

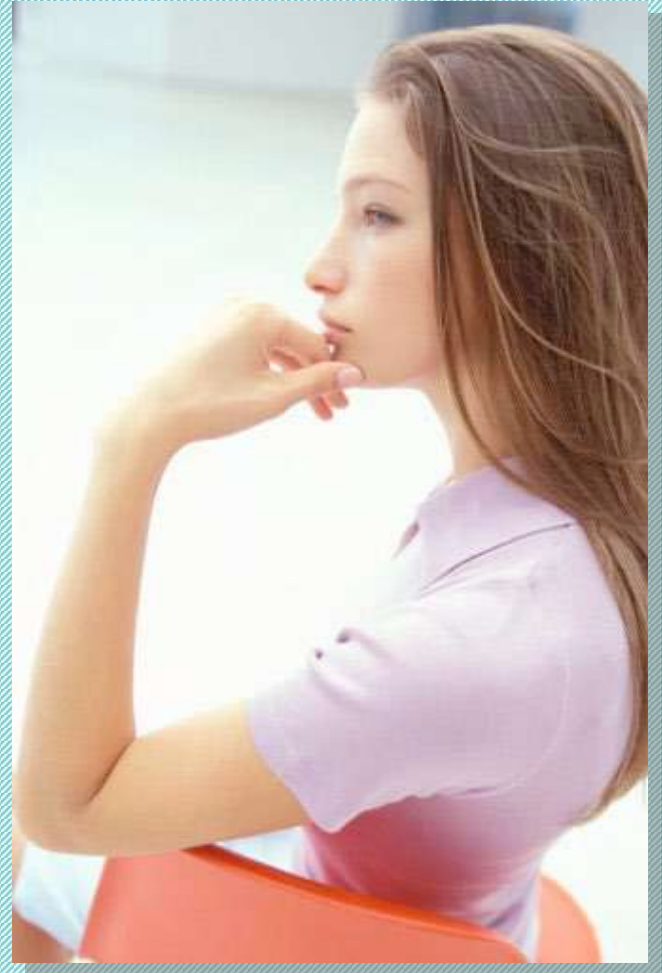
PART 2

How Markets Function

PRINCIPLES OF Microeconomics

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Chapter 9: Consumers, Producers, and Market Efficiency



Chapter 9: Consumers, Producers, and Market Efficiency

- In this chapter, we will examine and analyze the fundamental tools of welfare economics and assess the efficiency of free markets using consumer surplus and producer surplus.
- Furthermore, we will see that when supply and demand forces efficiently allocate resources, even if each buyer and seller in the market is only concerned with their own welfare, they will collectively be guided by an invisible hand to an equilibrium level that maximizes the total benefit of both buyers and sellers.

Chapter 9: Consumers, Producers, and Market Efficiency

- **Consumer surplus**
- Producer surplus
- Market efficiency

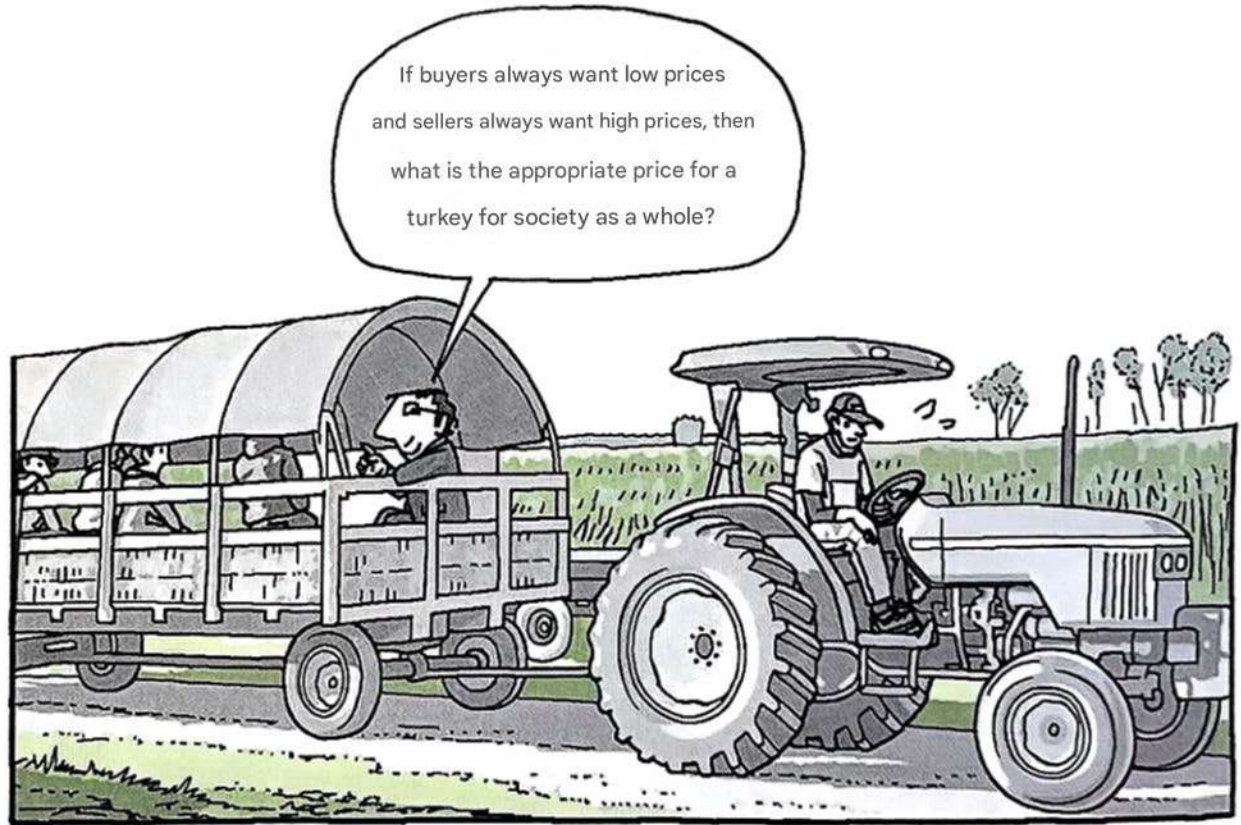
Welfare Economics

welfare economics



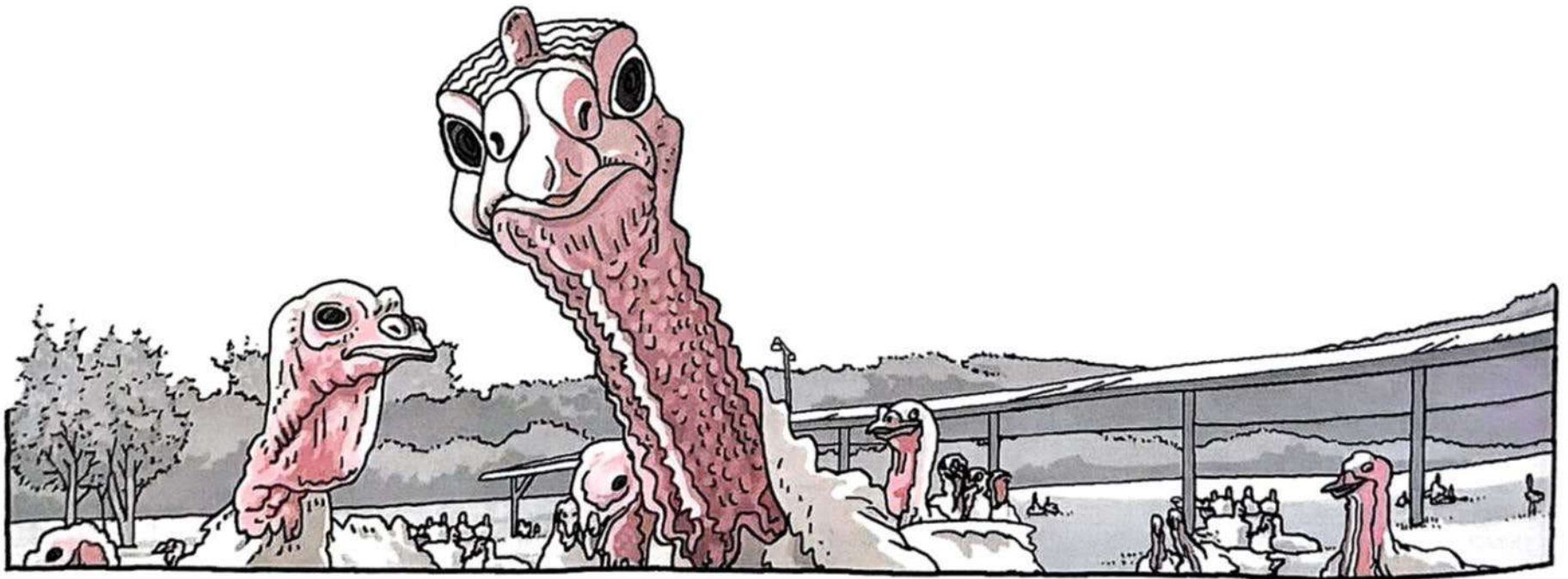
On the one hand, when consumers go to stores to buy turkey for Thanksgiving dinner,
They might be disappointed by the high price of turkeys.

Welfare Economics



Welfare Economics

In the preceding text, we saw how supply and demand forces determine the prices and sales volumes of goods and services in a market economy. However, we did not explain whether these market configurations are desirable.



