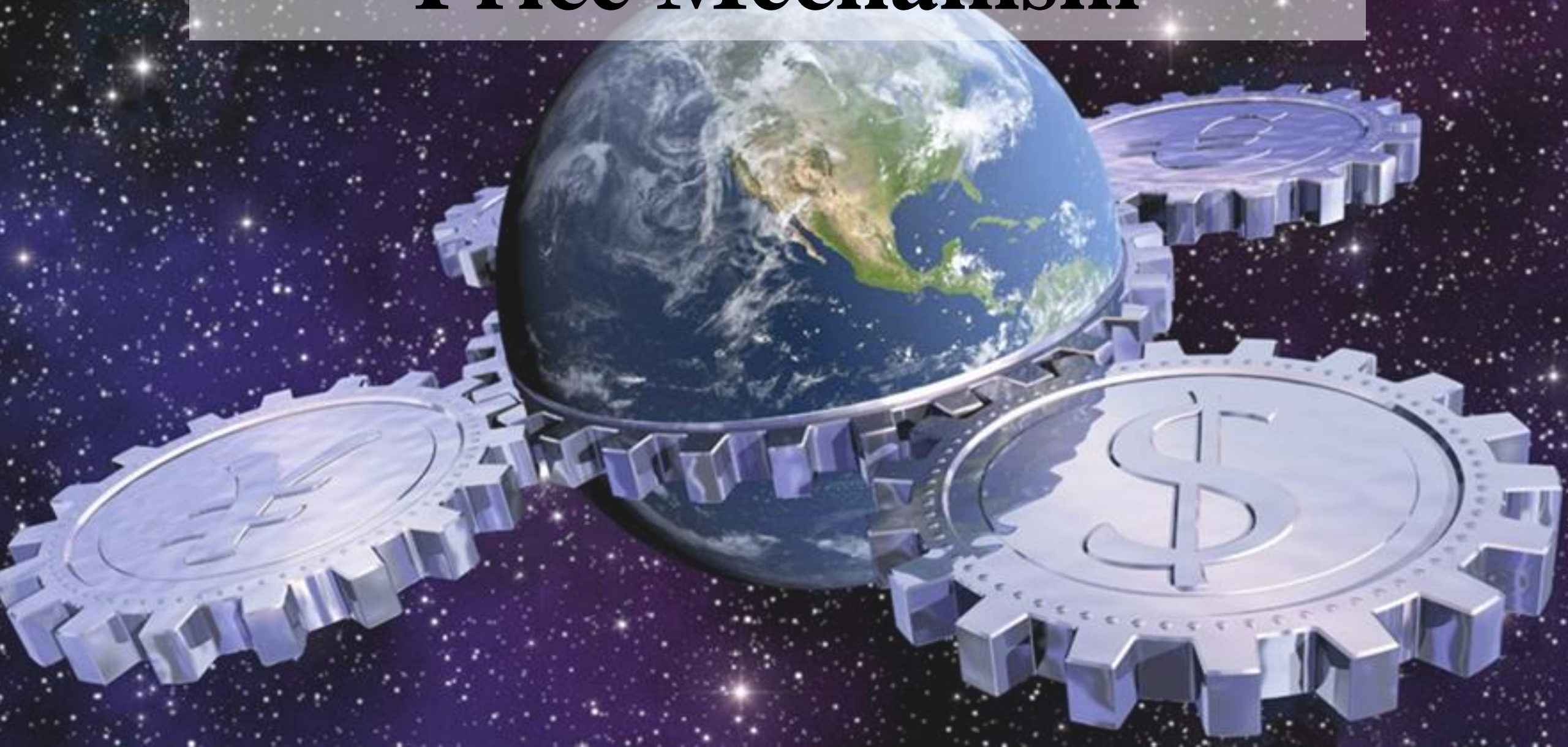


Price Mechanism



Price mechanism



Price mechanism: Prices determined by the forces of supply and demand in competitive markets.

- In competitive market, at equilibrium positions, the buying and selling choices of all buyers and sellers are satisfied and are in balance.

The role of the price

1. The **signaling** function of price

- Price communicate Information to decision makers.
- When the price increase, it gives signal to supplier that there is a product shortage (high demand) , the product is more profitable. It gives signal to consumers that the product is more expensive, vice versa.

2. The **incentive** function of price

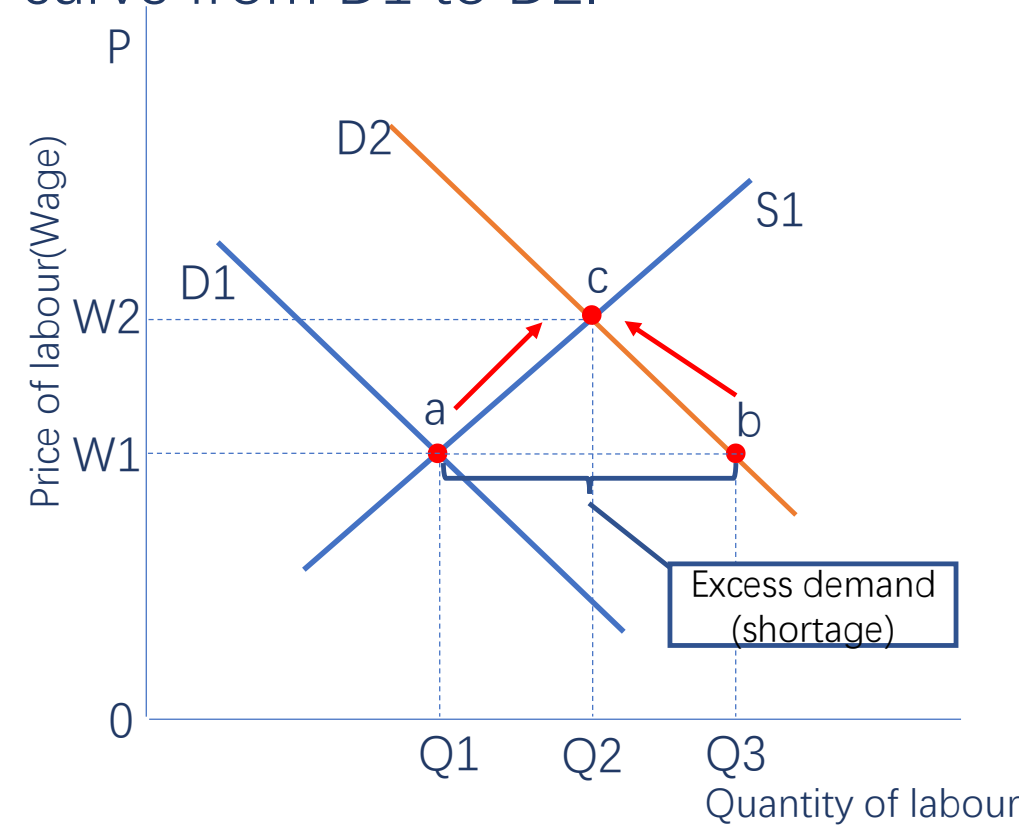
- Price motivate decision makers to respond to the information and make the best decisions for themselves.
- When the price goes up, it's an incentive for existing suppliers to produce more and potential suppliers to enter the market, and it's also an incentives for buyers to buy less, vice versa.

3. The **rationing** function of price

- Rationing is a method of apportioning or parceling out goods and services among consumers or households.
- Whether or not a consumer will get a good is determined by the price of that good only.

Example of IT labour market

- Originally in IT labour market, the demand and supply curve $D1$ and $S1$ was in equilibrium in point **a** with $W1$ and $Q1$.
- Through the significant development of IT industry in recent years, there was a big increase in IT labour demand, shift the demand curve from $D1$ to $D2$.
- With the old wage $W1$, there is a shortage of labour of $Q3-Q1$.
- The shortage cause the wage to start rising until the shortage has disappeared. The new equilibrium is at point **c** with $W2$ and $Q2$.

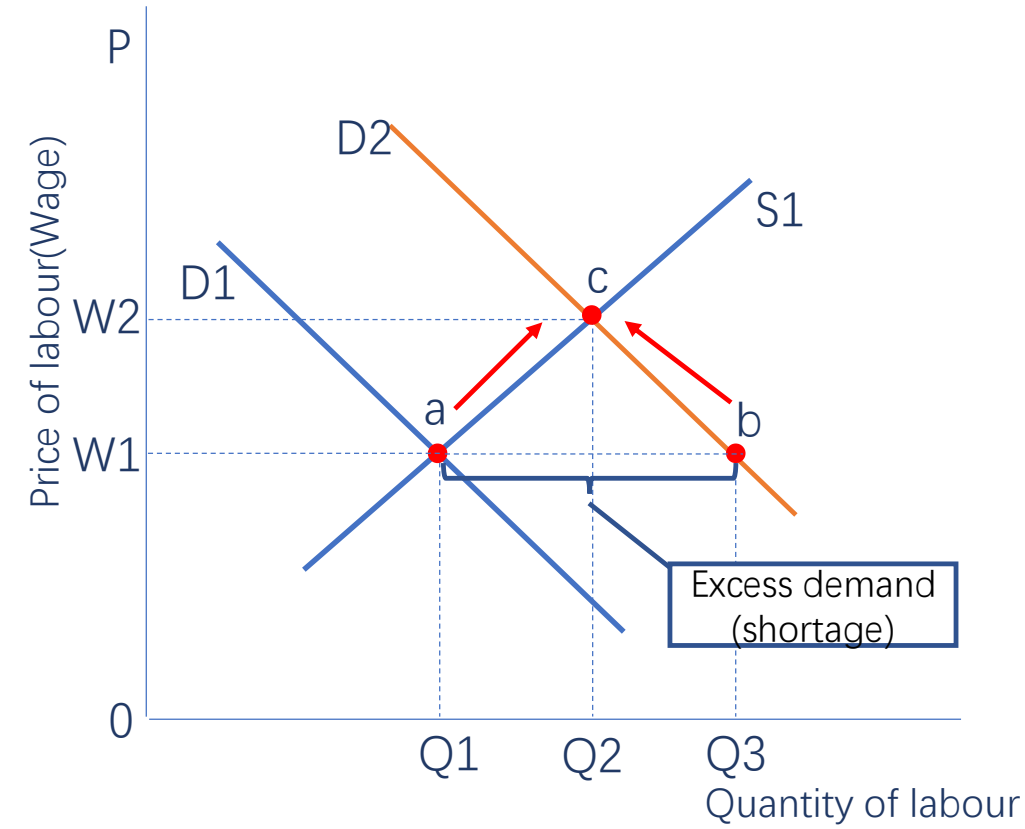


Example of IT labour market

The **raising wage** has acting as a signal and incentive.

- **In supply side:** The higher wage signalled to the labours about the shortage, it's also an incentives for them to increase the quantity supplied (part-time worker switch to full-time, more capable people join the industry).

➡ Move along supply curve from **a** to **c**, increase the quantity from Q_1 to Q_2



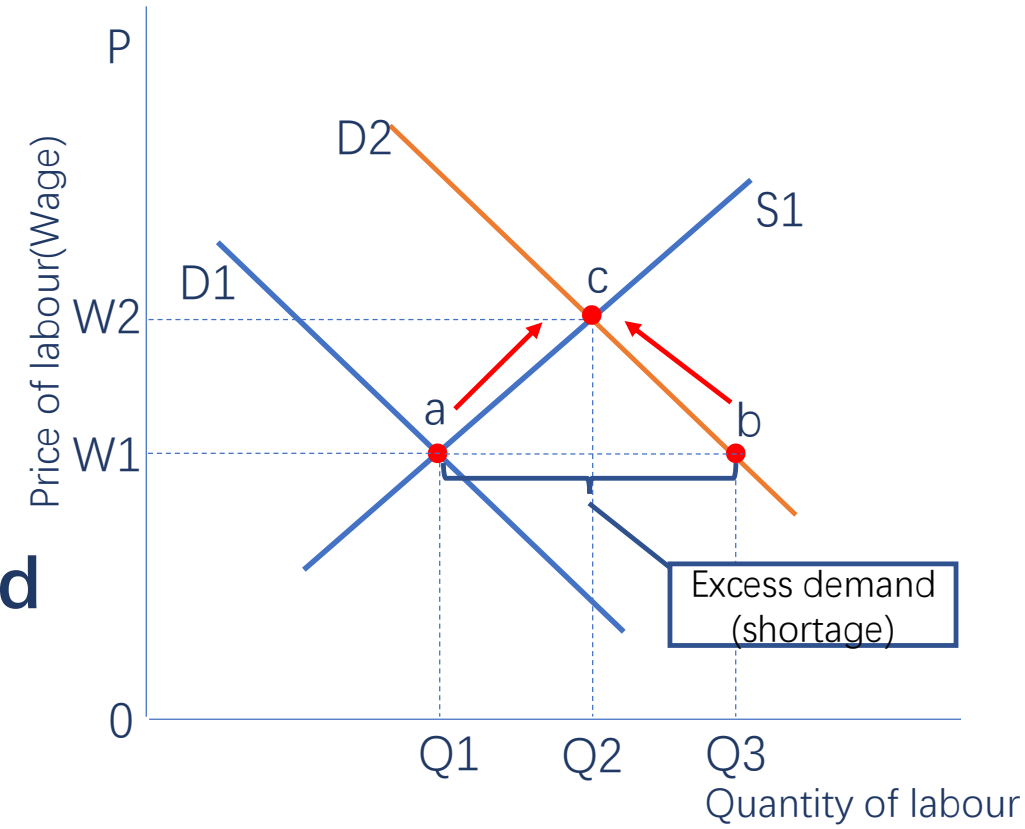
Example of IT labour market

The **raising wage** has acting as a signal and incentive.

