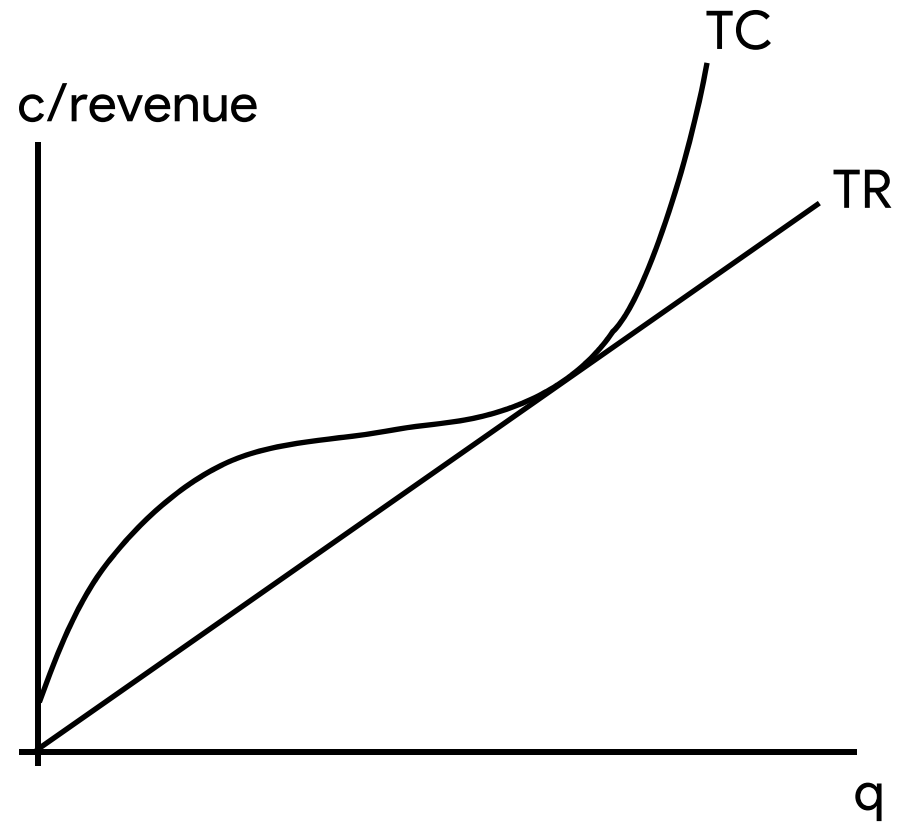
2.4 Short-run equilibrium

(2) Normal profit

Consider from total revenue/cost

● Optimized quantity

● Total profit



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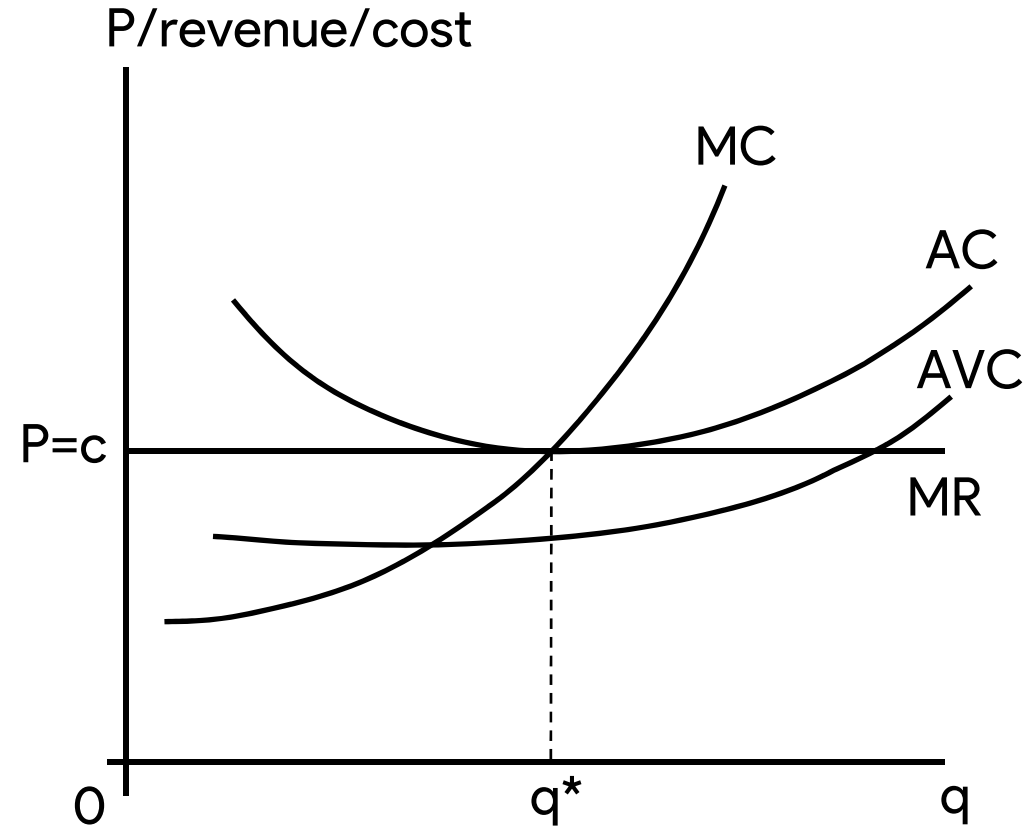
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2.4 Short-run equilibrium