Welfare Economics



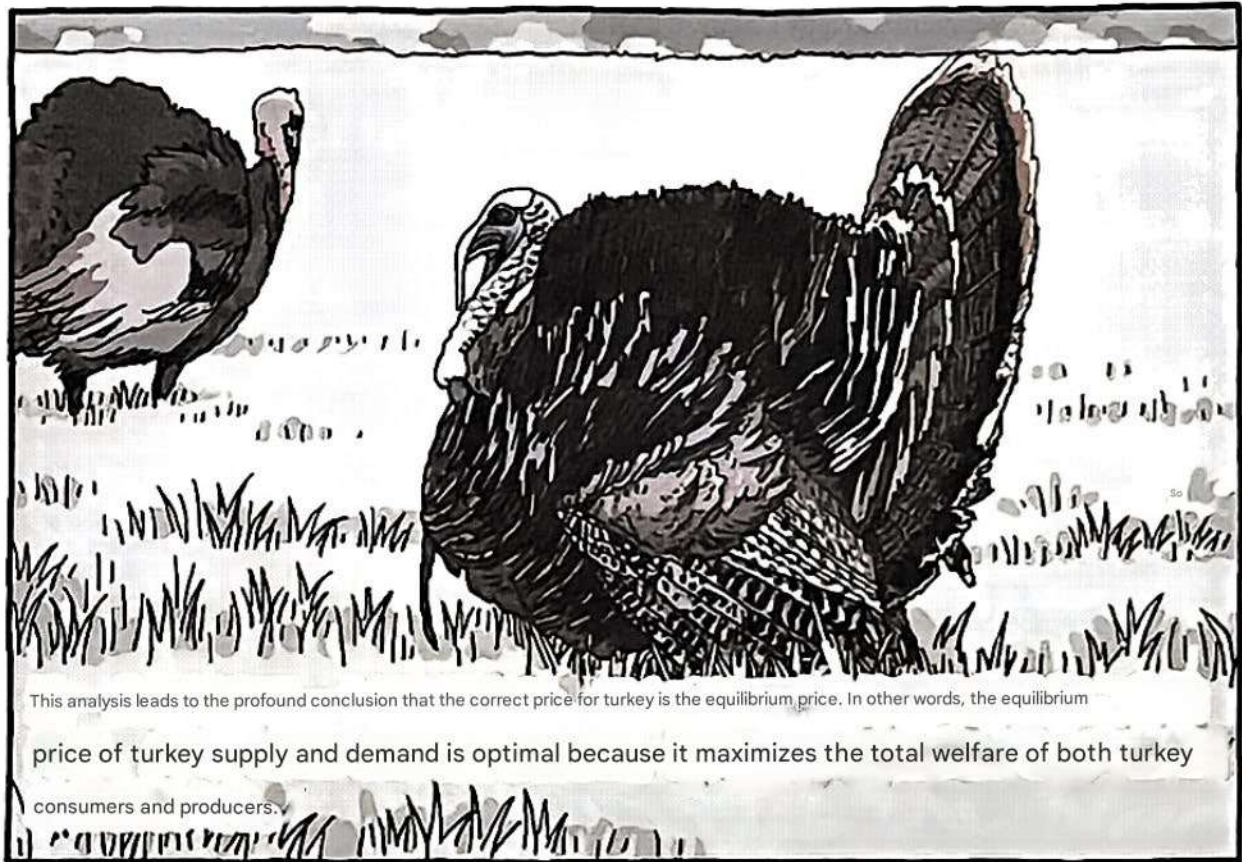
To answer the question of whether the supply of turkeys is too much or too little at market equilibrium, we need to
To study welfare economics. you

Welfare economics studies how resource allocation
affects people's economic welfare (happiness).



Welfare Economics

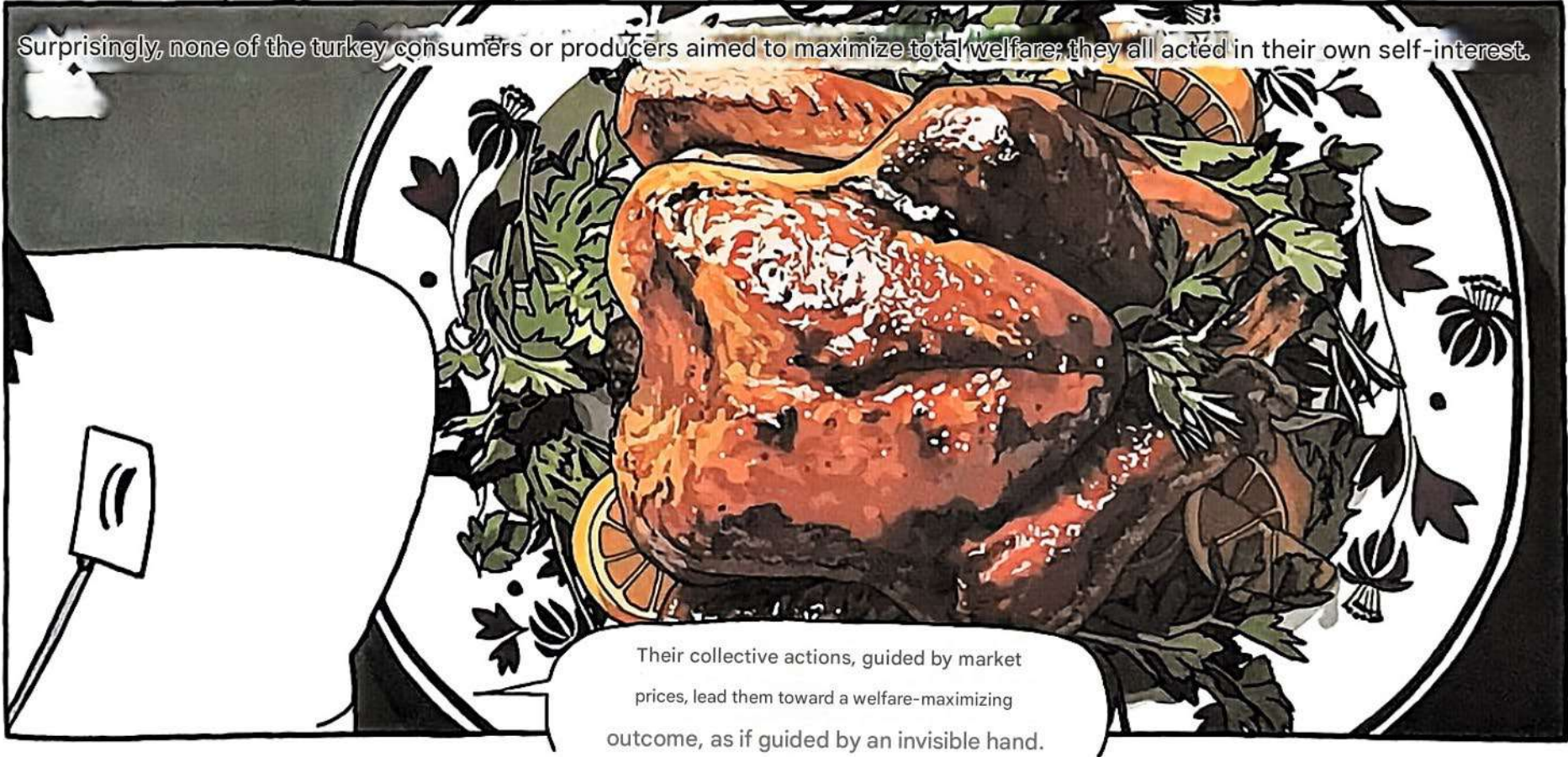
A market equilibrium of supply and demand can maximize the total benefit obtained by all buyers and sellers.



This analysis leads to the profound conclusion that the correct price for turkey is the equilibrium price. In other words, the equilibrium price of turkey supply and demand is optimal because it maximizes the total welfare of both turkey consumers and producers.

Welfare Economics

Surprisingly, none of the turkey consumers or producers aimed to maximize total welfare; they all acted in their own self-interest.

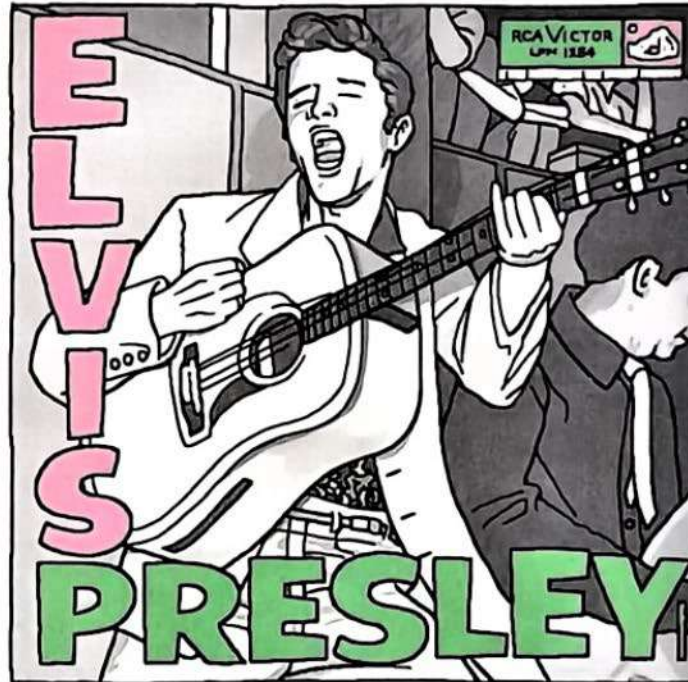


Their collective actions, guided by market prices, lead them toward a welfare-maximizing outcome, as if guided by an invisible hand.

Consumer surplus

consumer surplus

Imagine someone owns Elvis Presley's first album.







This person decided
to auction it off.



Consumer surplus

Four Elvis fans, John, Paul, George, and Ringo, attended the auction. Each of them wanted to win the album, but each was willing to pay a limited amount.

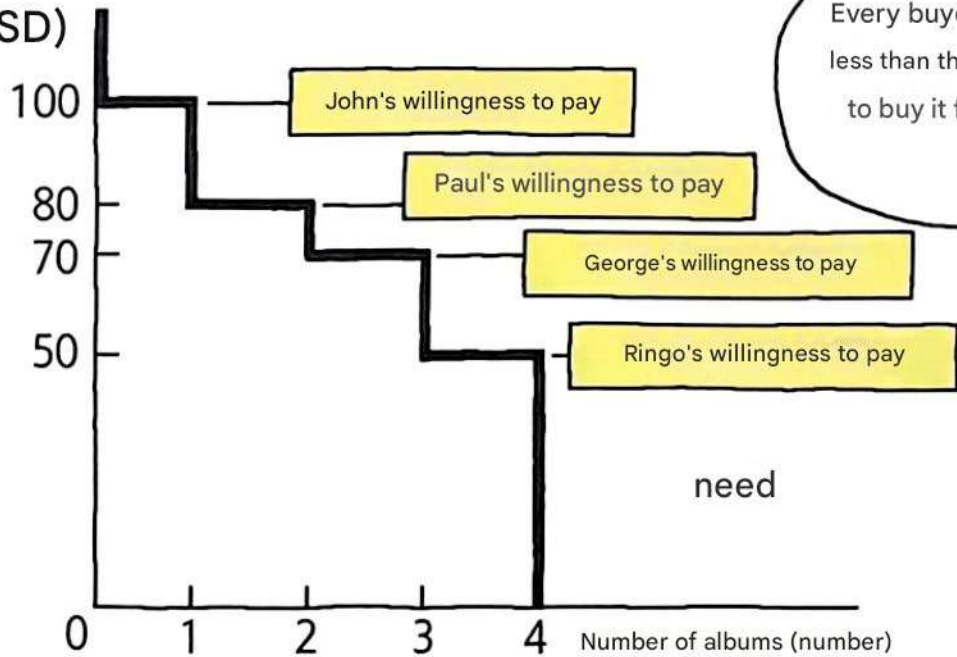
buyer		willingness to pay
John		100 (US dollars)
Paul		80
George		70
Ringo		50



Consumer surplus

Each buyer's preferences are reflected in their willingness to pay. In other words, it measures the buyer's valuation of the item.

Album price
(USD)



Every buyer wants to buy the album for less than they are willing to pay and refuses to buy it for more than they are willing to pay.