- **In demand side:** The new higher wage signalled to the employer that the labour is now more expensive, it's also an incentive for them to hire less.

➡ Move along the demand curve from **b** to **c**, hiring less employee than at the original wage of $W1$.

The increase in the price of IT labour resulted in a **reallocation of resources**. More labour resources are now allocated to IT industry.



Price and rationing (reallocation of resources)

- **Price helps to ration resources.** We have limited resources, so in order to have an effective and productive economy, we need to make the best possible use of the resources.
- By the signalling and incentive function of price, people can determine where best to put their resources based on how prices are changing in the economy.
- While consumers/suppliers are making the best decision for themselves, they are also making the best decisions for the economy.

Price mechanism answers the 3 key questions:

Answers to what to produce:

- Firms produce only those goods consumers are willing and able to buy, While consumers buy only those goods producers are willing and able to supply. – solely determined by price

Answer to How to produce?

- Firms use those resources and technologies in their production process That they are willing and able to pay for. Produce things in a way that minimize their cost. (cost will affect price)

Answer to For whom to produce?

- Whoever can afford the products.

Consumer Surplus & Producer Surplus



Willingness to pay



Willingness to pay is the maximum price a consumer would pay.

The highest price they are willing to pay is given by the demand curve. (each individual's willingness)

The price actually paid is determined at the market equilibrium by supply and demand.

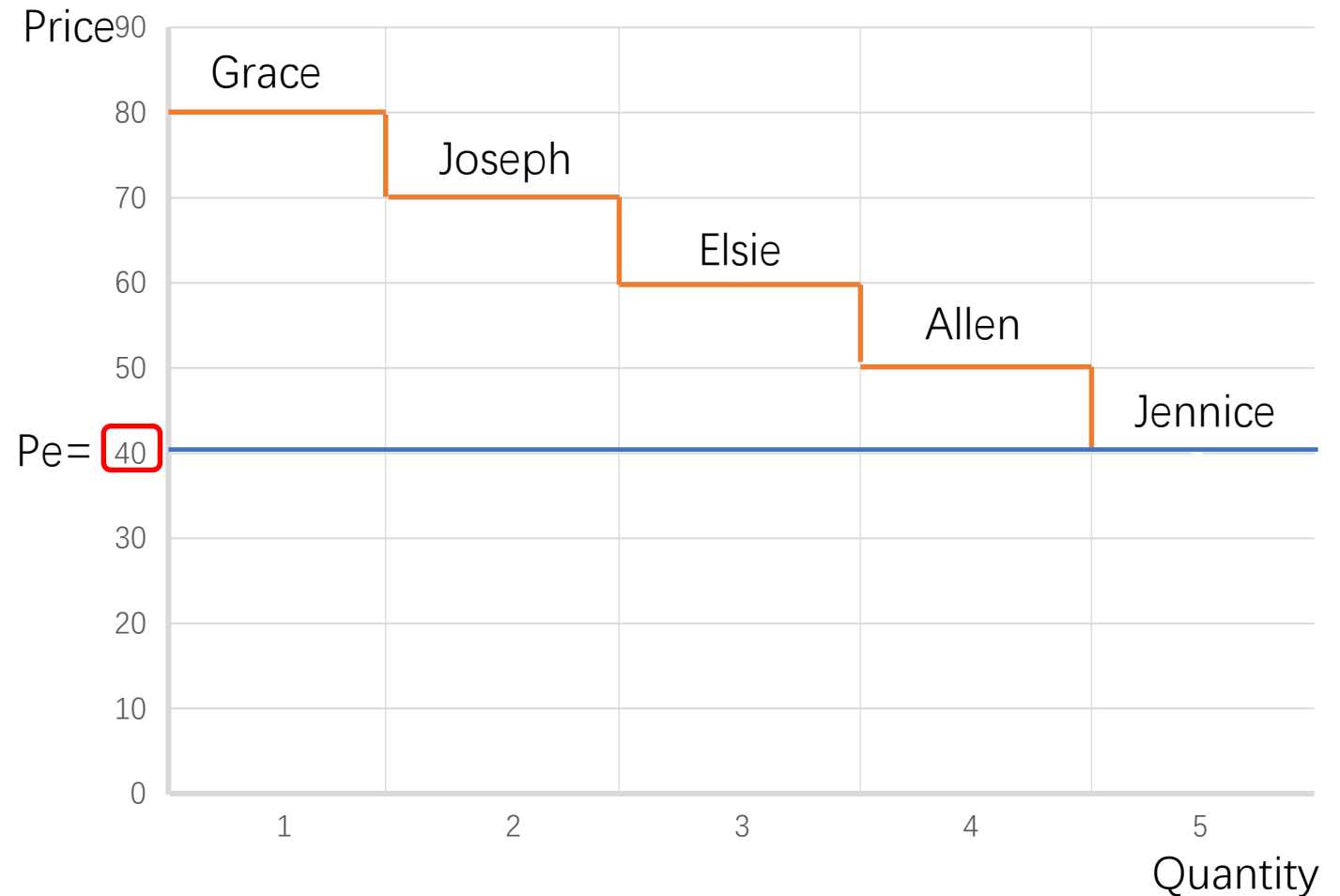
In RMB

Name	Highest price willing to pay for movie	Market price
Alex	30	40
Jennice	40	40
Allen	50	40
Elsie	60	40
Joseph	70	40
Grace	80	40

Illustration in graph

In RMB

Name	Highest price willing to pay for movie	Market price
Alex	Not buying, out of market	40
Jennice	40	40
Allen	50	40
Elsie	60	40
Joseph	70	40
Grace	80	40

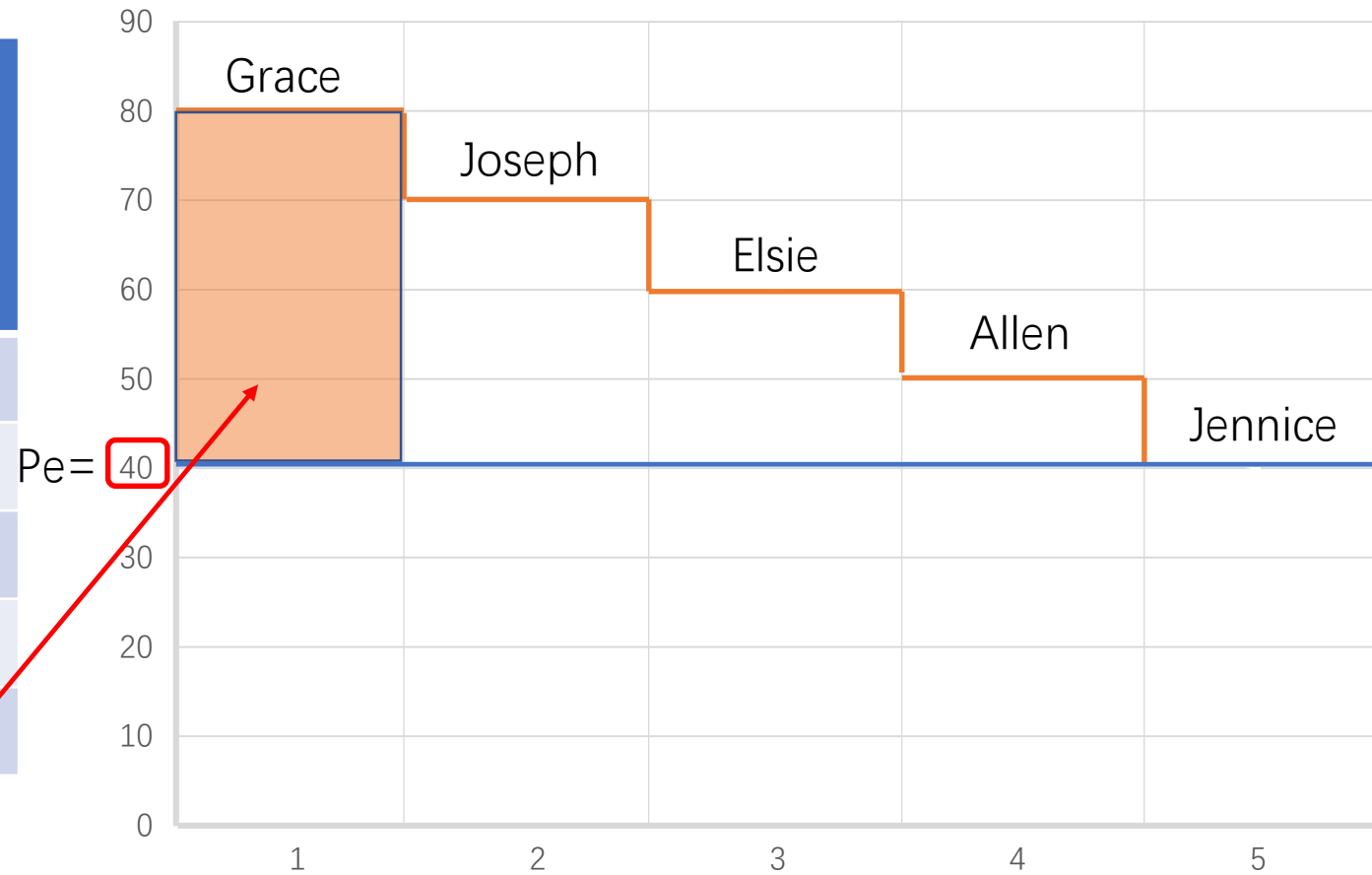


Consumer surplus

Consumer surplus is defined as the highest price consumers are willing to pay for a good minus the price actually paid.