(2) Normal profit

Consider from average cost/revenue

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



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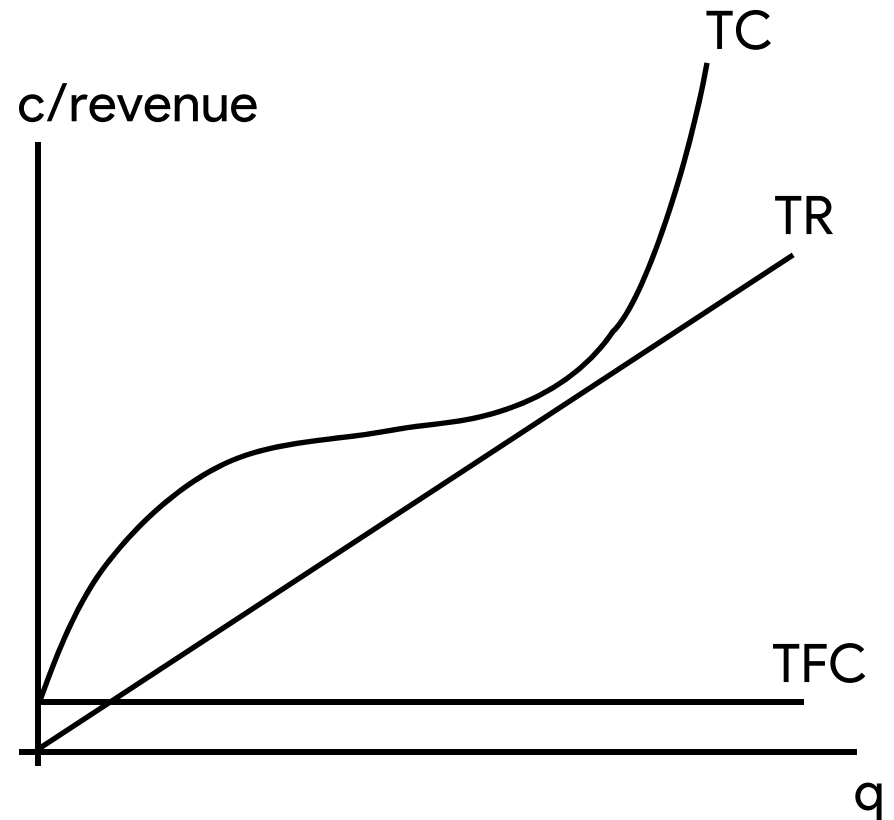
2.4 Short-run equilibrium