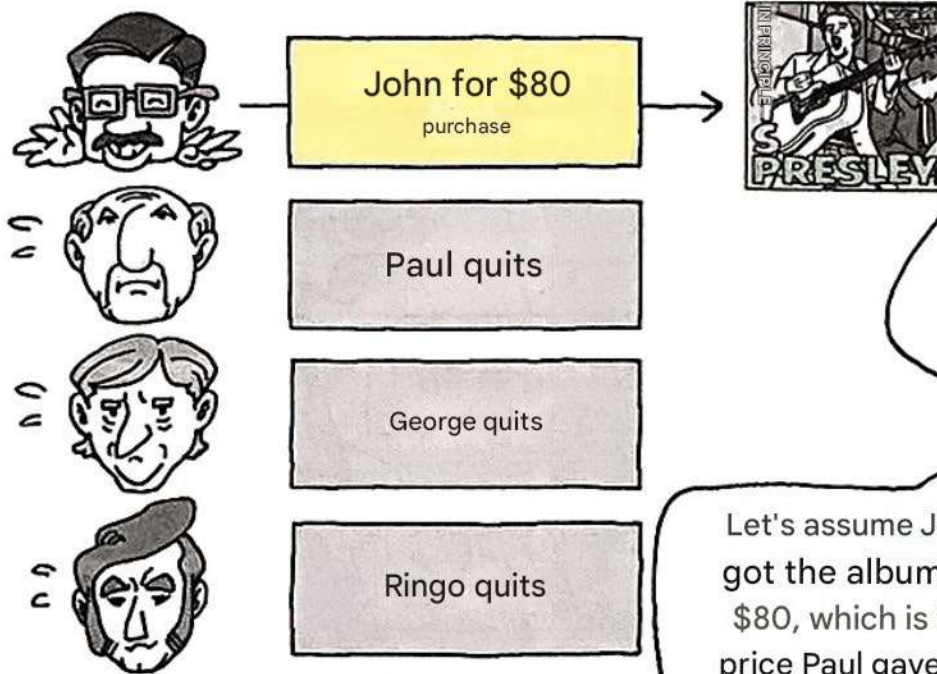
Consumer surplus

The owner started asking for \$10, which was less than the willingness of four buyers to pay, and the price quickly rose.



Consumer surplus

Bidding stopped when John offered \$80 or more. Currently, Paul, George, and Ringo have withdrawn from the bidding because they are unwilling to bid anything higher than \$80.

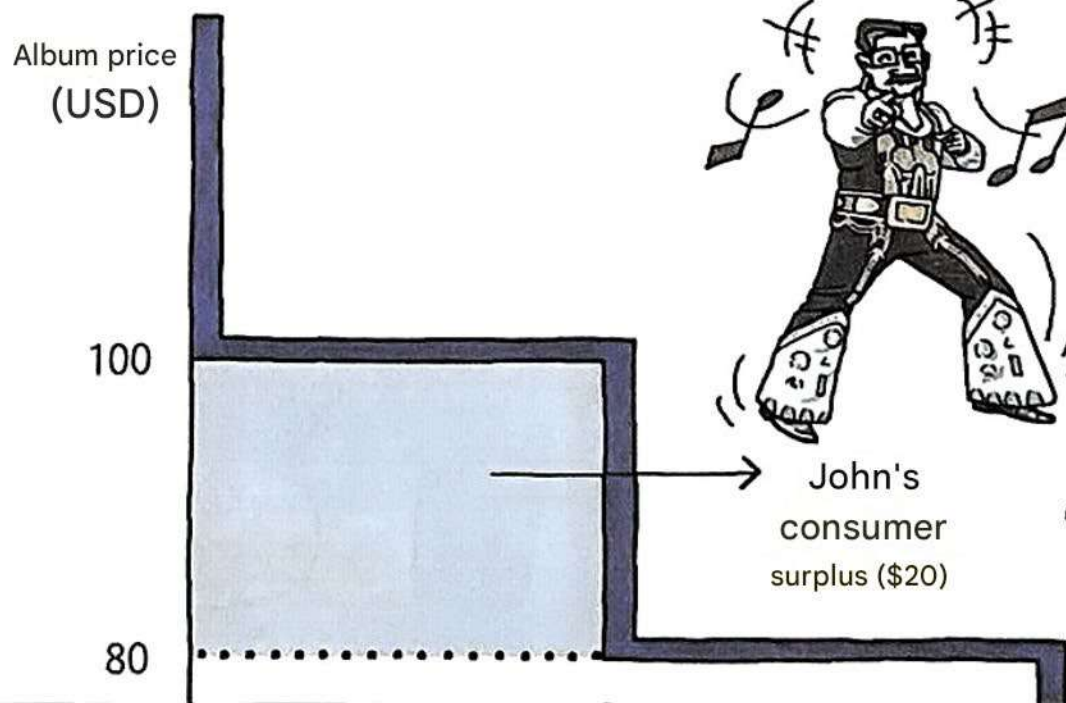


Importantly, this album belongs to the buyer who valued it the highest.



Consumer surplus

In a sense, John made a really good deal; he gained \$20 in consumer surplus. Consumer surplus is the amount paid 者愿意为一 for a good minus the amount actually paid for it.



John gained \$20 from participating in the auction because he paid only \$80 for an item he valued at \$100.

Consumer surplus

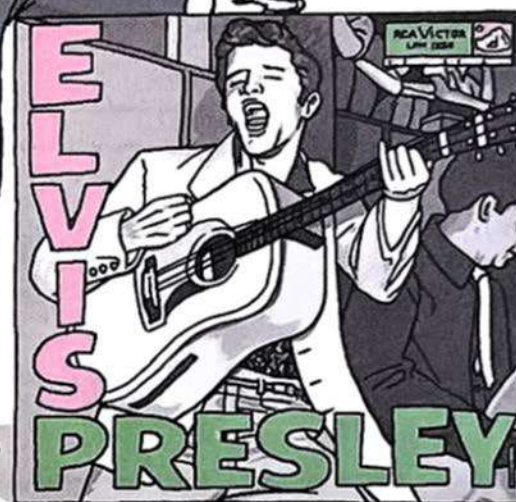
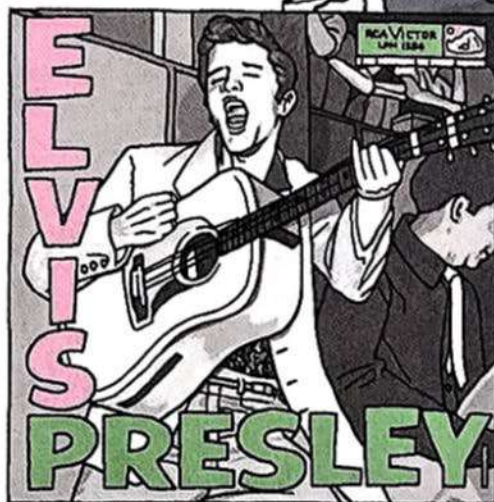
Paul, George, and Ringo did not receive any consumer surplus from participating in the auction because they did not receive the album and did not spend a penny.



Suppose someone has two identical Elvis Presley albums to sell, and four people participate in the auction.

For ease of analysis,
we assume that the two albums
are priced the same.

A buyer can only purchase
one album.



Consumer surplus

In this scenario, Ringo, who is willing to pay the least amount, will be the first to withdraw, followed by George.

Album price
(USD)

100

80

70

50

John's consumer surplus (\$30)

Paul's consumer surplus (\$10)

Total consumer surplus
(\$40)

need

Therefore, John
and Paul could buy the
album for \$70.

The consumer surplus that each person receives is equal to the
price they are willing to pay minus the price they actually pay.

Consumer surplus

The purpose of introducing the concept of consumer surplus is to make a judgment on the desirability of market outcomes.

Next, let's examine whether it is a good measure of economic welfare.

At the same time, from the perspective of policymakers, is it always a good thing to lower the price of a good to increase consumer surplus?

And

Consumer surplus

If policymakers want to respect buyers' preferences, consumer surplus is a good measure of economic welfare.



In some cases, policymakers do not respect consumer preferences.



For example, we do not believe that drug users can gain a huge benefit from purchasing drugs at low prices.

Consumer surplus

Despite exceptions, consumer surplus does reflect economic well-being in most markets.



Economists generally assume that buyers are rational when they make decisions that reflect their own preferences.

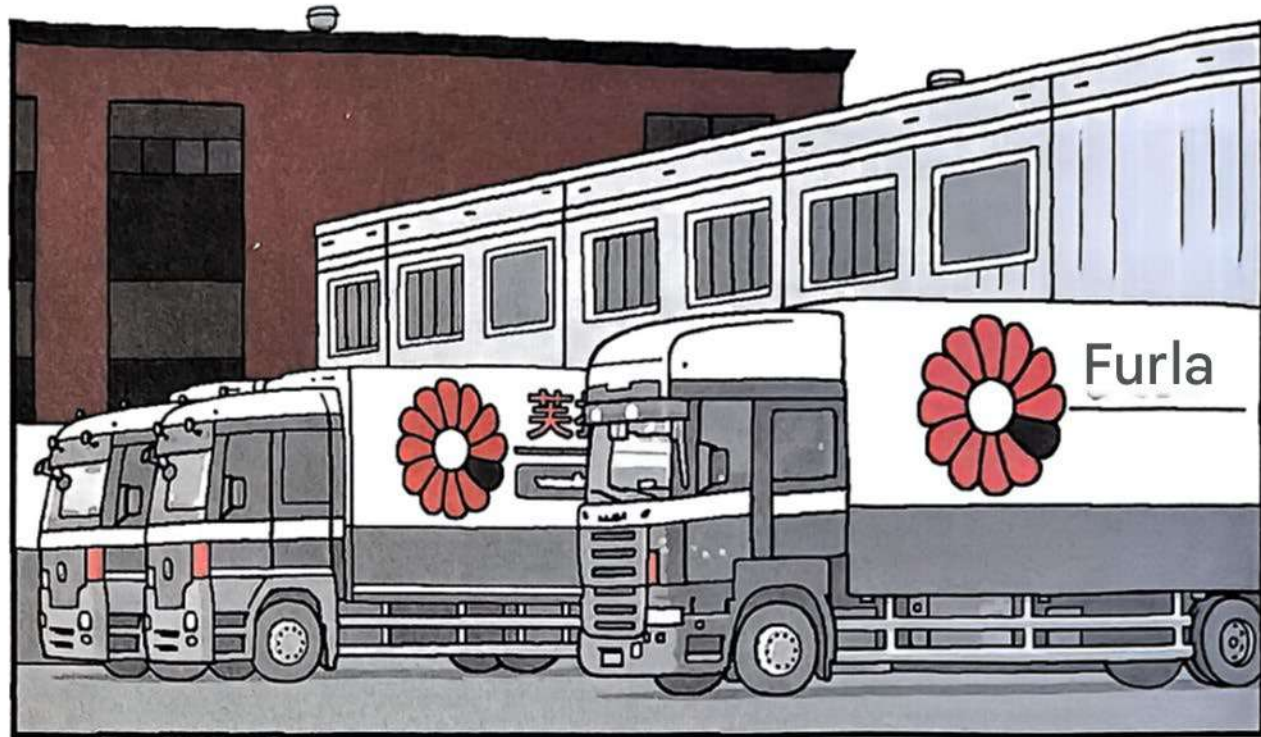
Consumers are the best judges of how much they benefit from the goods they purchase.