No. of people	Price willing to pay for computer	Market price	Consumer Surplus
Jennice	40	40	0
Allen	50	40	10
Elsie	60	40	20
Joseph	70	40	30
Grace	80	40	40

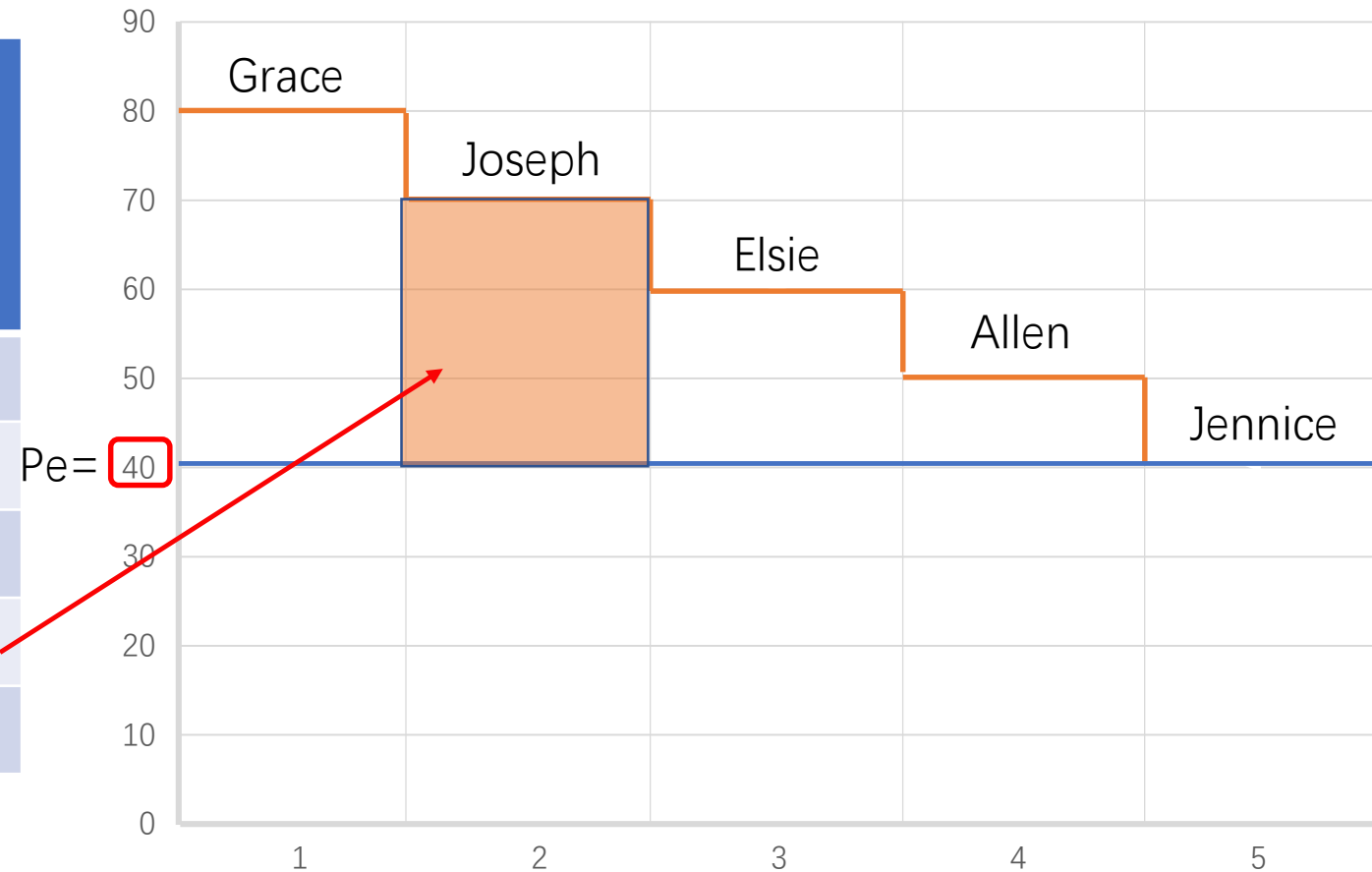
In RMB



Consumer surplus

In RMB

No. of people	Price willing to pay for computer	Market price	Consumer Surplus
Jennice	40	40	0
Allen	50	40	10
Elsie	60	40	20
Joseph	70	40	30
Grace	80	40	40

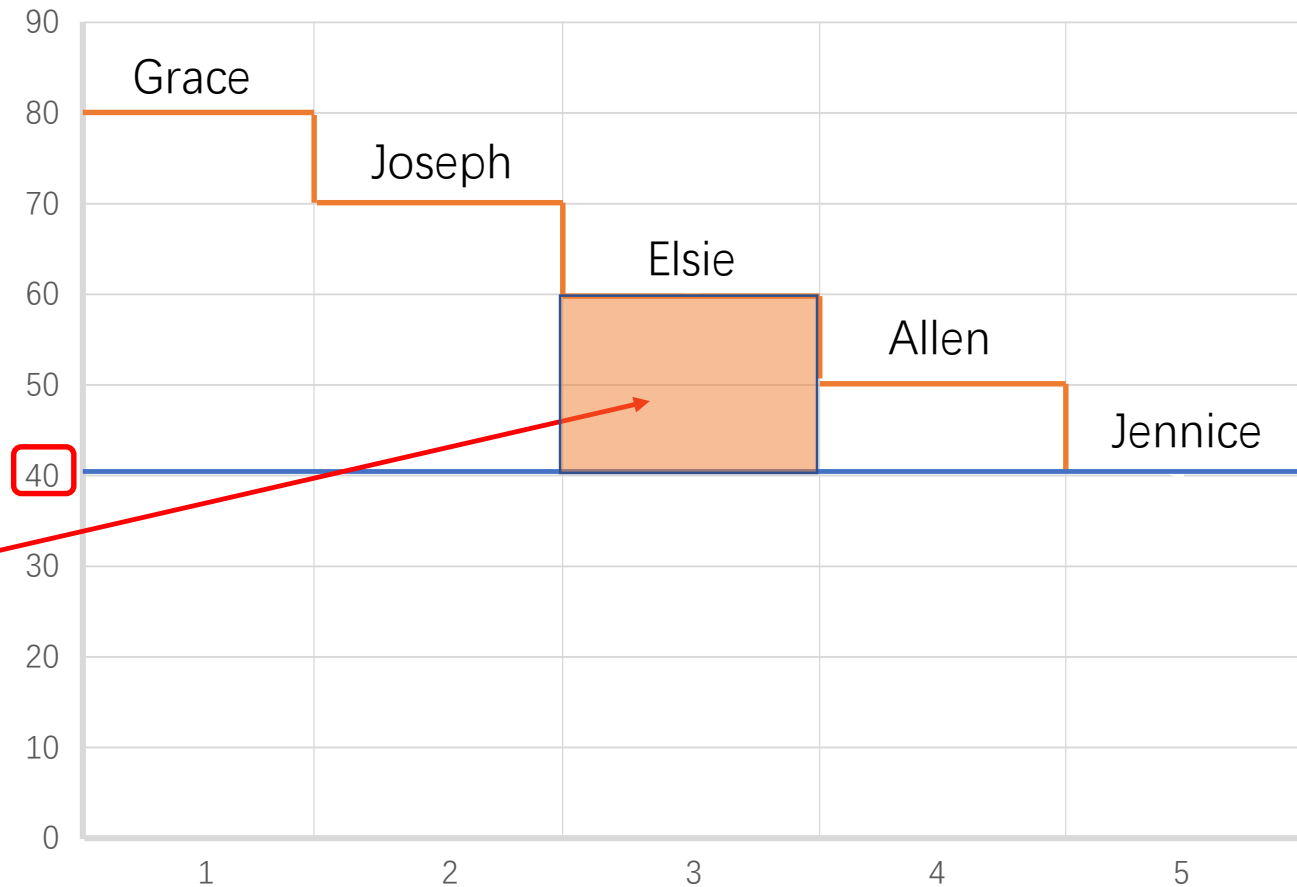


Consumer surplus

In RMB

No. of people	Price willing to pay for computer	Market price	Consumer Surplus
Jennice	40	40	0
Allen	50	40	10
Elsie	60	40	20
Joseph	70	40	30
Grace	80	40	40