(3) Loss

Consider from total revenue/cost

● Optimized quantity

● Total profit



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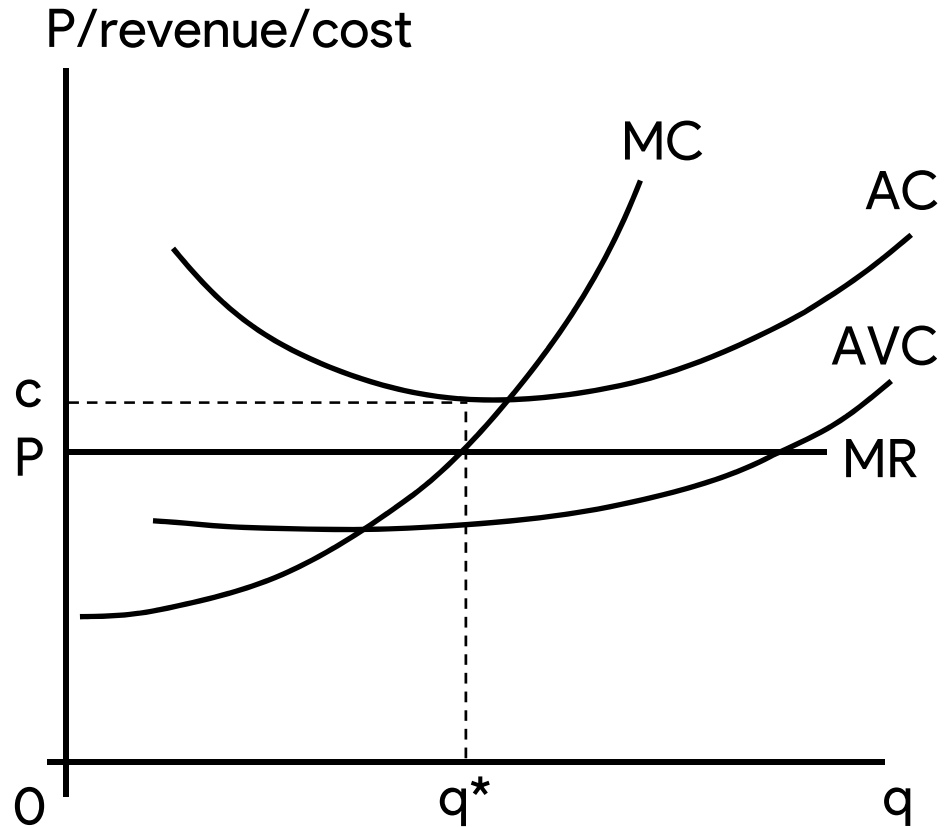
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2.4 Short-run equilibrium

(3) Loss

Consider from average cost/revenue

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



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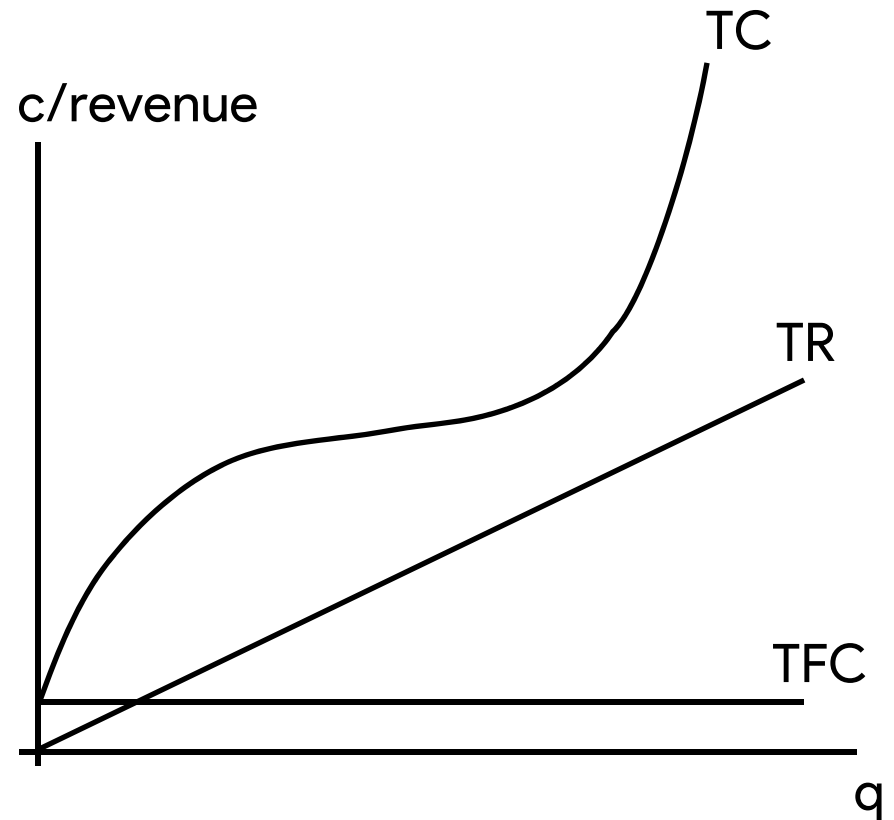
2.4 Short-run equilibrium