Dutch auction

Dutch auction

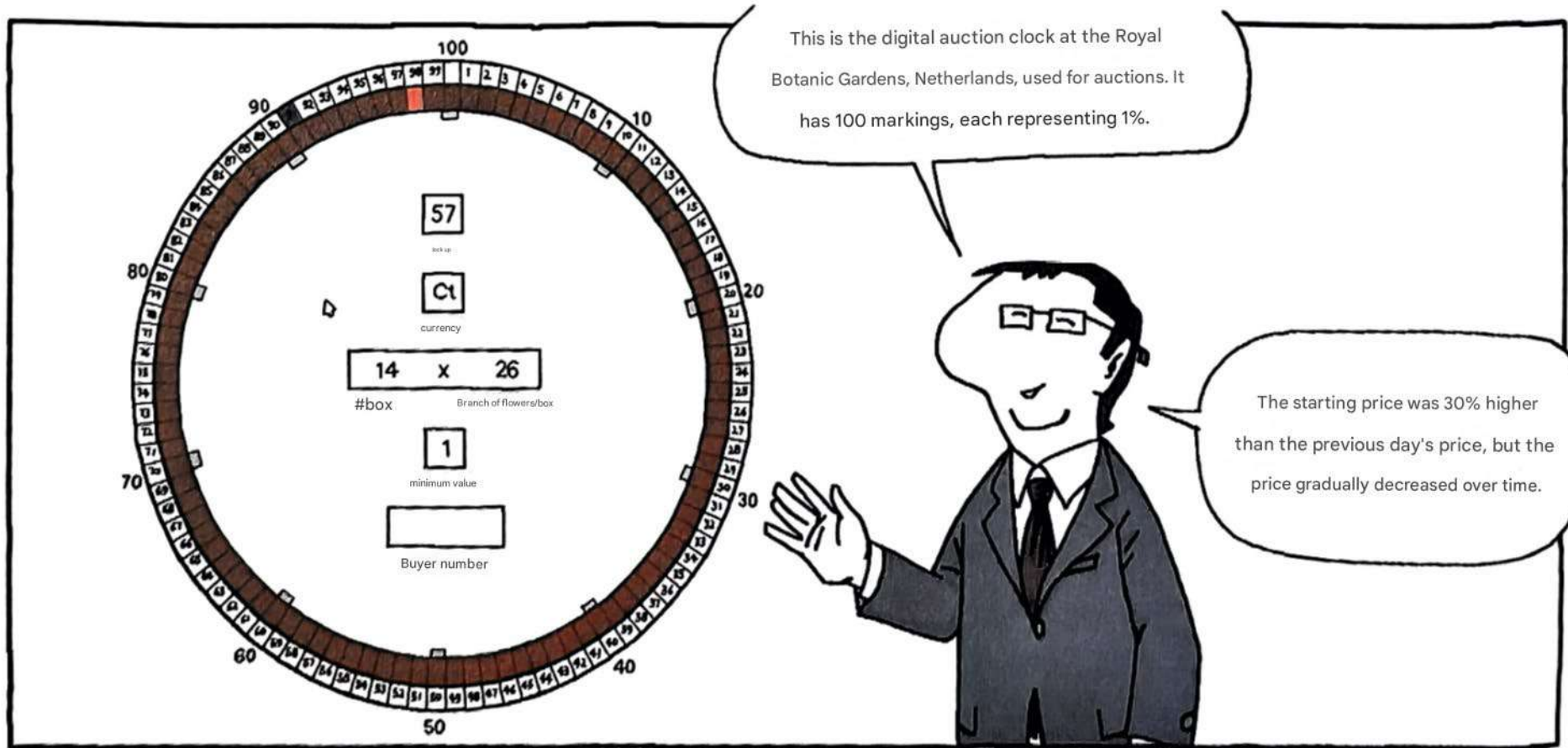
When people hear the word "auction," they think of a "British" auction, which rewards the highest bidder. However, the Dutch flower market uses a completely different auction system.



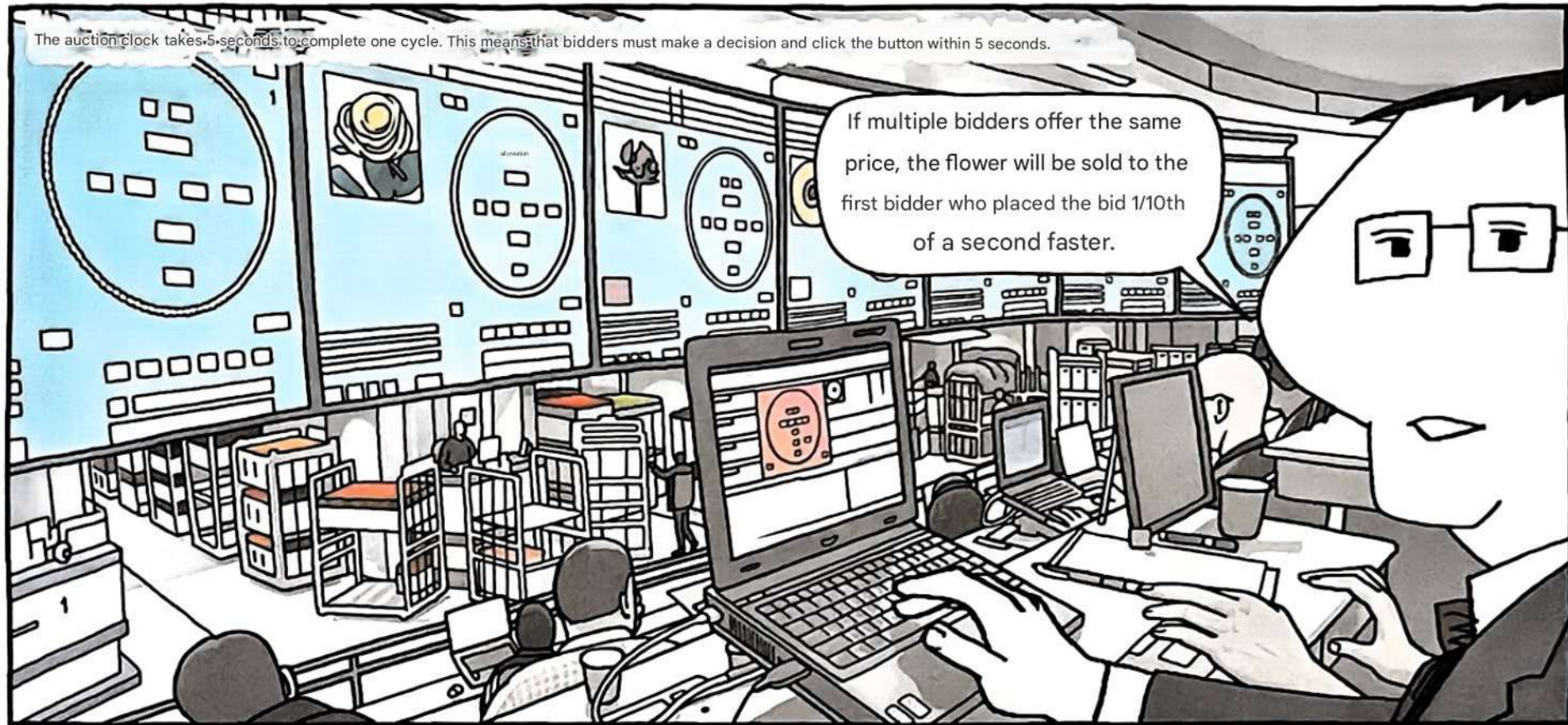
Dutch auction




Dutch auction



Dutch auction



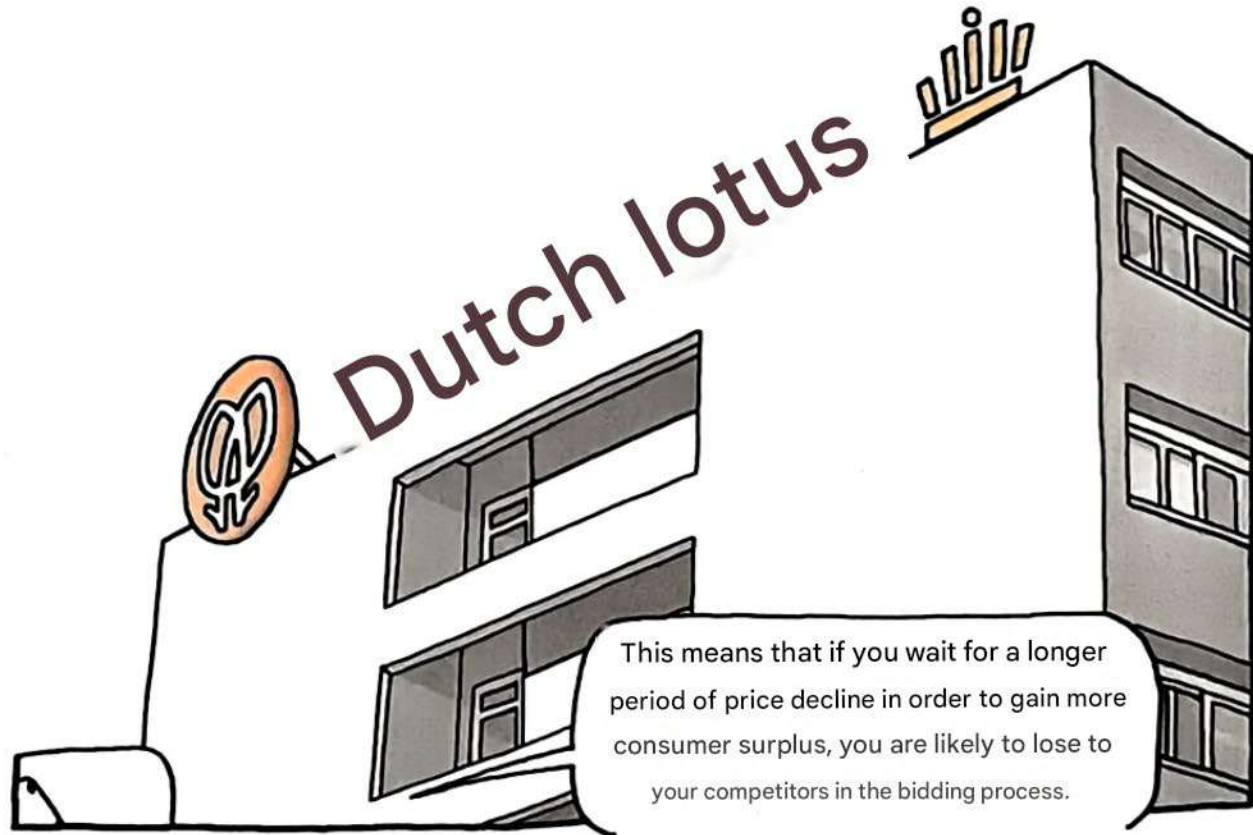
Dutch auction

Nobellen		4149
variety	AND	
		
60	23	NL

If you want to buy a batch of tulips for 60 cents, you must press the button at 60 cents.