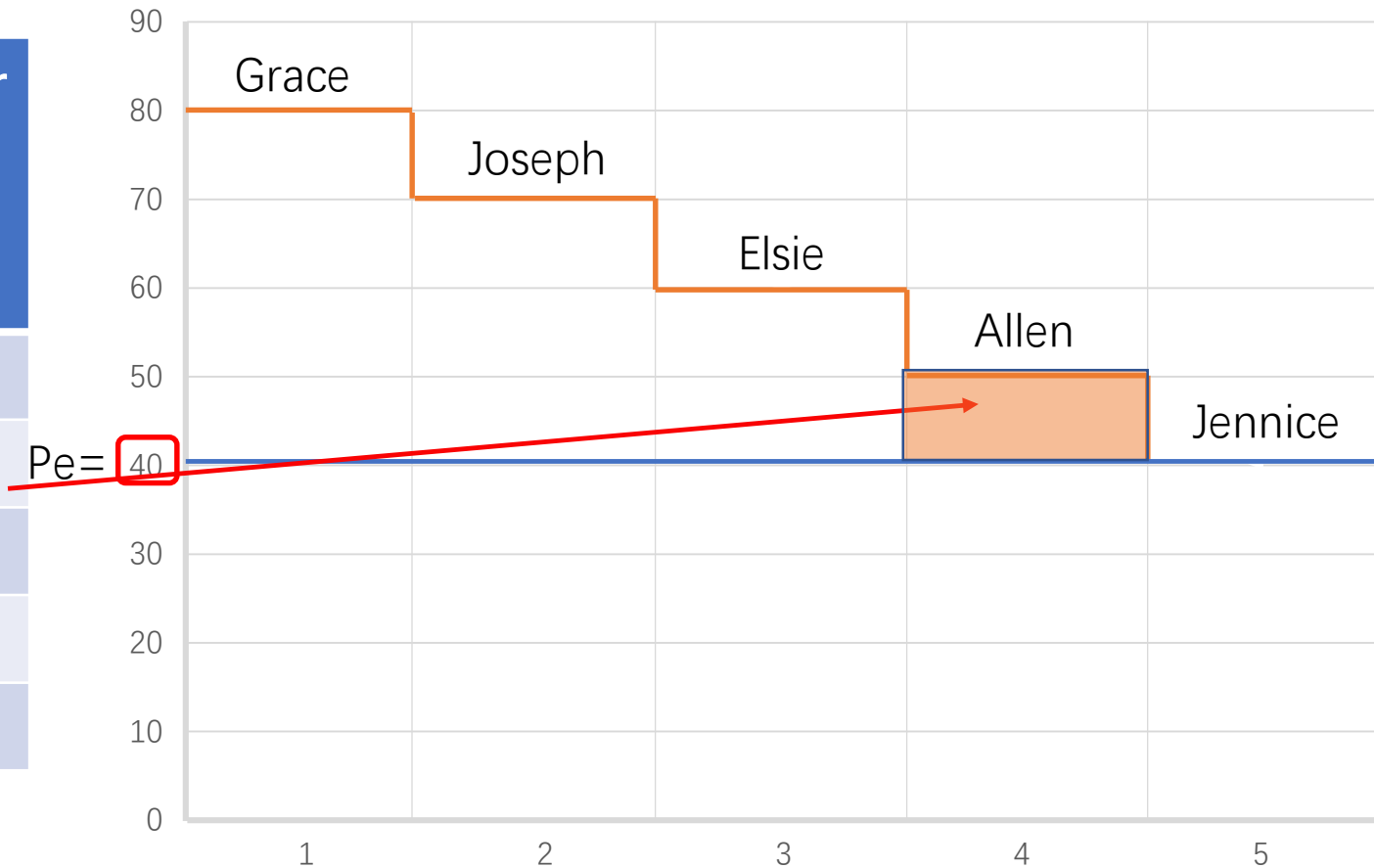
Pe= 40



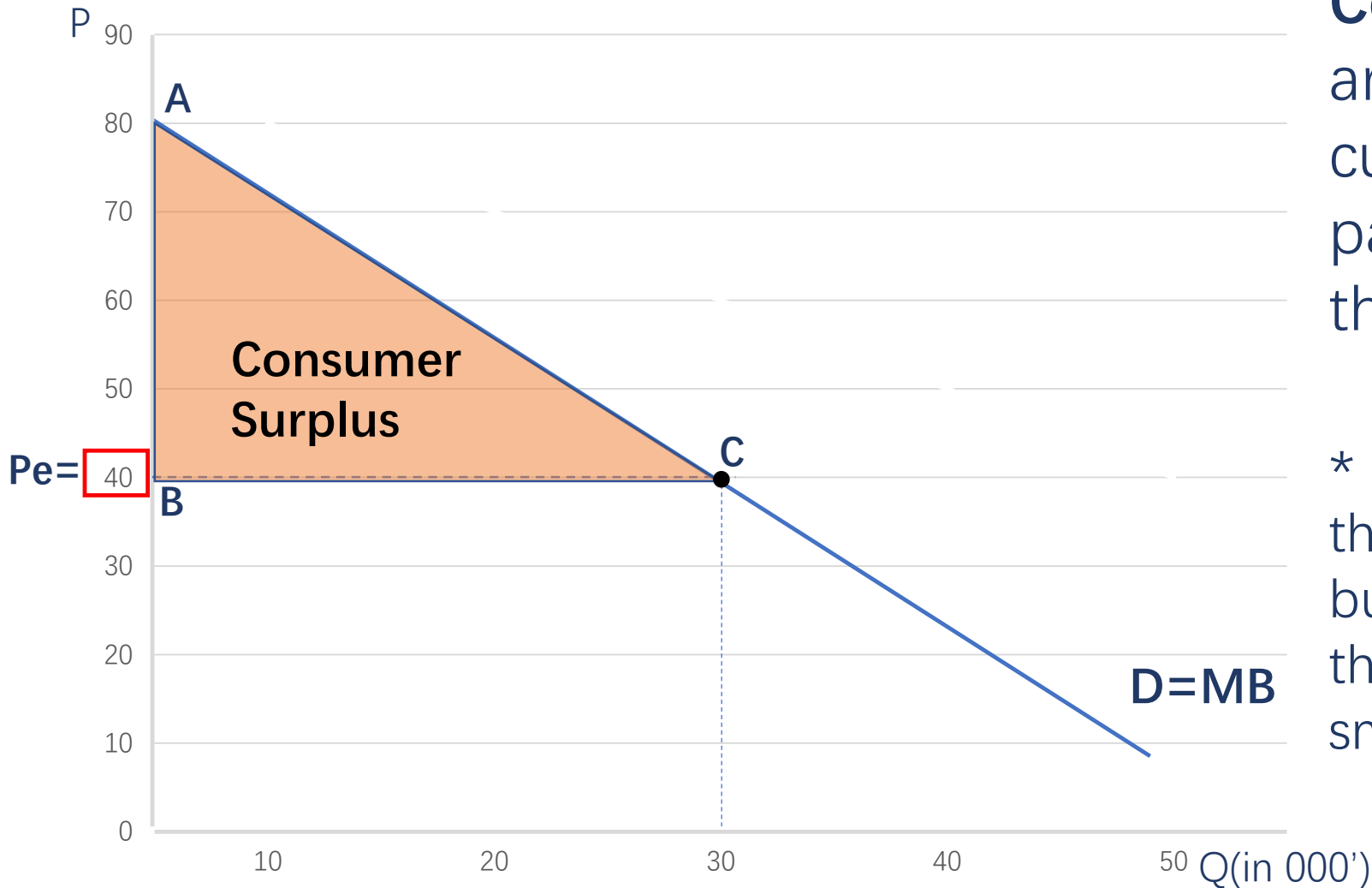
Consumer surplus

In RMB

No. of people	Price willing to pay for computer	Market price	Consumer Surplus
Jennice	40	40	0
Allen	50	40	10
Elsie	60	40	20
Joseph	70	40	30
Grace	80	40	40



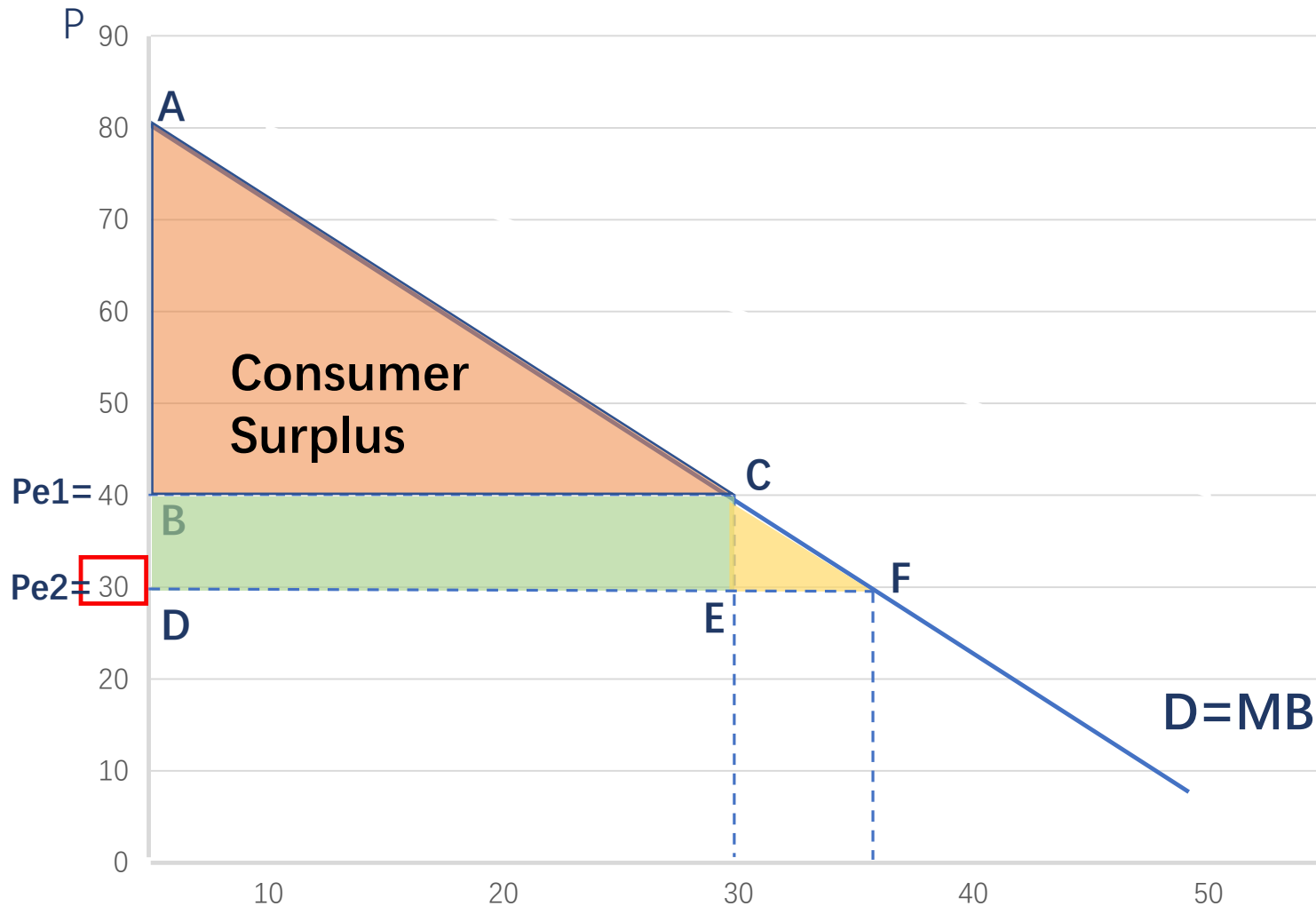
Add up all consumers in the movie market



Consumer surplus is the area under the demand curve and below the price paid by the consumer, up to the quantity purchased. (ABC)

* In a market with many buyers, the resulting steps from each buyer dropping out are so small that they form, in essence, a smooth curve

How a price reduction raise consumer surplus?



- If the market price falls from 40 to 30, the new consumer surplus is ADF area, BCDF is the new adding part after the price reduction.
- It composed by two parts:
 1. BCDE area: consumer surplus increase for existing buyers.
 2. CEF area: consumer surplus for new buyers, they are willing to buy the good at the lower price

What Does Consumer surplus Measure?

In economic world, we assumed that buyers are rational when they make decisions, so the consumer surplus is a **good measure of economic well-being**. It measures the benefit that buyers receive from a good as the buyers themselves perceive it.

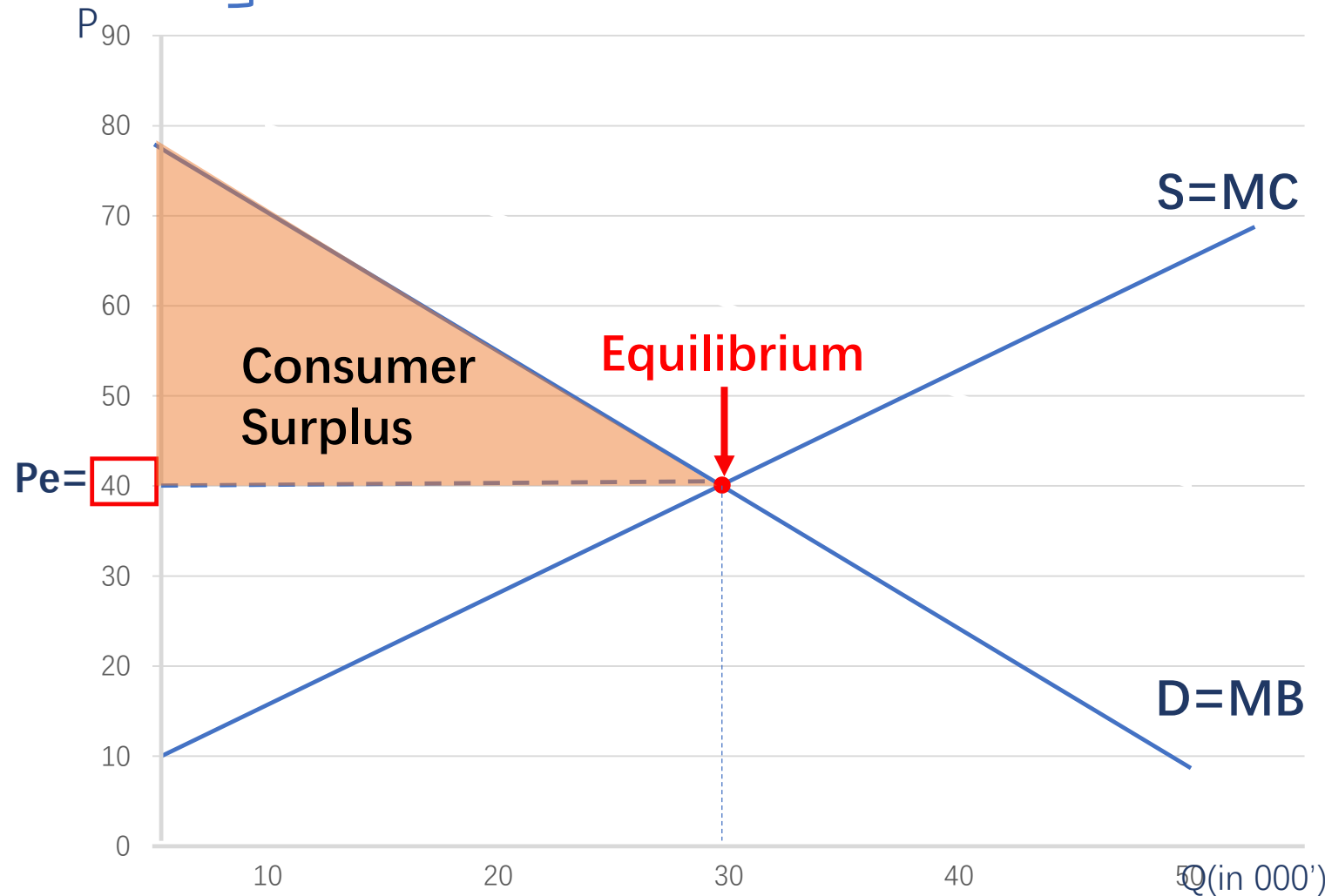
In some extreme cases, like harmful goods or dangerous good, consumer surplus is not a good measure of economic-well being.

Calculate the consumer surplus (triangle shape)

Consumer
Surplus

$$= \left[\begin{array}{|c|} \hline \text{P intercept of} \\ \text{D curve} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Actual price of} \\ \text{consumption} \\ \hline \end{array} \right] * \begin{array}{|c|} \hline \text{Quantity} \\ \text{purchased} \\ \hline \end{array} / 2$$

$$= (80 - 40) * 30,000 / 2$$
$$= 600,000 \text{ RMB}$$



Cost and The Willingness to Sell

Cost: the value of everything a seller must give up to produce a good.