(4) Shut down

Consider from total revenue/cost

● Optimum quantity

● Total loss



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2.4 Short-run equilibrium

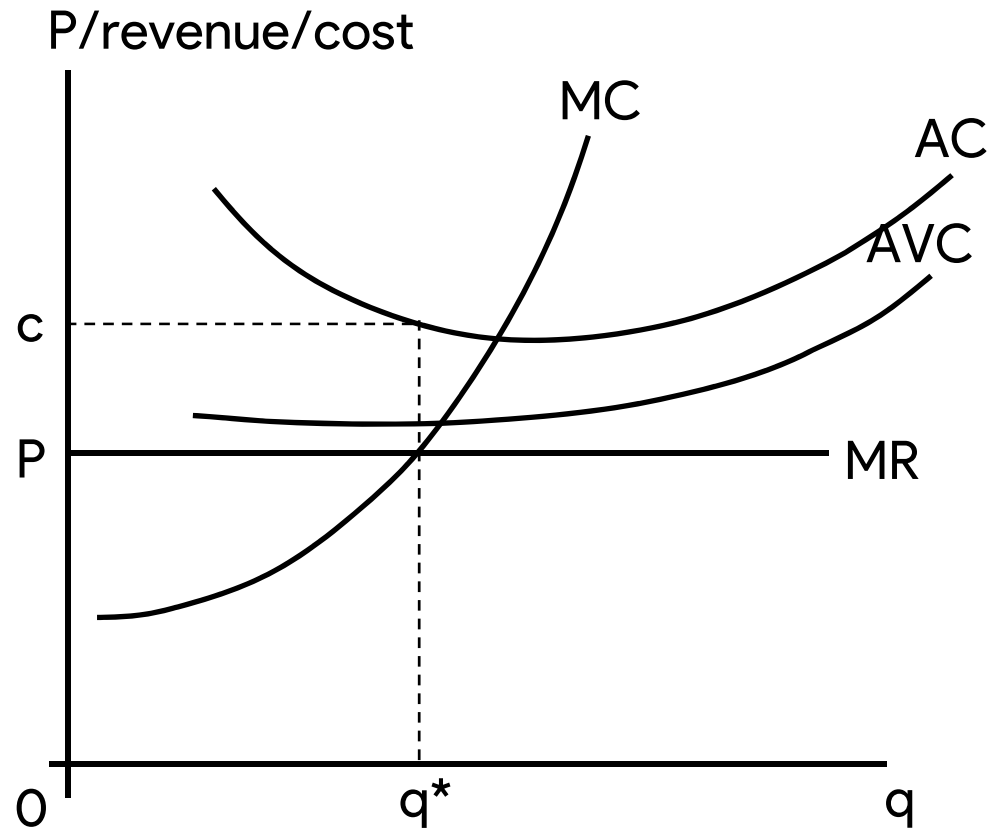
(4) Shut down

Consider from average cost/revenue

● Total revenue

● Total cost

● Profit/loss (TR-TC)



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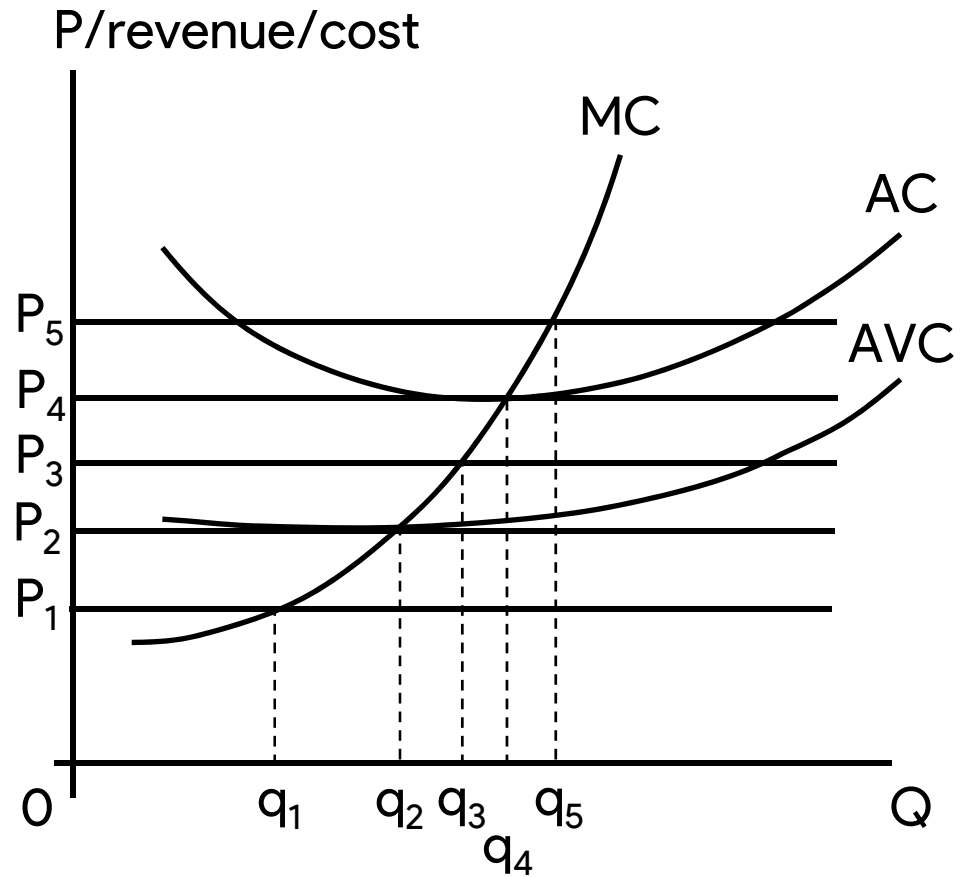
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2.5 Marginal cost