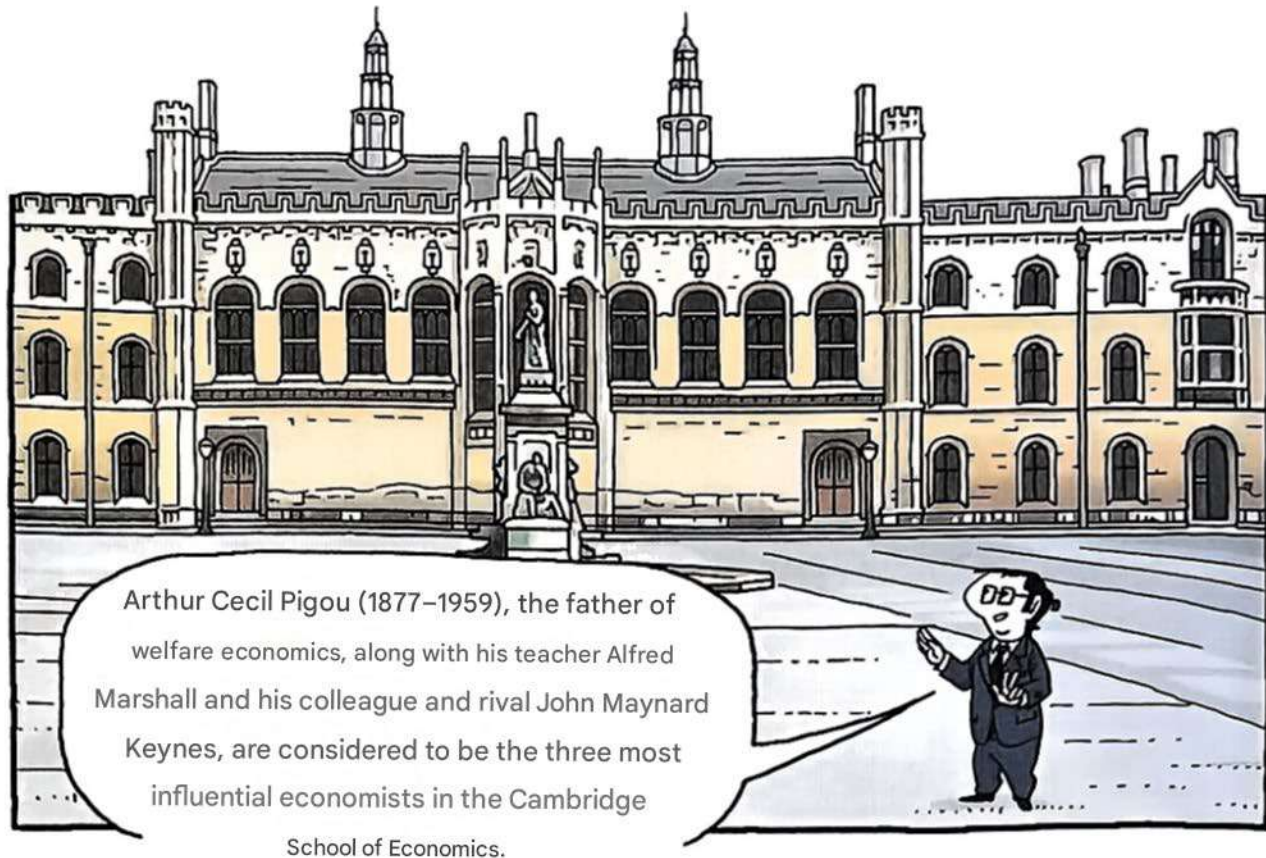


Dutch auction



Arthur Cecil Pigou

Arthur Cecil
Pigou



Arthur Cecil Pigou

In 19th-century Britain, most economists were keen to develop liberal economics, while Pigou focused on the factors that hindered stable social growth.

To address these issues, he called for government intervention.



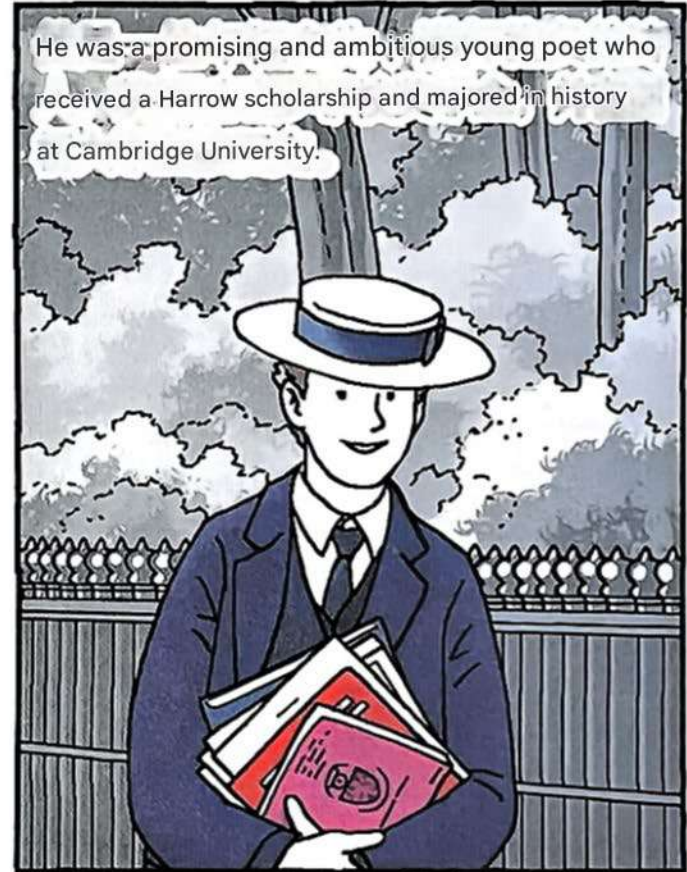
Factories damage the environment

poverty and inequality

labor disputes

resource depletion

He was a promising and ambitious young poet who received a Harrow scholarship and majored in history at Cambridge University.



Arthur Cecil Pigou

Pigou won numerous literary awards; he was indeed a brilliant poet. However, after meeting Alfred Marshall, he transformed into a staunch and loyal economist.



Marshall was the first full professor of economics at Cambridge University, and Pigou was the second.

Pigou became a professor at the age of 31.

Arthur Cecil Pigou

In the 20th century, Britain gradually lost its global influence. Due to issues such as wealth concentration, the British people were also dissatisfied with the domestic economy. During this turbulent period, Pigou seriously considered how to make the unfair competitive environment more level.

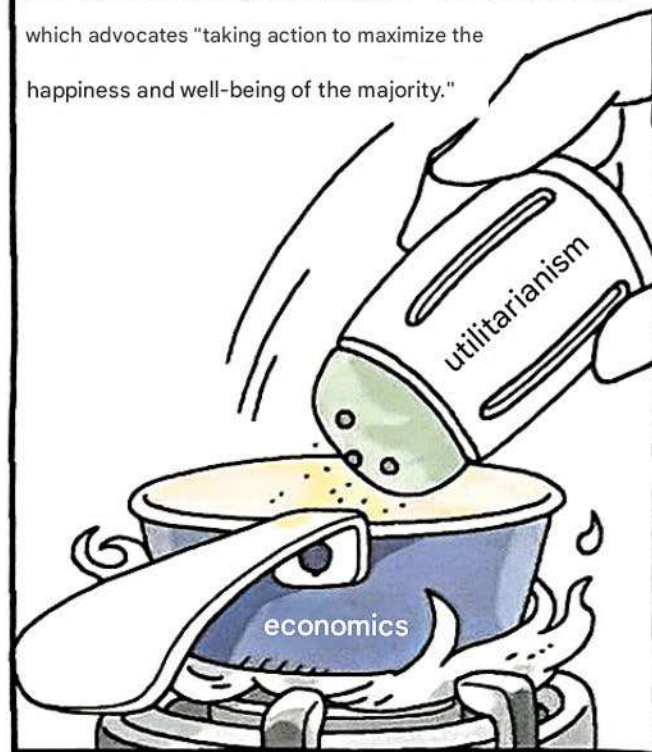
After careful consideration, he proposed
the economics of welfare.

welfare economics

Arthur Cecil Pigou

Note: This is not the actual cover of the book

Welfare economics was the first economic theory to reflect Jeremy Bentham's "utilitarianism," which advocates "taking action to maximize the happiness and well-being of the majority."



Arthur Cecil Pigou

Pigou wanted to achieve three goals through welfare economics.

increase national income

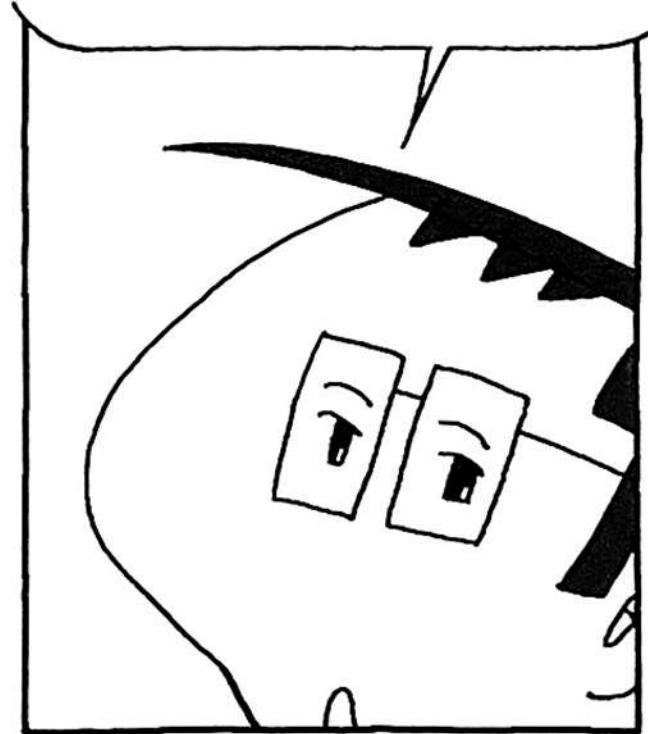
balanced wealth distribution

Stabilize national income

He also emphasized the importance of government intervention.



However, Keynes's theory of effective demand overshadowed Pigou's theory.



Arthur Cecil Pigou

Pigou continued to study Marshall's neoclassical economics at Cambridge University. But shortly after the Great Depression, Keynesian theories became more popular, and after losing to Keynes in debates, Pigou ceded his influence to Keynes.

Your theory is like shooting at the moon (Marshall).



Your theory simply converts utility into welfare.

Pigou's welfare economics seemed to have faded away, but his theories regained support in the mid-20th century.

Arthur Cecil Pigou

Pigou acknowledged the greatness of free trade; however, he believed that market failures would always occur.

He described an ideal market structure that satisfies the three goals of welfare economics in the most perfect way possible, which became the basis of the Antitrust Act.