Producer's willingness to sell:

- When price $>$ cost, eager to sell
- When price = cost, indifferent about selling or not selling
- When price $<$ cost, refuse to sell the product

Movie Theatre	Cost	Market price	Willingness to sell
A	50	40	✗
B	40	40	✗ ✓
C	30	40	✓
D	20	40	✓
E	15	40	✓

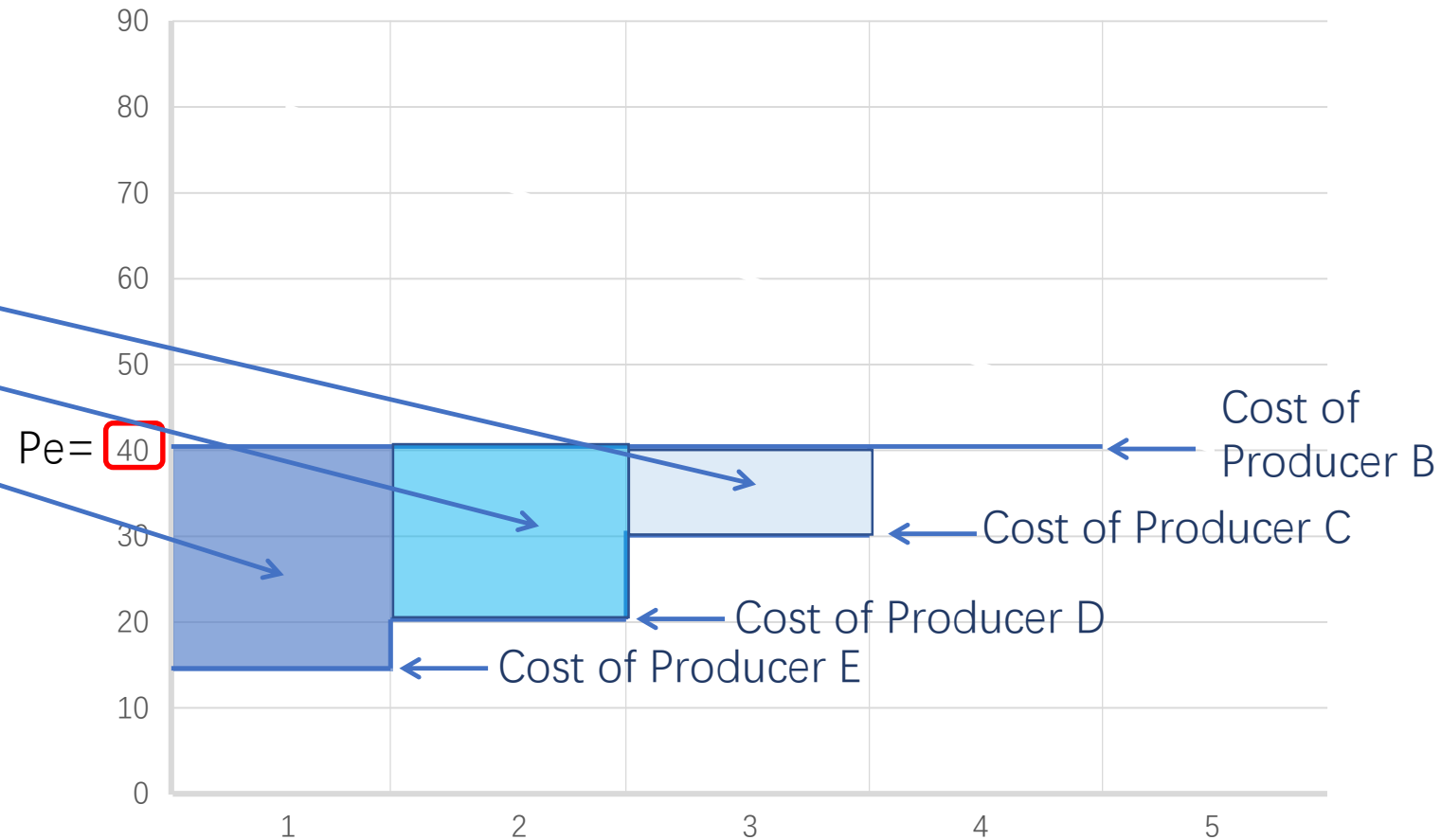
In RMB

Producer surplus

the price received by firms for selling their good minus the lowest price that they are willing to accept to produce the good.

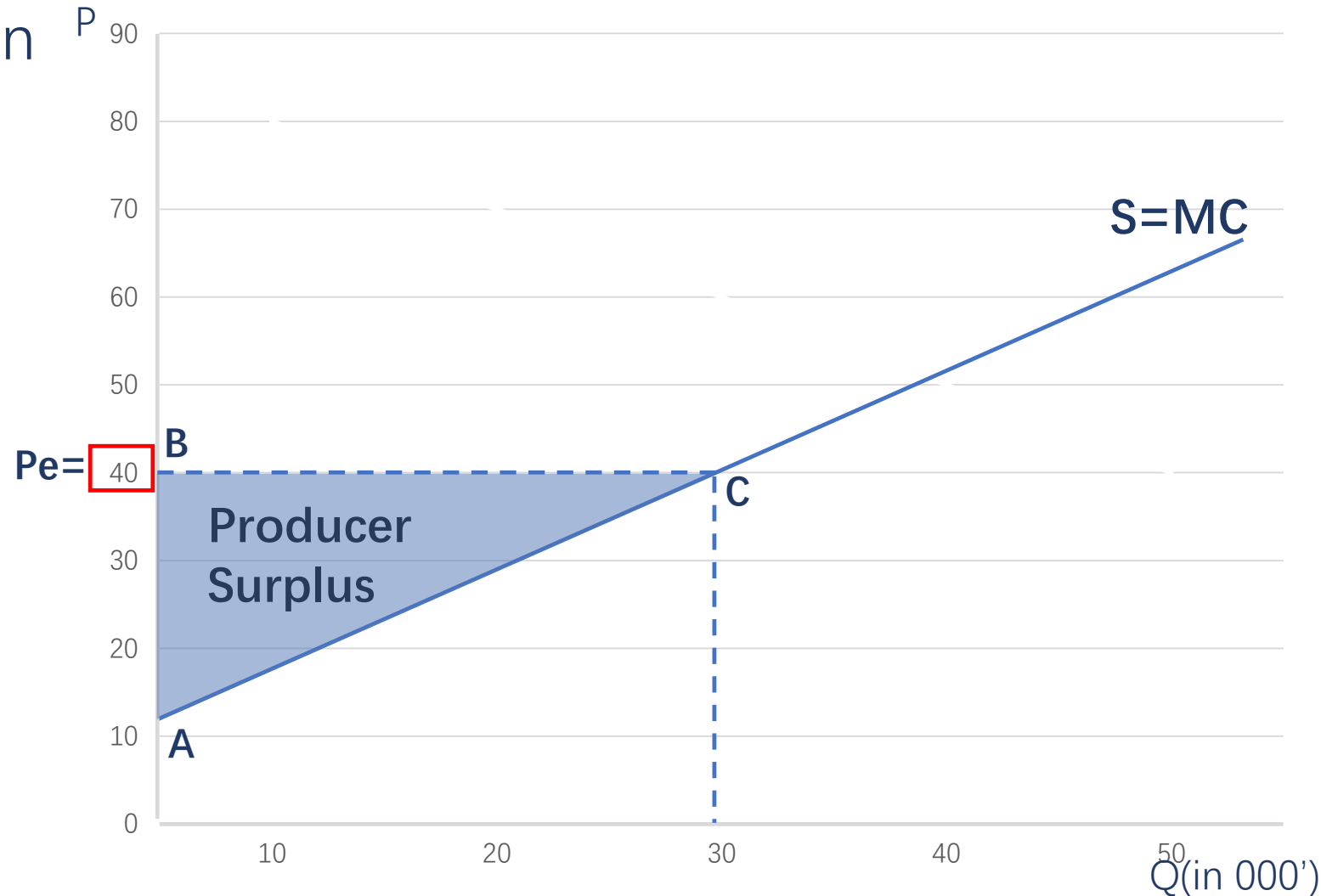
In RMB

Movie Theatre	Cost	Market price	Producer Surplus
B	40	40	0
C	30	40	10
D	20	40	20
E	15	40	25

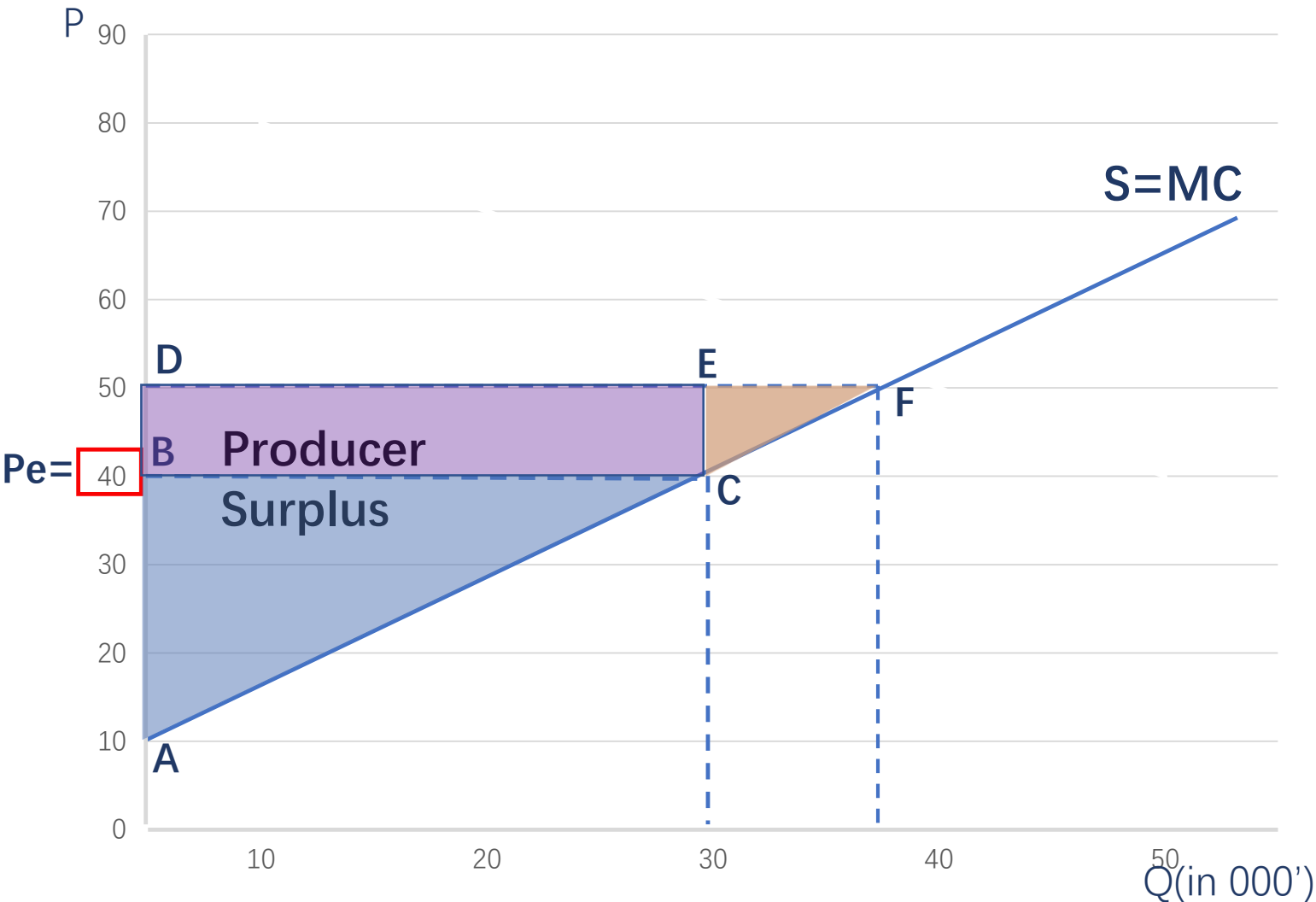


Add up all suppliers in the movie market

- Producer surplus is shown as the area above the firms supply curve and below the price received by the firm, up to the quantity produced.



How a price influence producer surplus?



- If the market price rise from 40 to 50, the new producer surplus is ADF area, BCDF is the new adding part after the price increase.
- It composed by two parts:
 1. BCDE area: producer surplus increase for existing suppliers.
 2. CEF area: producer surplus for new suppliers, they are willing to sell the good at the higher price.