● 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

$$P = 200 - 2Q$$

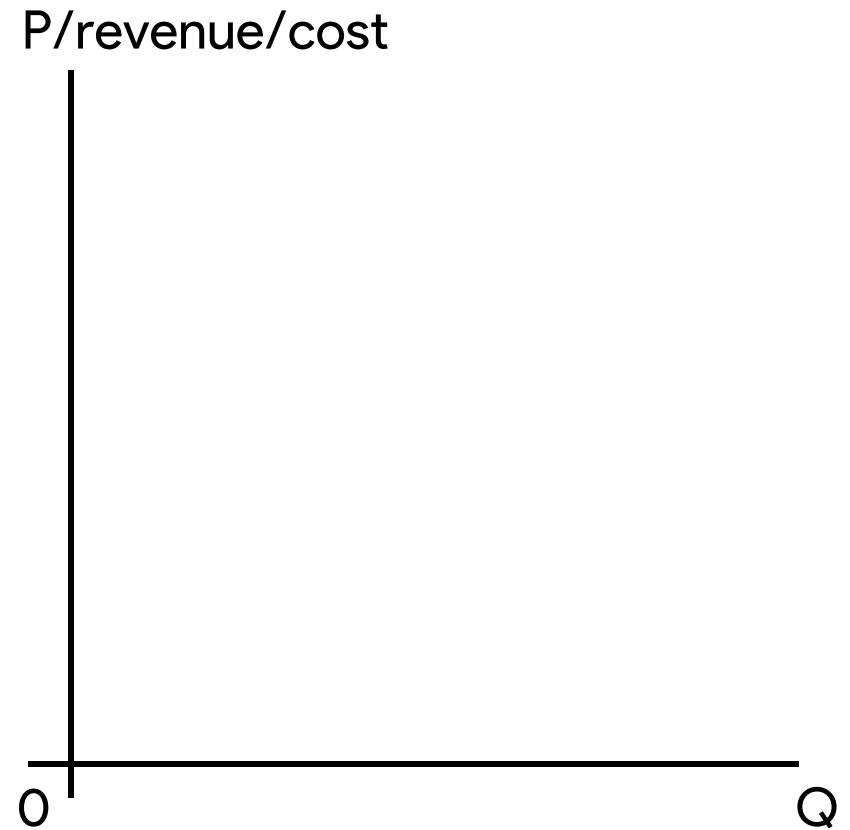
(1) How much is each firm's fixed cost?