Antitrust Law

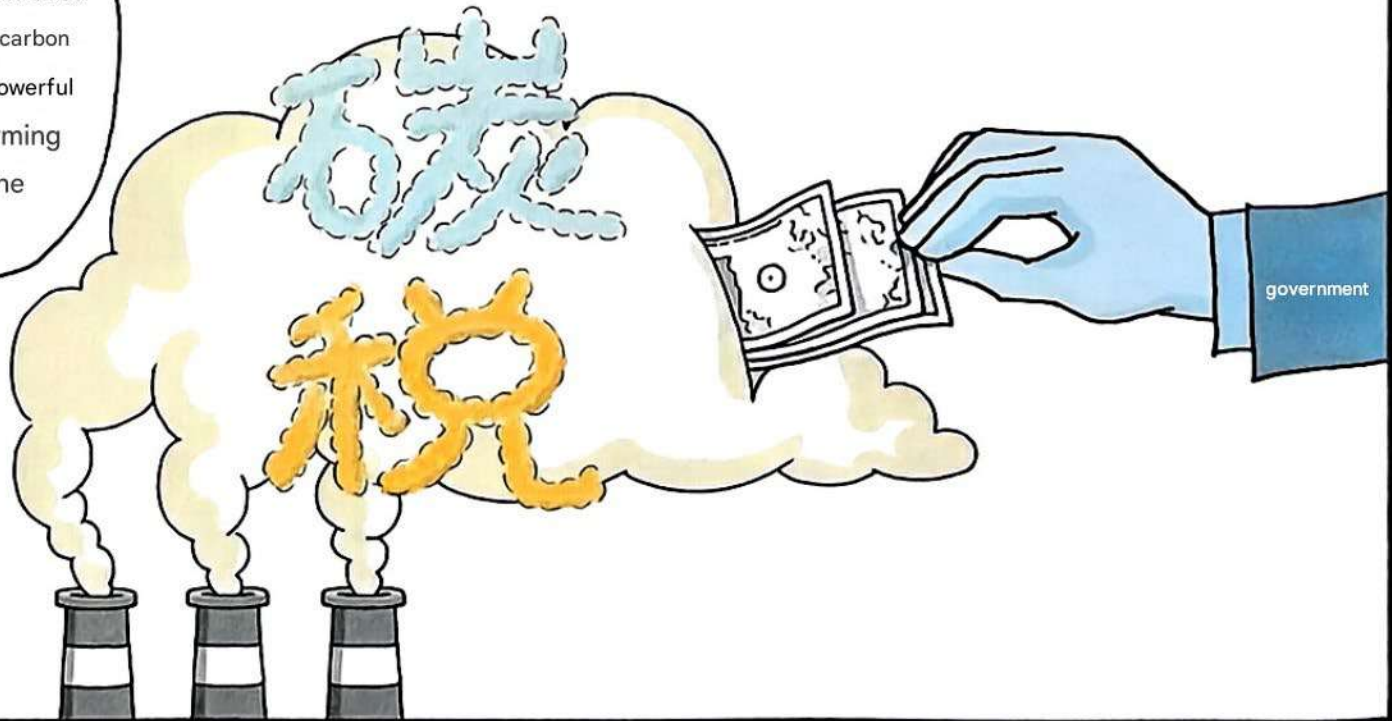
Arthur Cecil Pigou



Arthur Cecil Pigou

The idea that governments need to intervene in economic activities to solve environmental problems can also be attributed to the Pigou effect.

You can imagine the impact these rumors had on the economics community: the carbon tax, a corrective tax, could be a powerful weapon against global warming and was also known as the "Pigouvian tax."



SUMMARY



- Welfare economics is the study of how resource allocation affects economic welfare.
- First, let's examine the benefits that buyers and sellers derive from participating in market transactions. The maximum benefit each buyer derives is called their willingness to pay, which measures how much they value a good. Buyers want to buy a product at a price lower than their willingness to pay, and they refuse to buy it at a price higher than their willingness to pay.

SUMMARY



- Consumer surplus is the amount each buyer is willing to pay for a good minus the amount they actually pay for it; it measures the benefit buyers derive from participating in the market.
 - The area under the demand curve and above the price can measure consumer surplus in a market because the height of the demand curve measures a buyer's valuation of the good, i.e., their willingness to pay for it.
- Since buyers always want to pay less for what they buy, lower prices improve their situation.
- This increase in consumer surplus when prices fall consists of two parts:
 - First, the increase in consumer surplus from existing buyers;
 - and second, the increase in consumer surplus resulting from the entry of new buyers into the market, whose willingness to pay generates incremental demand.

Chapter 9: Consumers, Producers, and Market Efficiency

- Consumer surplus
- **Producer surplus**
- Market efficiency

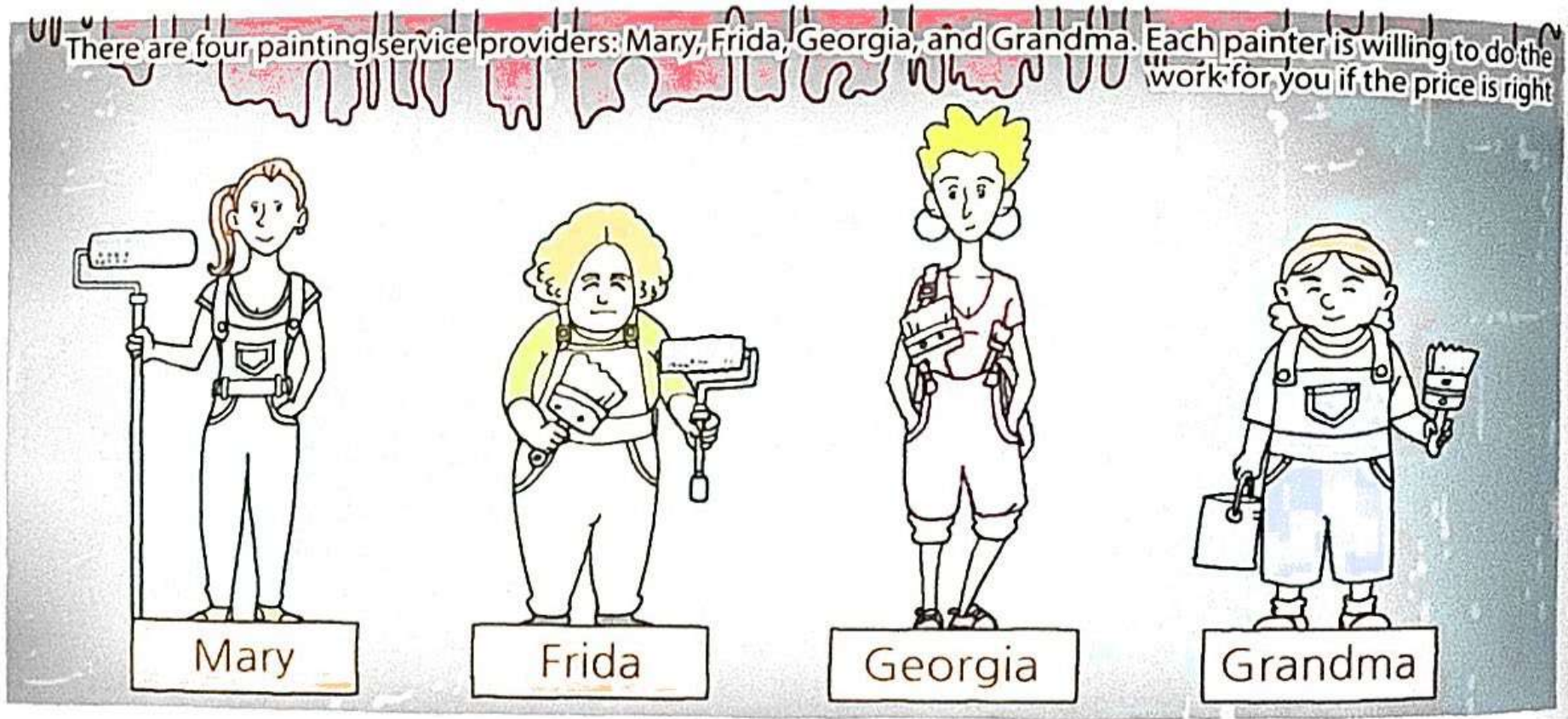
Producer surplus

producer surplus

Next, we consider the benefits that sellers gain from participating in the market.



Producer surplus



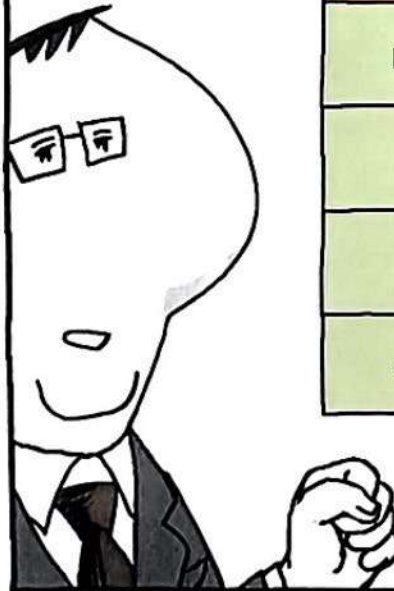
Producer surplus

The homeowner decided to let the painters bid against each other and auction off the job to the painter willing to do it for the lowest price.



If the price offered exceeds the cost of performing the work, then every painter will be willing to take the job. Here, the term "cost" should be interpreted as the painter's opportunity cost.

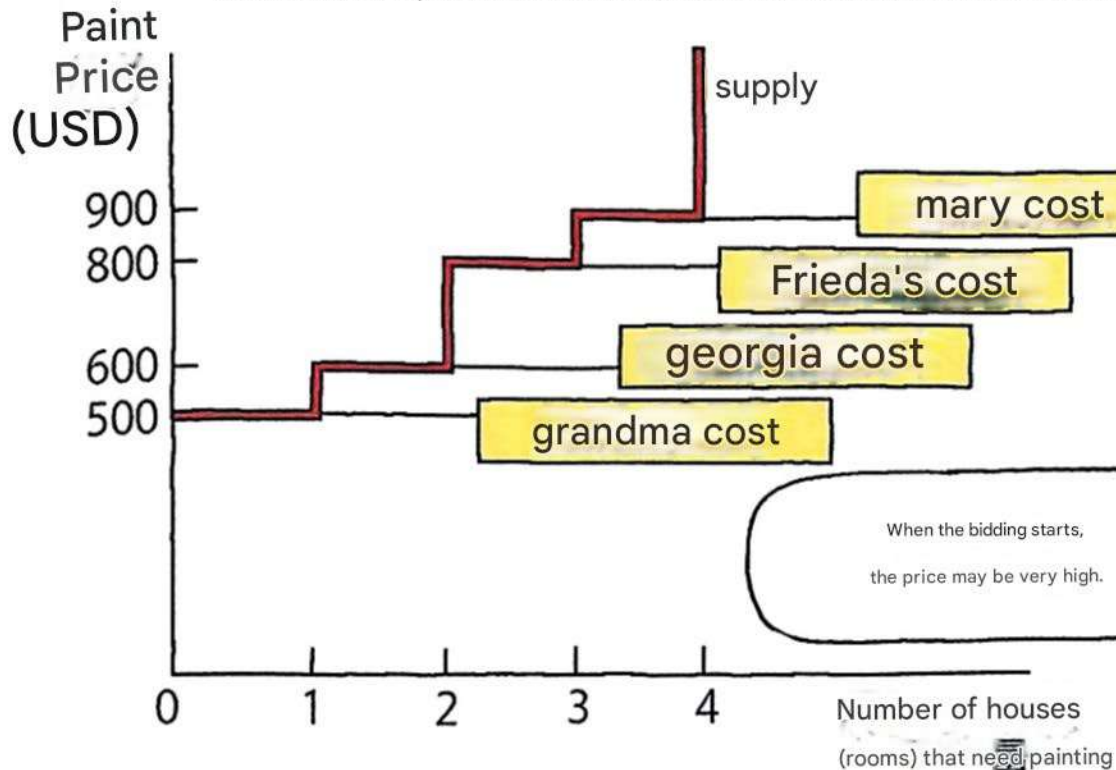
supplier	Cost (USD)
mary	900
Frieda	800
Georgia	600
grandmother	500



It includes the painter's direct expenses, such as paint, brushes, etc., as well as the painter's assessment of their own time.