Calculate the producer surplus

When S intercept with P (triangle shape)

Producer
Surplus

=

Actual price
received by
producer

-

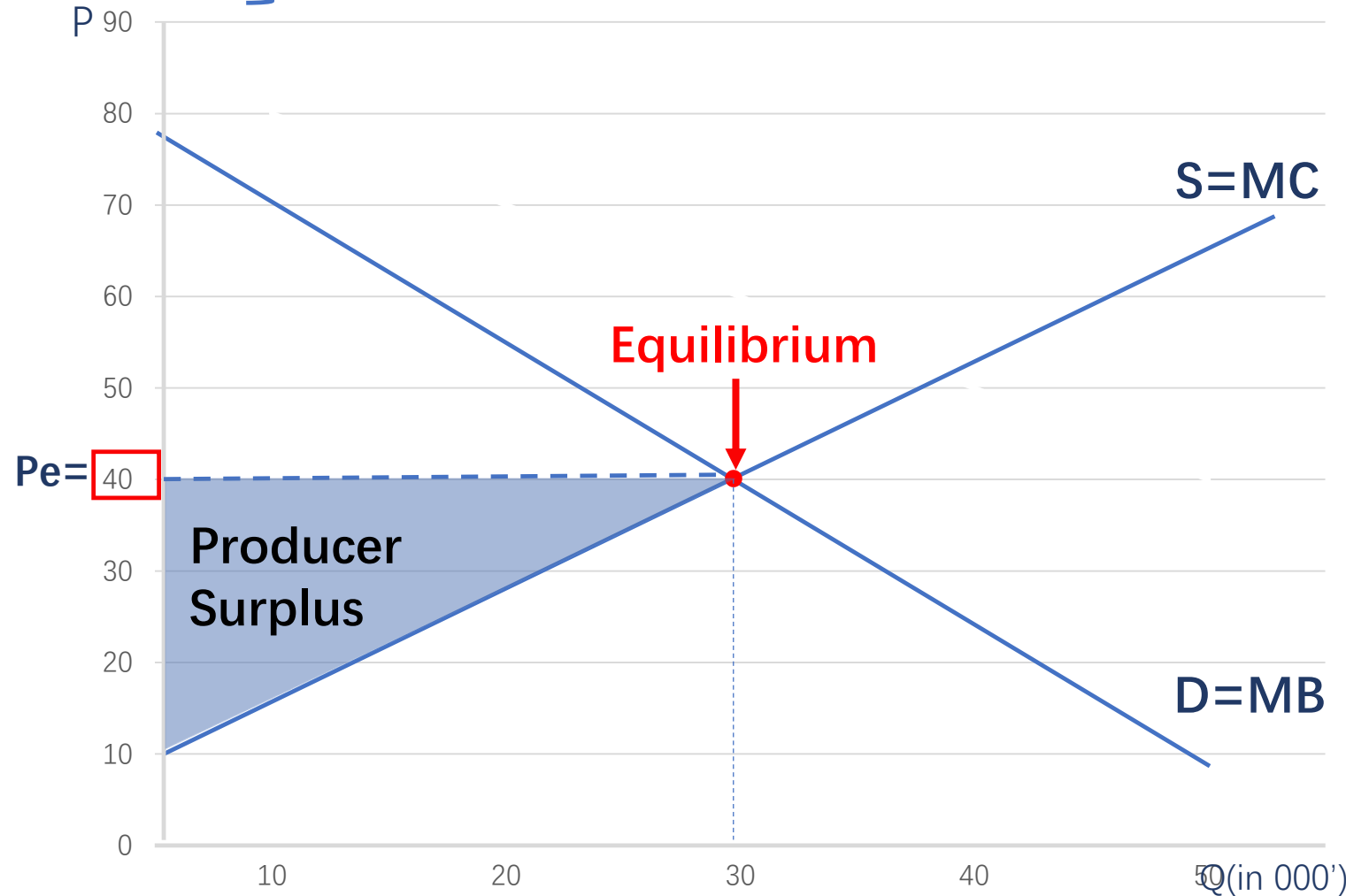
P intercept of S
curve

*

Quantity sold

/2

$$= (40 - 10) * 30,000 / 2$$
$$= 450,000 \text{ RMB}$$



Calculate the Social Surplus

Social
Surplus

=

Consumer
Surplus

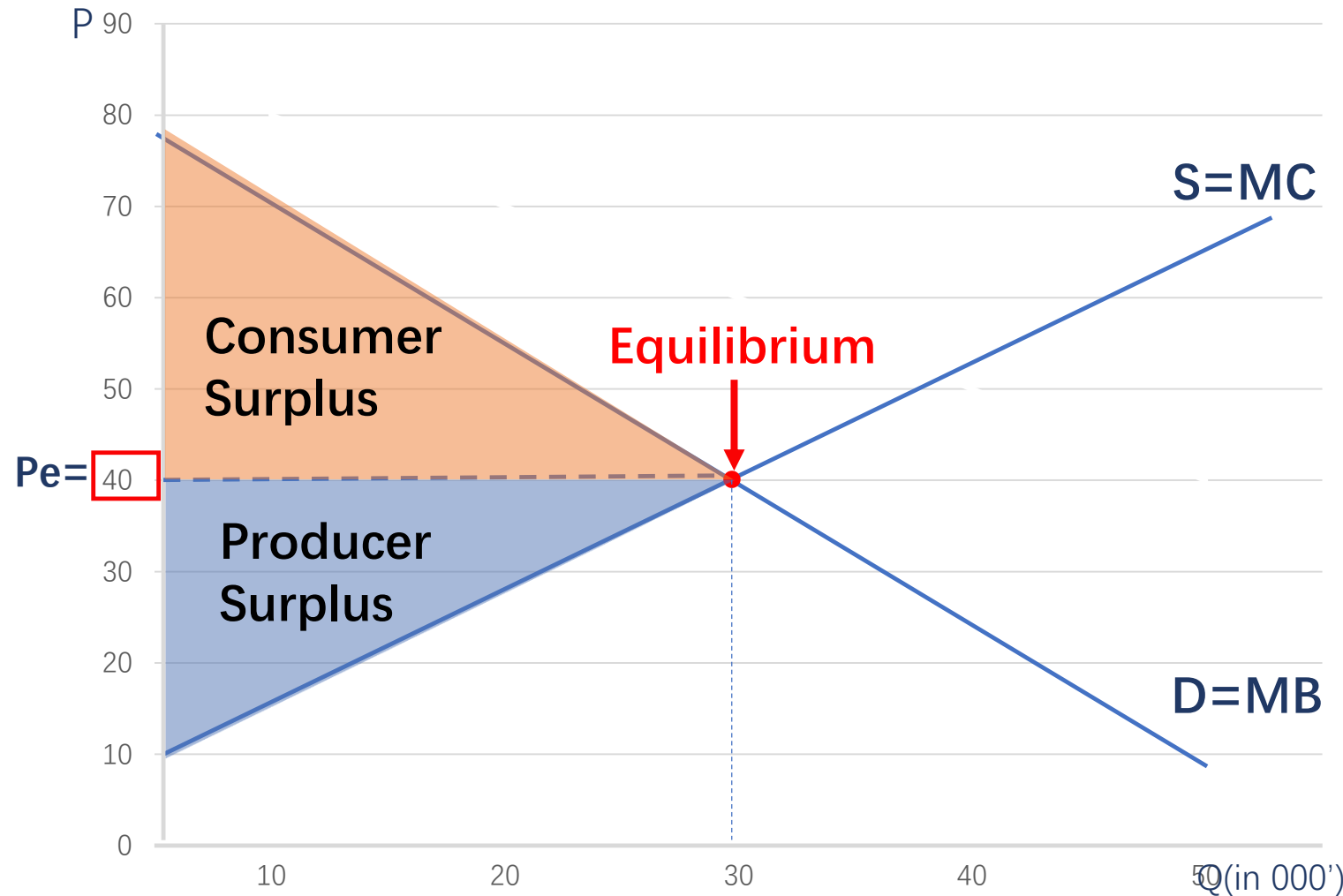
+

Producer
Surplus

$$= 600,000 + 450,000$$

$$= 1,050,000 \text{ RMB}$$

At the point of competitive market equilibrium, **social surplus**, defined as the sum of consumer surplus + producer surplus, **is maximum**.



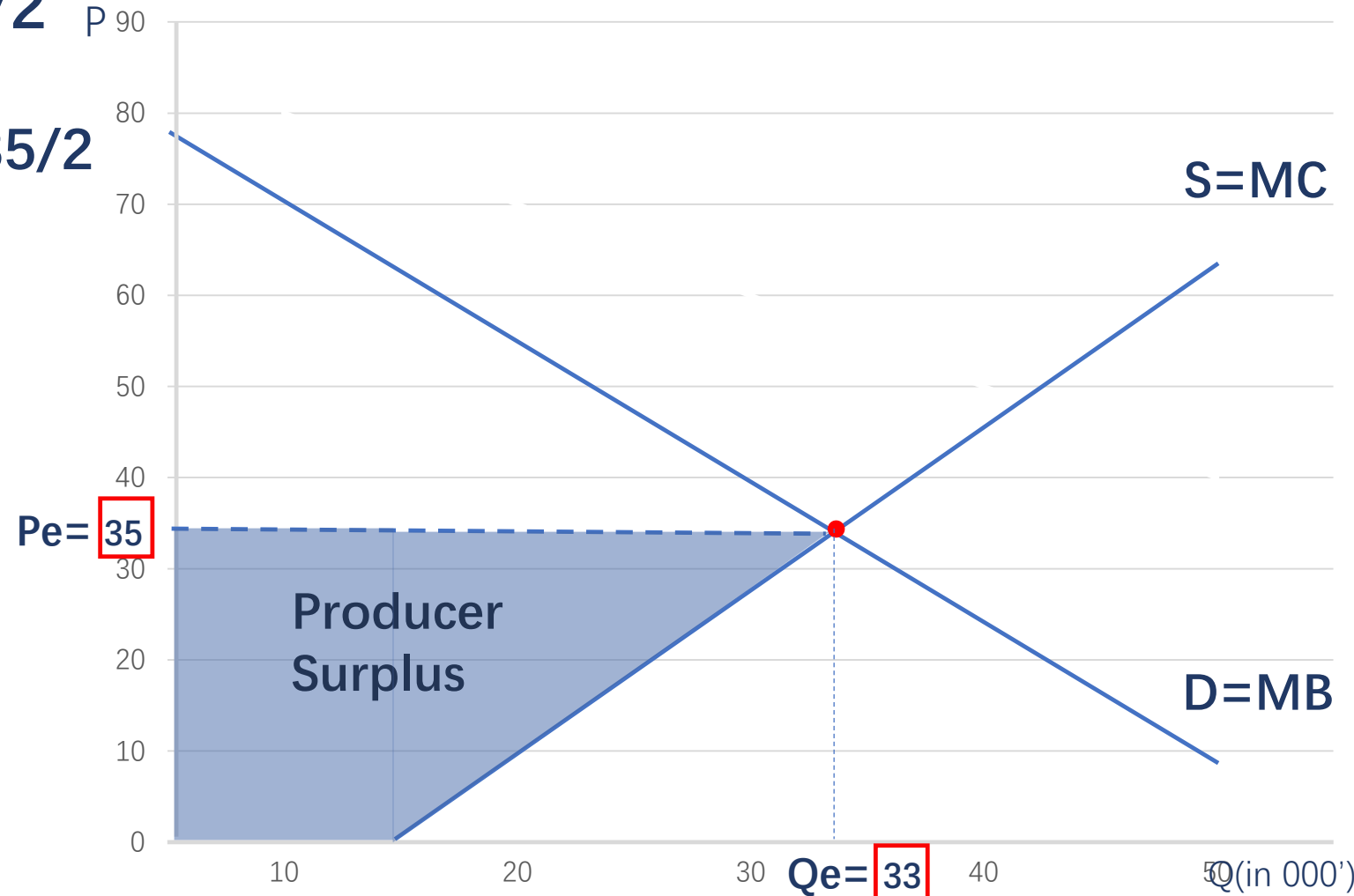
Calculate the producer surplus

When S intercept with Q (trapezium shape)

Area of trapezium = $(a+b)*c/2$

Producer Surplus
trapezium shape

$$= (15,000 + 33,000) * 35 / 2$$
$$= 840,000 \text{ RMB}$$



Allocative efficiency



We learnt that the price is determined by the forces of supply and demand in competitive markets. At equilibrium positions, the buying and selling choices of all buyers and sellers are satisfied and are in balance.

Question raised:

Is the allocation of resources determined by free markets desirable?



Allocative efficiency

Allocative efficiency refers to producing the quantity of goods mostly wanted by society.

- Achieved when the economy allocates its resources so that the society gets the most benefits from consumption.
- It answers the what/how much to produce question in the best possible way.

Marginal benefit

Marginal benefit: the extra benefit that you get from each additional unit of something you buy.