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2.6 Example

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

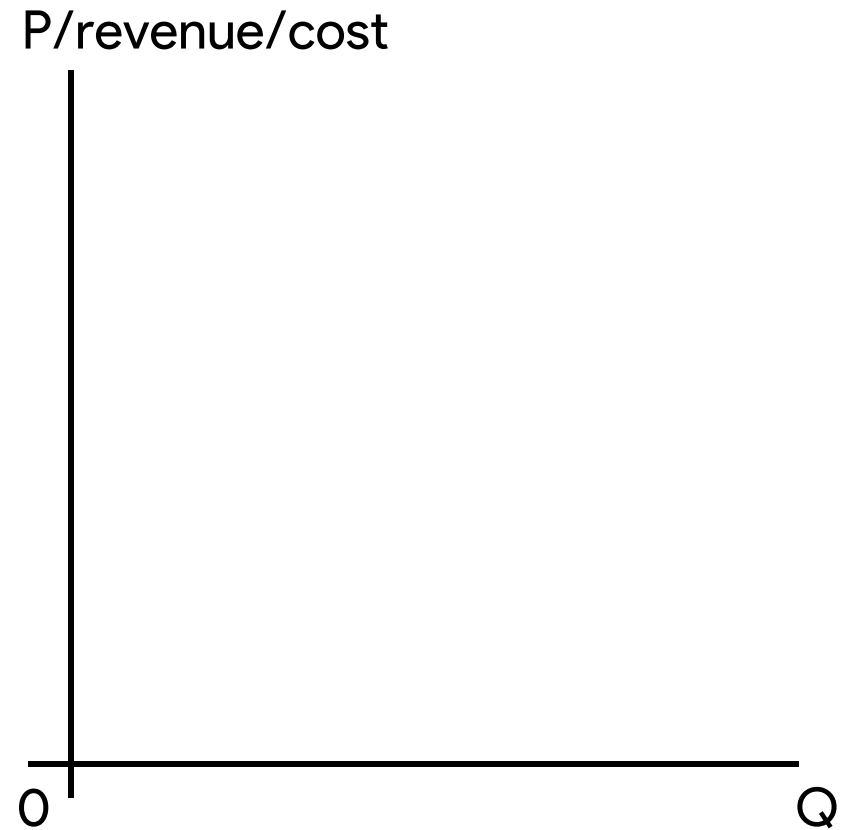


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2.6 Example

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



↳ 2.6 Example

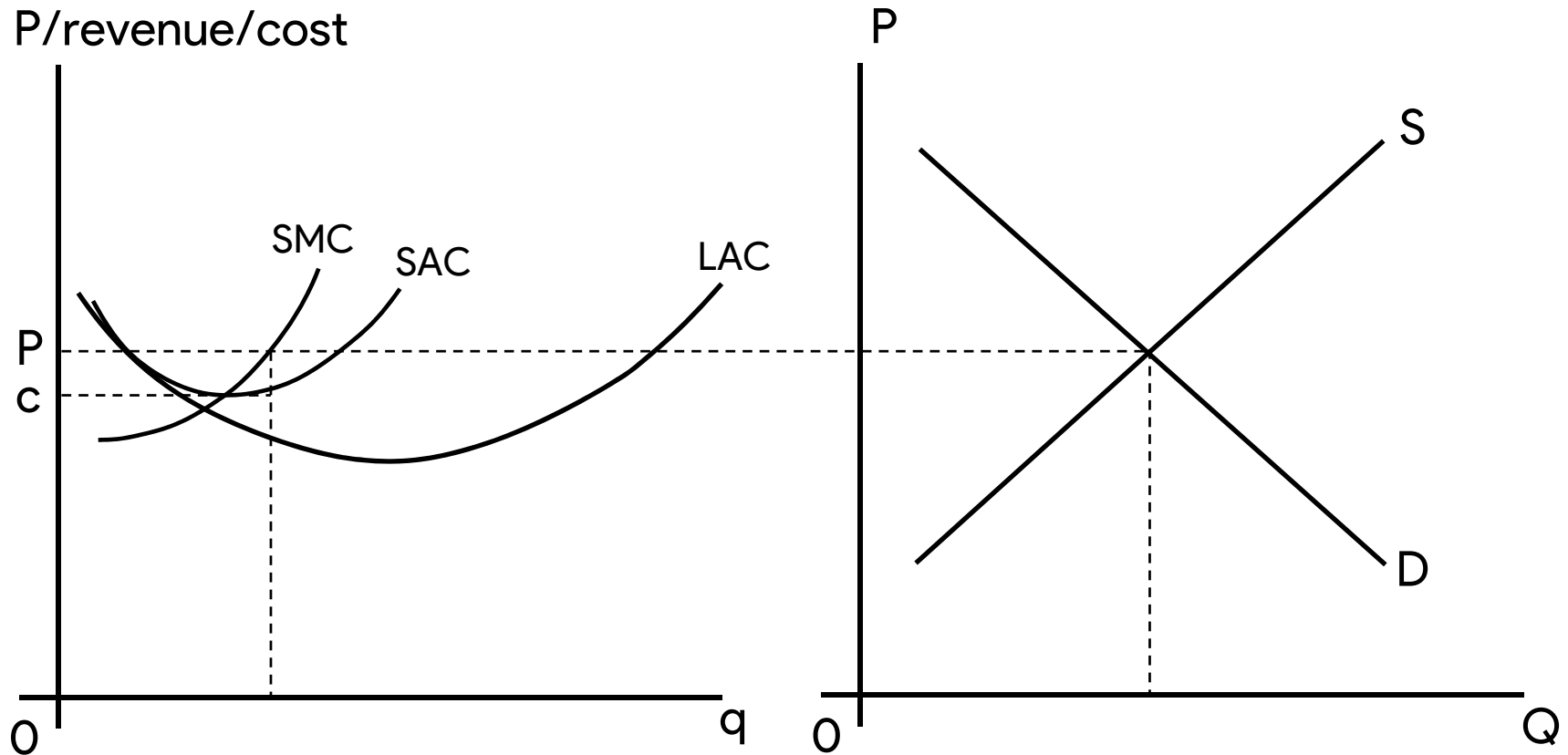
(4) How much product does each firm produce?