Producer surplus

Since the cost of a painter is the minimum price he is willing to pay for the job, cost can be used to measure his willingness to sell his services.



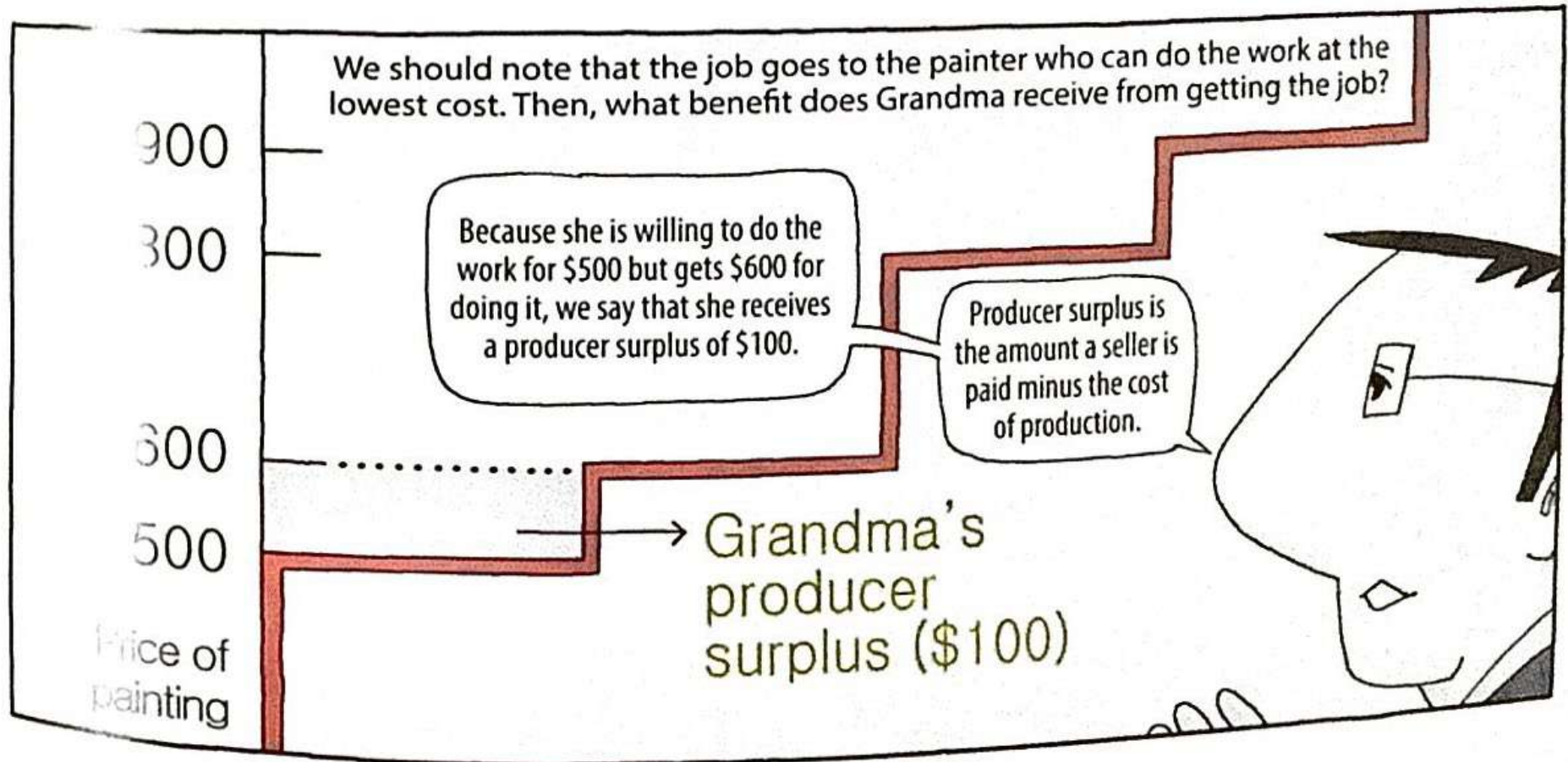
The costs of the four possible sellers can be labeled as follows.

When the bidding starts, the price may be very high.

Producer surplus



Producer surplus



Producer surplus

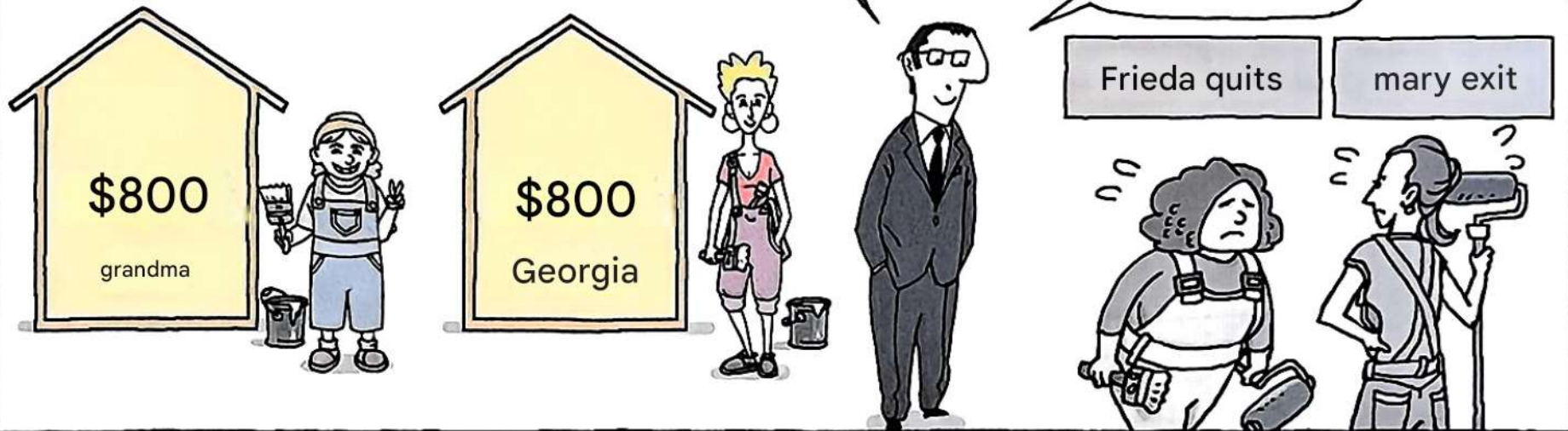
Now, let's assume a homeowner has two houses that need painting. The homeowner decides to auction off the job to four painters. For simplicity, let's assume no painter can paint both houses at the same time, and that the homeowner will pay the same price for painting each house.

In this situation, the bidding stopped when Georgia and her grandmother were both willing to do the job for \$800 or less.

Mary and Frida were unwilling to offer a lower price.

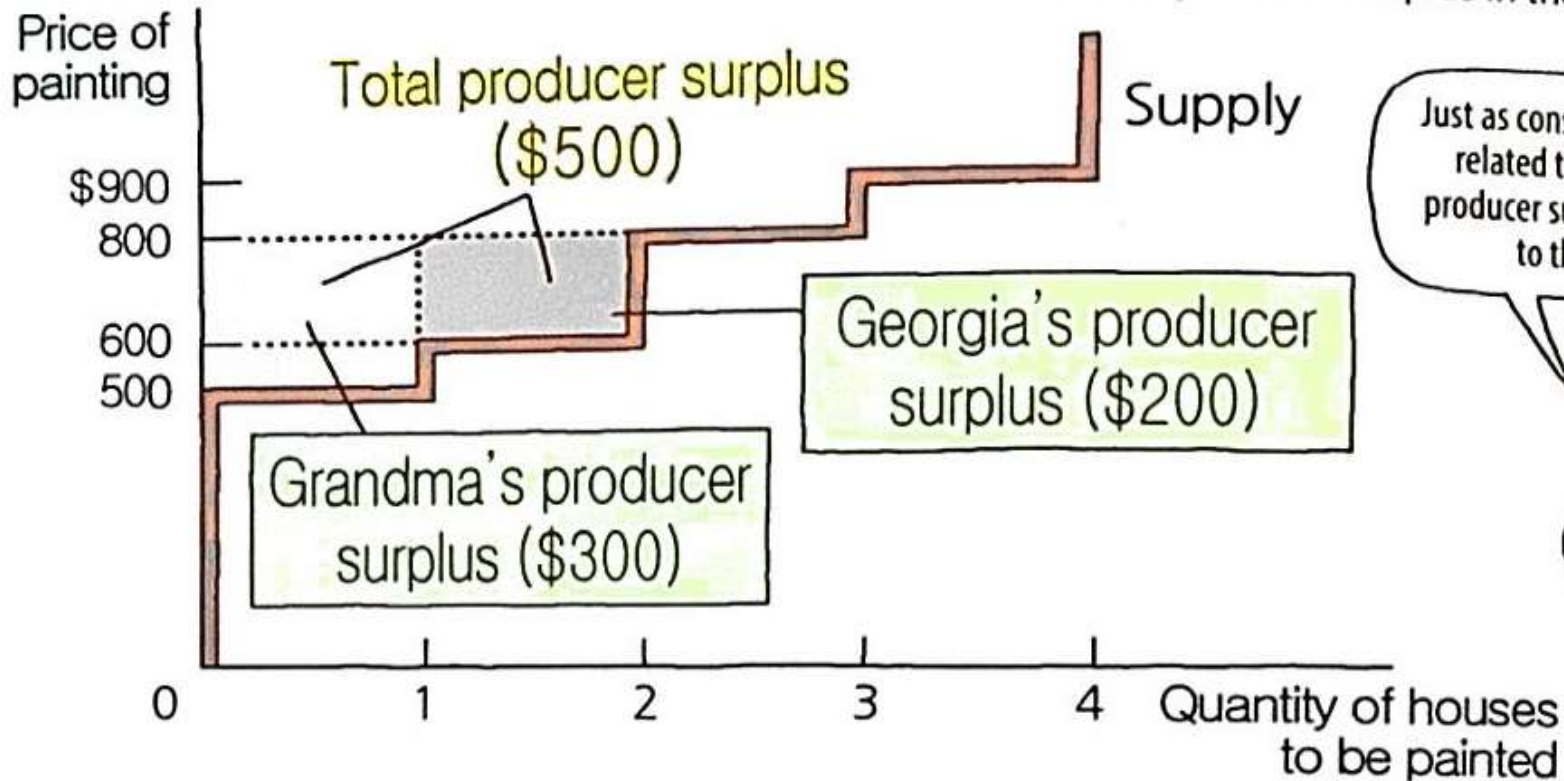
Frieda quits

mary exit



Producer surplus

At a price of \$800, Grandma receives producer surplus of \$300 and Georgia receives producer surplus of \$200. The total producer surplus in the market is \$500.