- It can be thought of as showing the amount of money that the consumer is willing to pay.
- Compare marginal benefit and marginal utility.
 - **Marginal benefit:** Willingness to pay for the last or marginal unit bought. (measurable)
 - **Marginal utility:** extra satisfaction that consumers receive from consuming one more unit of a good.(not measurable)

Marginal benefit decreases as the quantity of a good consumed increases, consumers will be willing to buy an extra unit of the good only if its price falls. The demand curve can therefore be called a **marginal benefit (MB) curve**.

Marginal cost

Marginal cost: the extra cost of producing one more unit of output. It increases as the units of output produced increased.

- It can be thought of as showing the cost that the supplier is willing to produce.
- The supplier will be willing to produce and sell an extra unit of the good only if its price increases.
- The supply curve also shows the price that the firm is willing to accept in order to produce one more unit of the good. Therefore, the supply curve can be called a **marginal cost (MC) curve.**

A simple example

Me

Price of burger	No. of burger buy	Marginal Benefit
10	1	20
10	2	15
10	3	12
10	4	10

Burger maker

Price of burger	No. of burger sell	Marginal Cost
10	1	6
10	2	7
10	3	9
10	4	10

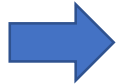
No need to buy or sell additional unit



Allocative efficiency: $MB=MC$

Market equilibrium occurs at the point of intersection of the demand and supply curves.

$MB=MC$



the extra benefit to society of getting one more unit of the good

=

The extra cost to society of producing one more unit of the good

- The extra benefit to society of getting one more unit of the good is equal to the extra cost to society of producing one more unit of the good.
- Society allocate 'right' amount of resources to the production of the good, and is producing the 'right' quantity of the good that is mostly wanted by society.

Illustrated by diagram

1. When $Q=20$,

value to buyers $>$ cost to sellers

→ Can increase social surplus by increasing the quantity produced and consumed.

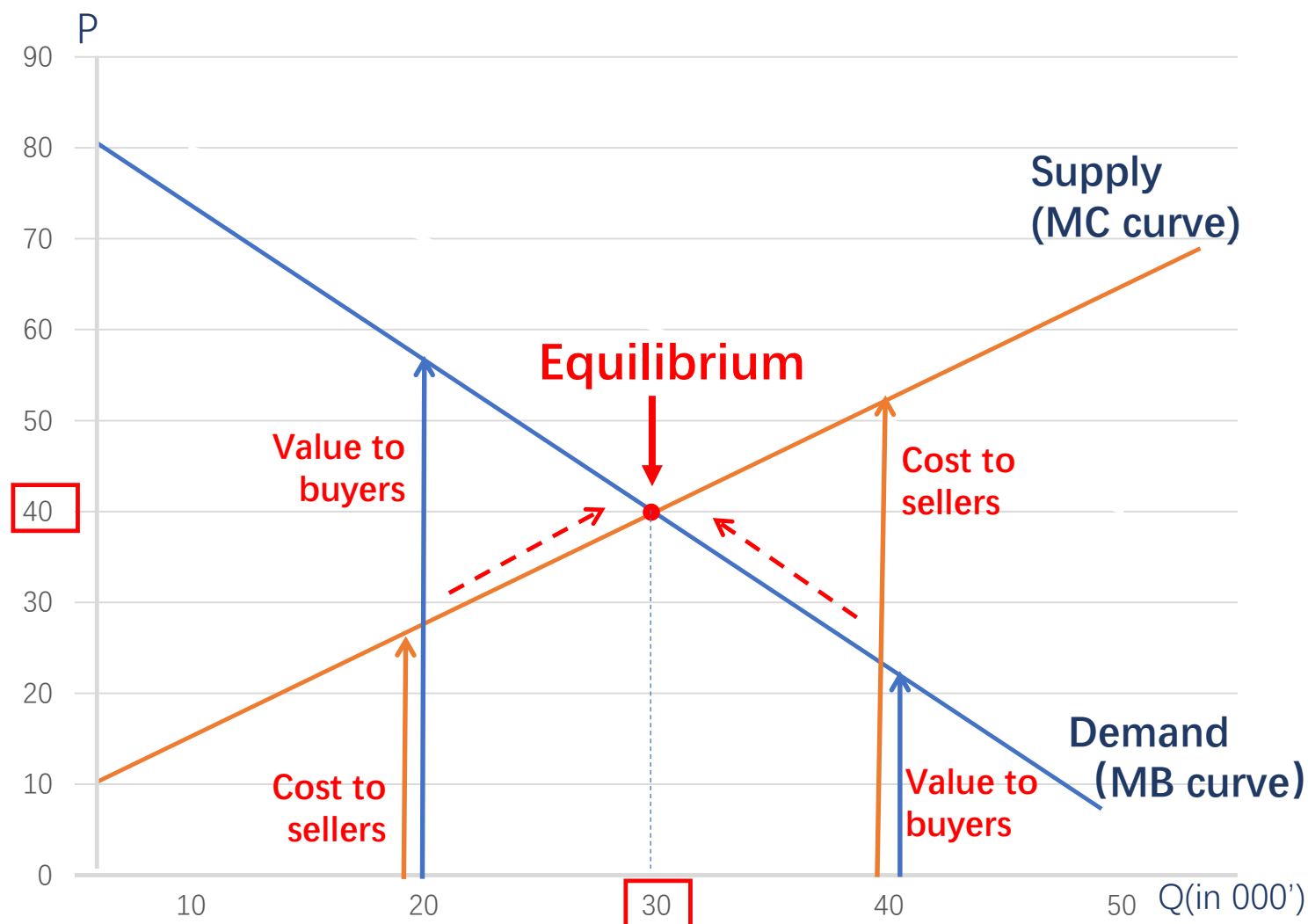
Finally reach the equilibrium.

2. When $Q=40$,

value to buyers $<$ cost to sellers

→ Can increase social surplus by decreasing the quantity produced and consumed.

Finally reach the equilibrium.

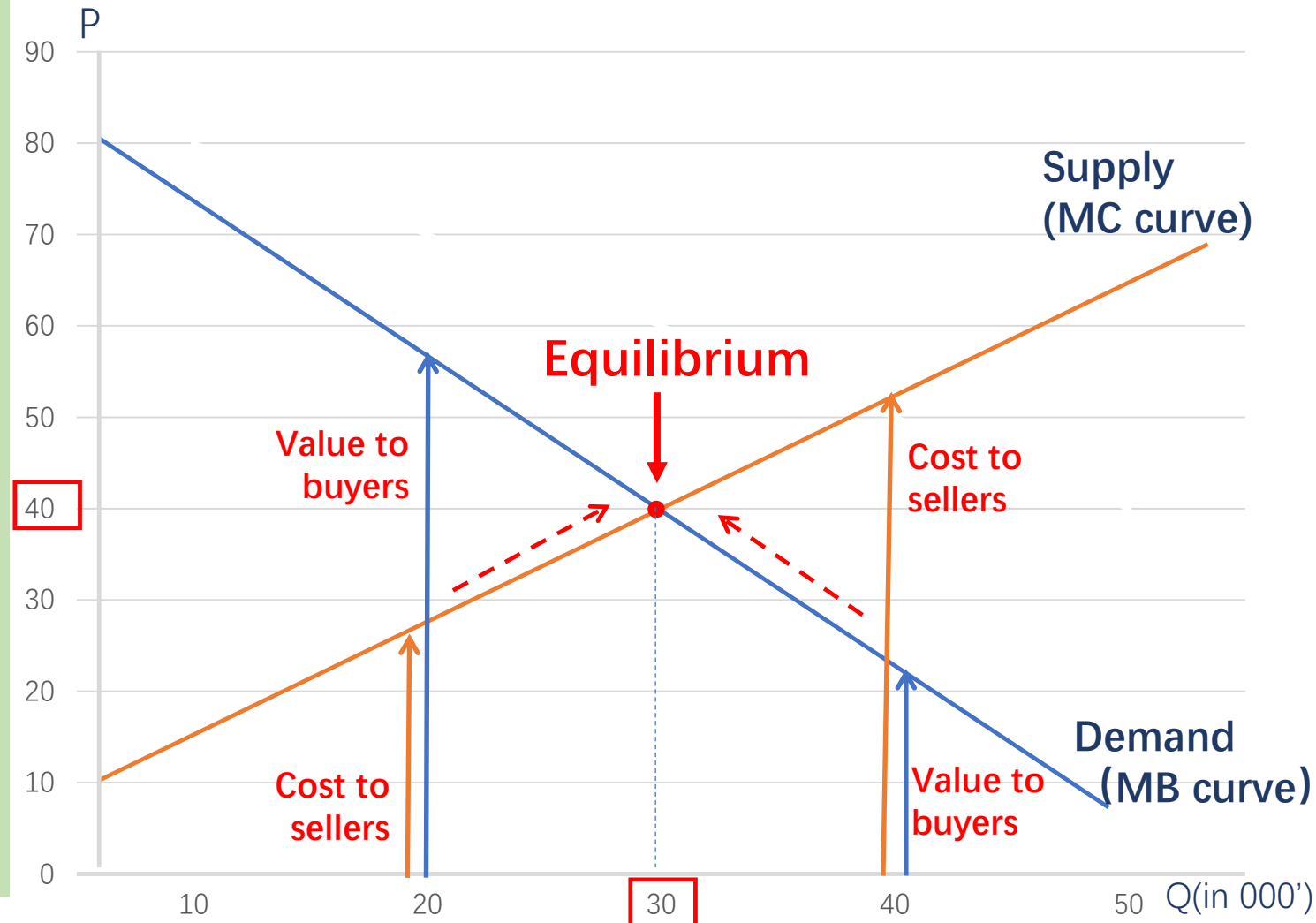


Illustrated by diagram

When $MB > MC$, the value that consumer put on the product is higher than the cost to society of producing it, therefore, it is worth to produce more of the good. → more resource should be allocated toward the product.

When $MB < MC$, the unit cost is higher than the value, the society would be benefit from producing less as it is currently producing too much of the good → no more resources should be allocated to produce the unit of product.

When $MB = MC$, this is the ideal output, there is no reason for further worthwhile production.



Measure the economic well-being

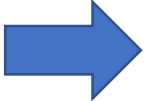
Economist use **total surplus (social surplus)** as a measure of society's economic well-being.

$$\begin{array}{|c|} \hline \text{Consumer} \\ \text{surplus} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Value to buyers} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Amount paid} \\ \text{by buyers.} \\ \hline \end{array}$$

(the benefit that buyers receive from participating in a market)

$$\begin{array}{|c|} \hline \text{Producer} \\ \text{surplus} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Amount received} \\ \text{by sellers} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Cost to sellers} \\ \hline \end{array}$$

(the benefit that sellers receive from participating in a market)


$$\begin{array}{|c|} \hline \text{Total} \\ \text{surplus} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Consumer} \\ \text{surplus} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Producer} \\ \text{surplus} \\ \hline \end{array}$$
$$= \left[\begin{array}{|c|} \hline \text{Value to buyers} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Amount paid} \\ \text{by buyers.} \\ \hline \end{array} \right] + \left[\begin{array}{|c|} \hline \text{Amount received} \\ \text{by sellers} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Cost to sellers} \\ \hline \end{array} \right]$$
$$= \begin{array}{|c|} \hline \text{Value to buyers} \\ \hline \end{array} - \begin{array}{|c|} \hline \text{Cost to sellers} \\ \hline \end{array}$$

$$\text{Total surplus} = (\text{value to buyers}) - (\text{cost to sellers})$$

An allocation of resources is efficient if it maximizes total surplus.

Allocative Efficiency means:

- The goods are consumed by the buyers who **value them most highly**.
- The goods are produced by the producers with **the lowest costs**.

Raising or lowering the quantity of a good would not increase total surplus.