(5) How much profit does each firm gain?

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2.7 Long-run equilibrium

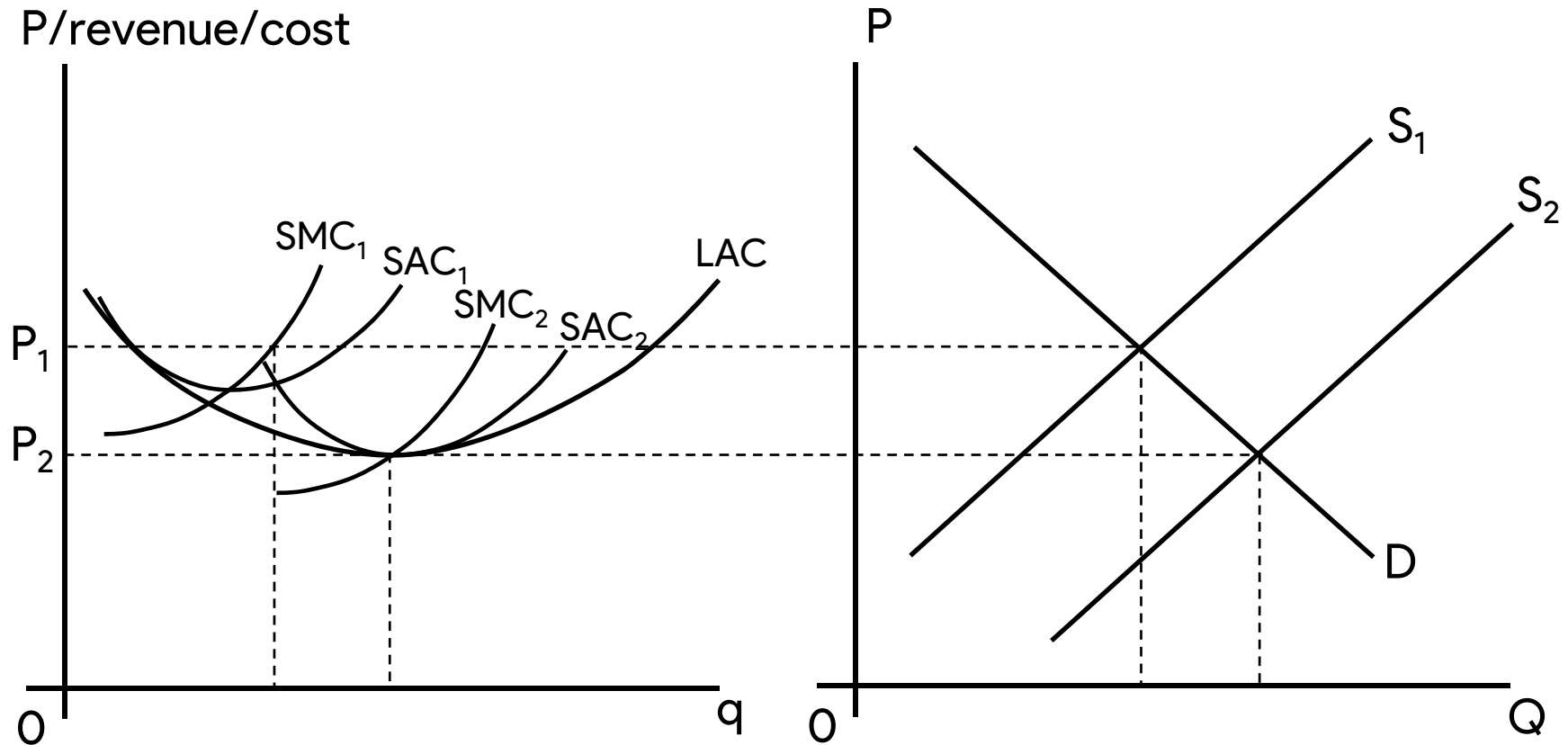


⊙ If firms gain excess profit in the short-run, this market will attract new entries since there is no barrier of entry or exit.