Evaluating the equilibrium

In demand side:

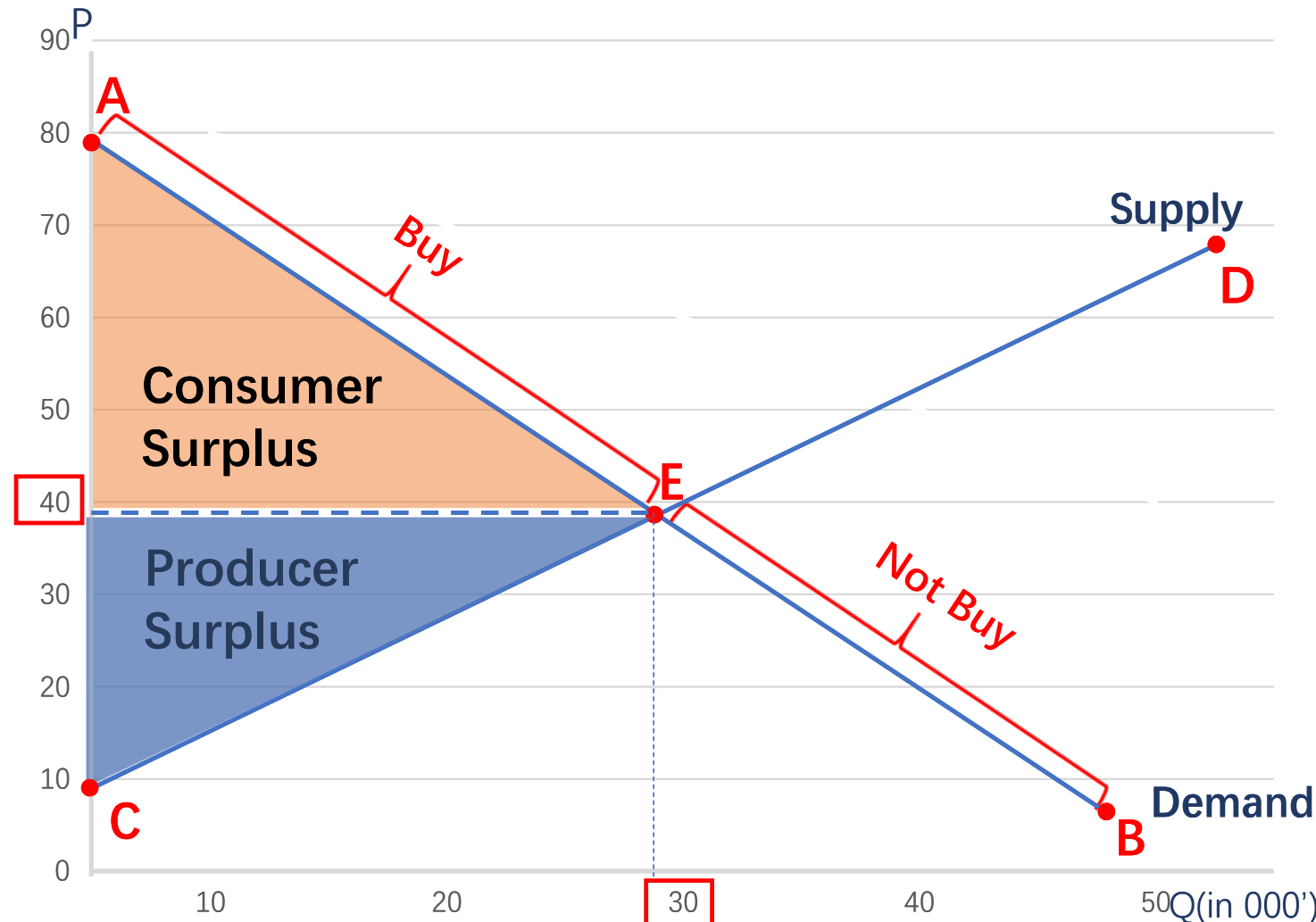
- The buyer who perceived Value of good ≥ 40 RMB (AE)

➡ Will buy the movie ticket

- The buyer who perceived Value of good < 40 RMB (BE)

➡ Will not buy the movie ticket

the buyers who value the good most highly are the ones who consume it.



Evaluating the equilibrium

In supply side:

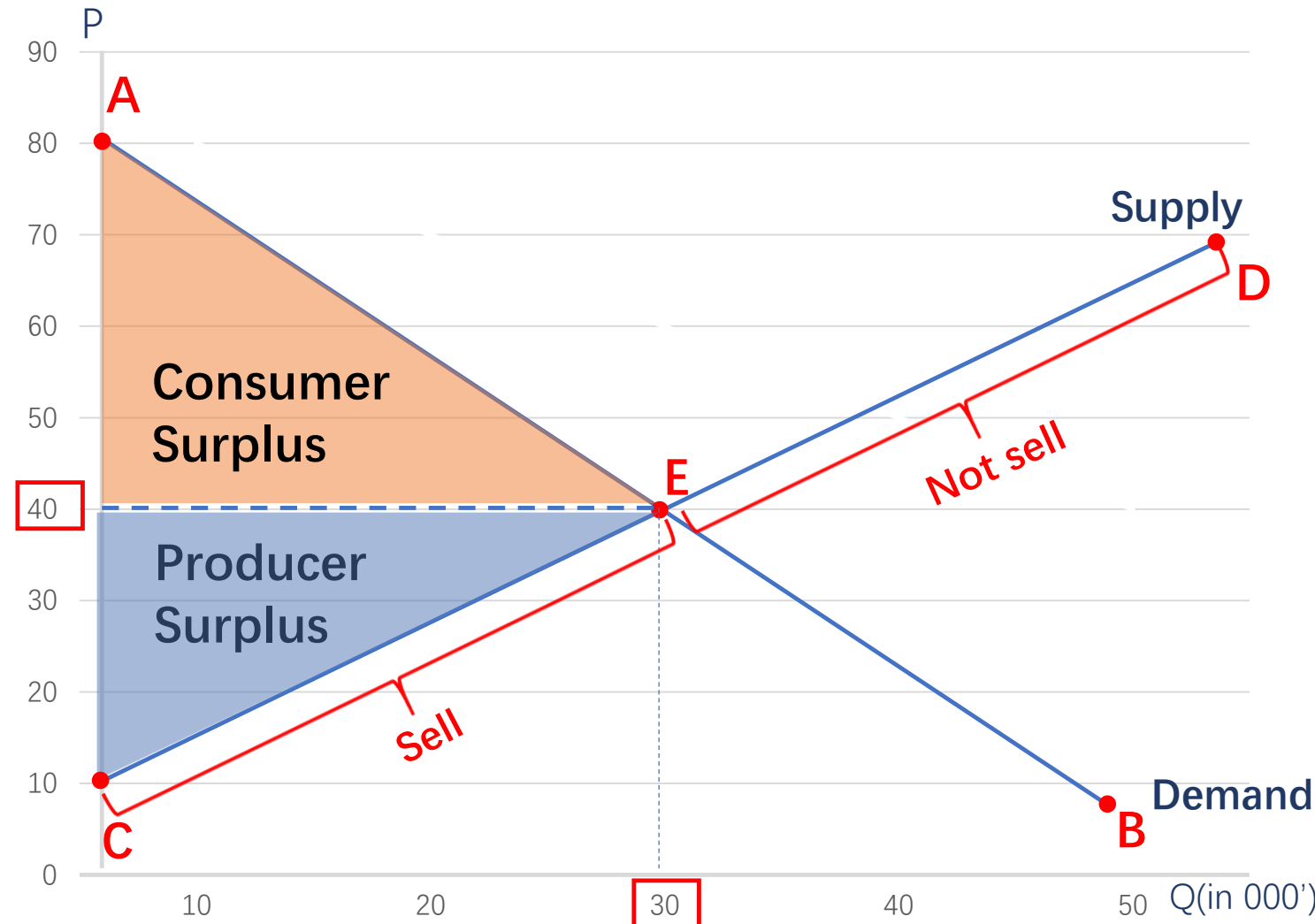
- The supplier who perceived cost of good ≤ 40 RMB (CE)

➔ Will sell the movie ticket

- The buyer who perceived cost of good > 40 RMB (DE)

➔ Will not sell the movie ticket

the sellers with the lowest cost produce the good.



Free market resource allocation

1. Free markets allocate the supply of goods to the buyers who **value them most highly**, as measured by their willingness to pay.
 2. Free markets allocate the demand for goods to the sellers who can produce them at the **lowest cost**.
 3. Free markets produce the quantity of goods that maximizes the sum of consumer and producer surplus.
- ➡ In this equilibrium, the social welfare is maximized. we cannot increase the economic well-beings by changing the allocation of buyer's consumption or seller's production.

Allocative efficiency achieved when Social Surplus is maximized.

Social
Surplus

=

Consumer
Surplus

+

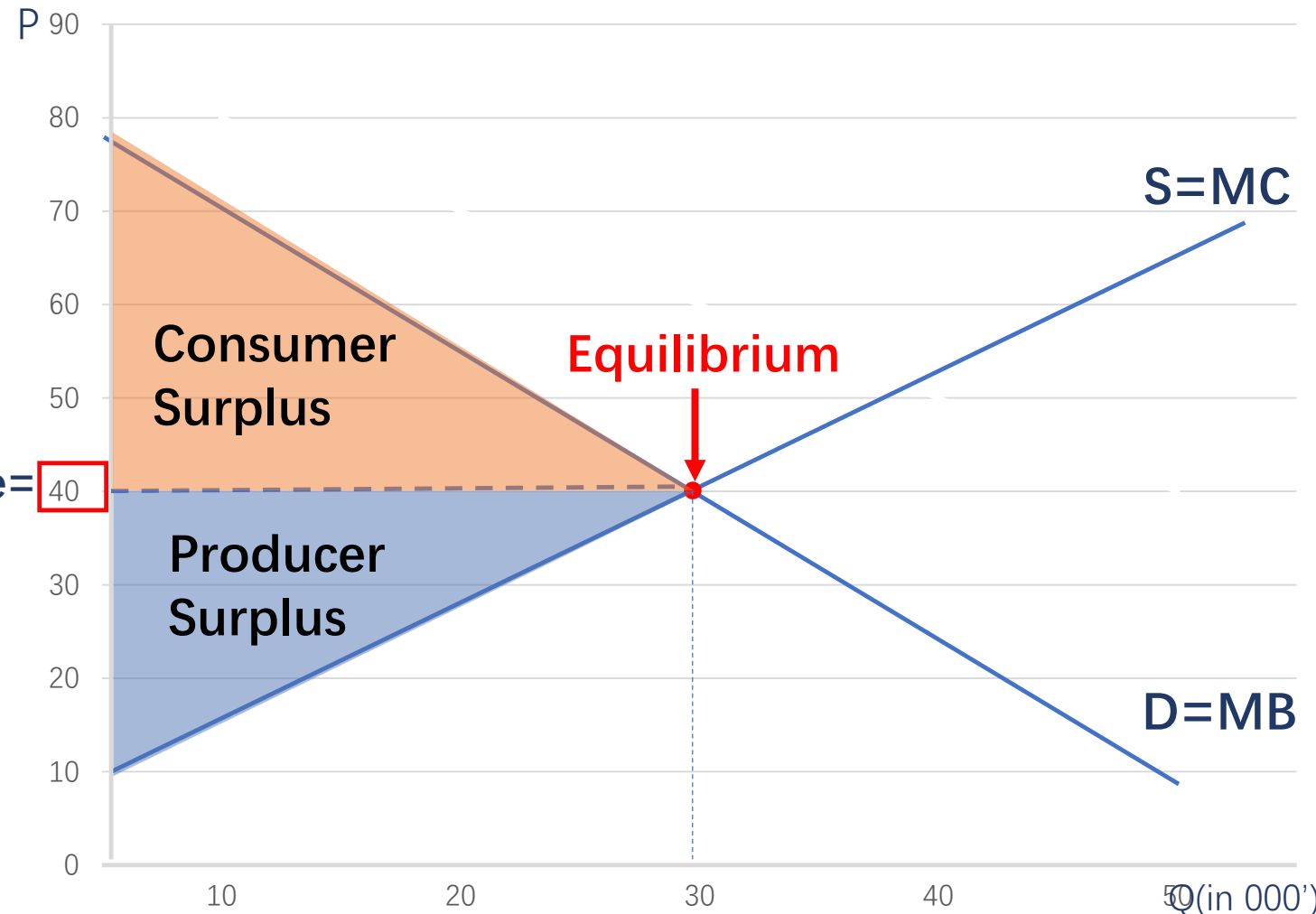
Producer
Surplus

At the point of competitive market equilibrium, social surplus, defined as the sum of consumer surplus + producer surplus, is maximum.

→ Allocative efficiency

→ Social welfare is maximum.

Society is making the best possible use of its scarce resources.



Market efficiency & market failure



- In perfect competitive market, the social is maximum, allocative efficiency achieved.
- But in real world, the market fails to achieve allocative efficiency, the social surplus is reduced. → welfare loss.
- The market failures are an important justification for government intervention.