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Perfect Competitive Market

2.7 Long-run equilibrium

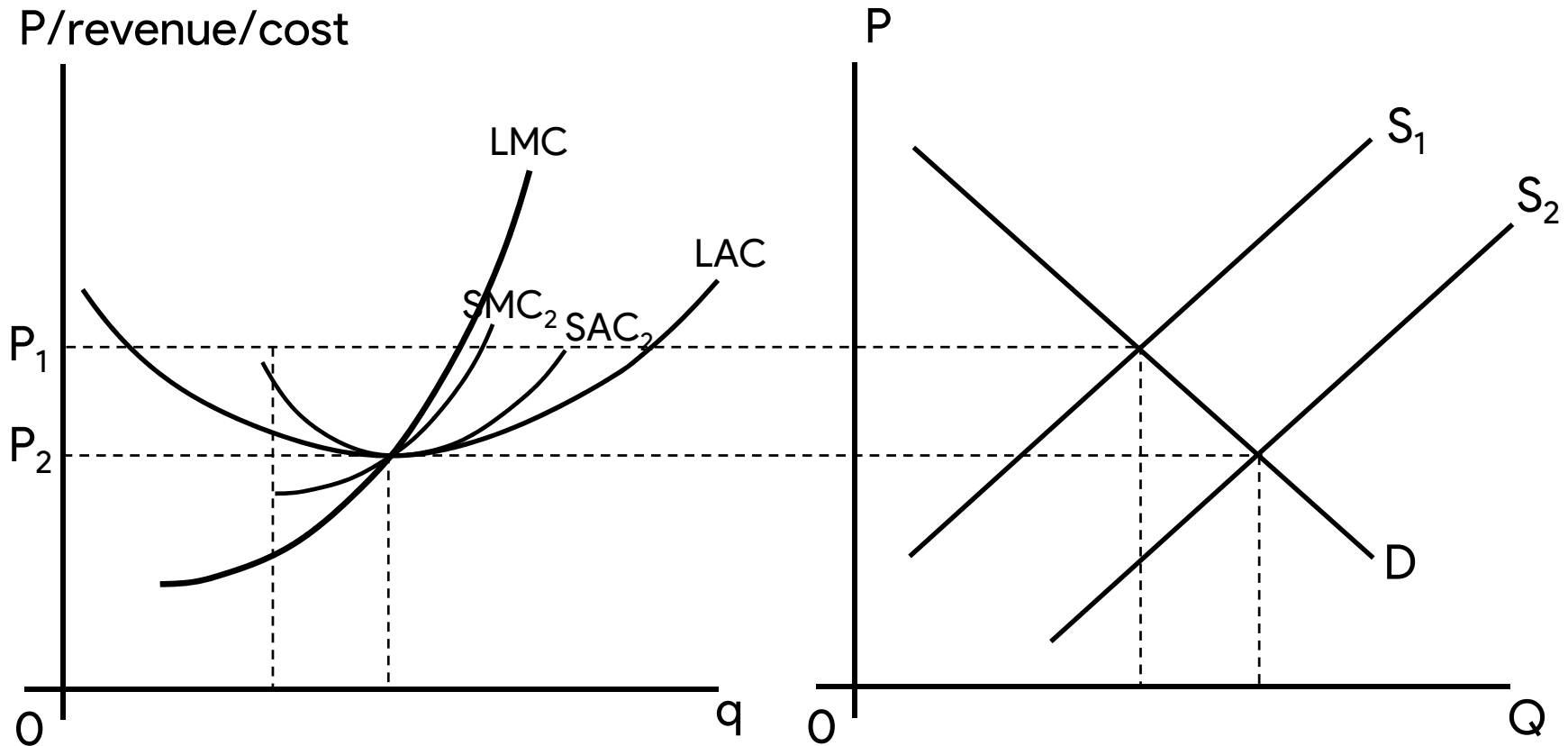


⊙ New entries shift the supply outward. Firms in the competitive market must be efficient to stay in the market.

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2.7 Long-run equilibrium



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

$$P_c = LAC = LMC$$