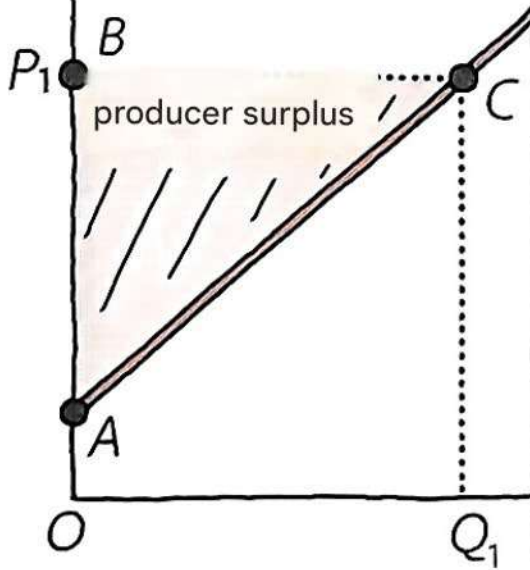


Just as consumer surplus is closely related to the demand curve, producer surplus is closely related to the supply curve.

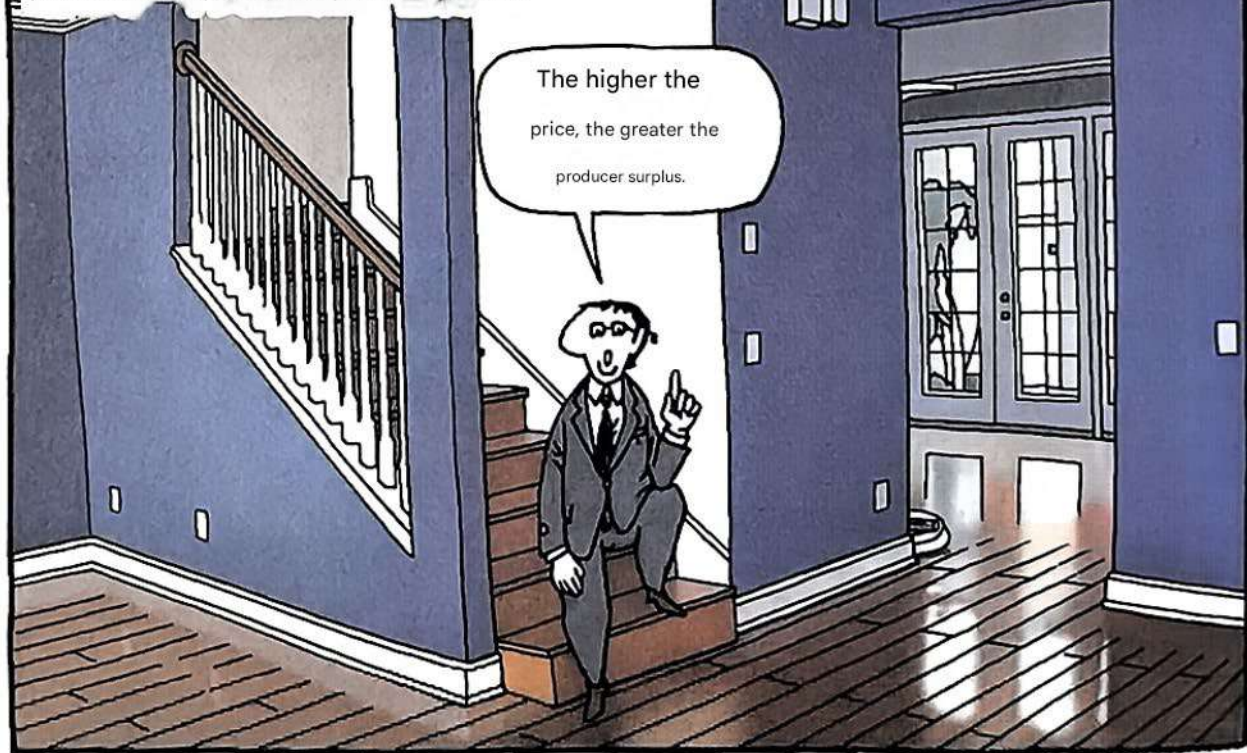


Producer surplus

The area below the price curve and above the supply curve measures producer surplus in a market.



Since the height of the supply curve measures the seller's costs, the difference between the price and the cost of production is the producer surplus for each seller.

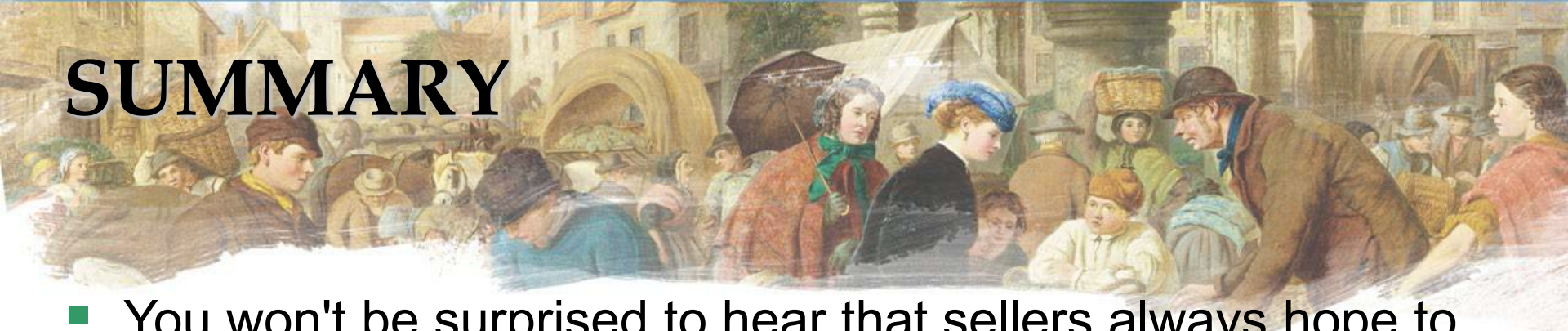


SUMMARY



- Now we turn to the other side of the market to examine the benefits sellers receive from participating in the market. Cost is everything of value that a seller must give up to produce a good. Producer surplus is the amount a seller receives for selling a good minus the cost of providing that good. Producer surplus measures the benefit sellers receive from participating in the market.
- The area below the price and above the supply curve measures the producer surplus in a market. Because the height of the supply curve measures the seller's cost, the difference between the price and the cost of production is the producer surplus for each seller.

SUMMARY



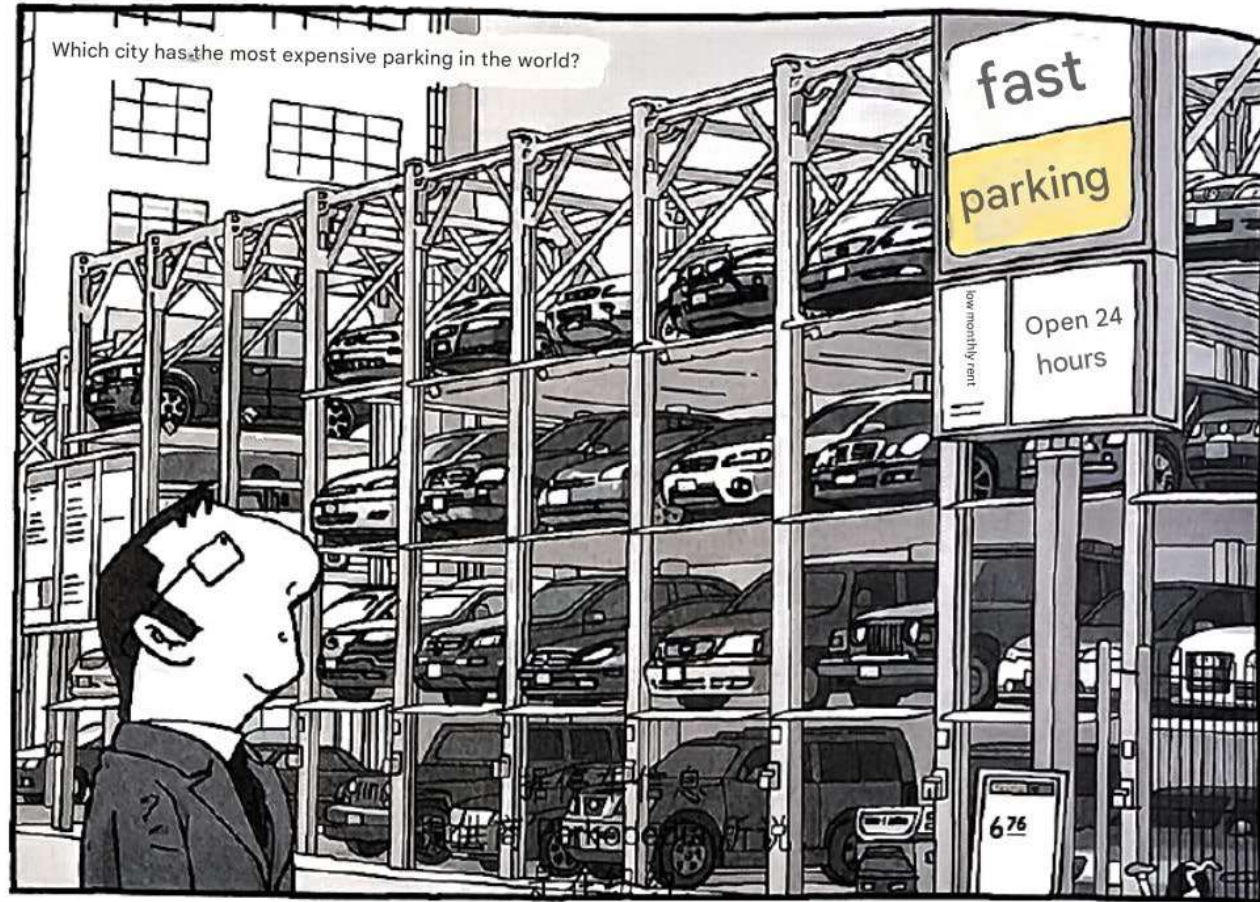
- You won't be surprised to hear that sellers always hope to receive a higher price for the goods they sell. When the price rises, the increase in producer surplus includes two parts: first, the increase in producer surplus from existing sellers; and second, the increase in producer surplus from new sellers entering the market, encouraged by the higher price, leading to an increase in the quantity supplied.

Chapter 9: Consumers, Producers, and Market Efficiency

- Consumer surplus
- Producer surplus
- **Market efficiency**

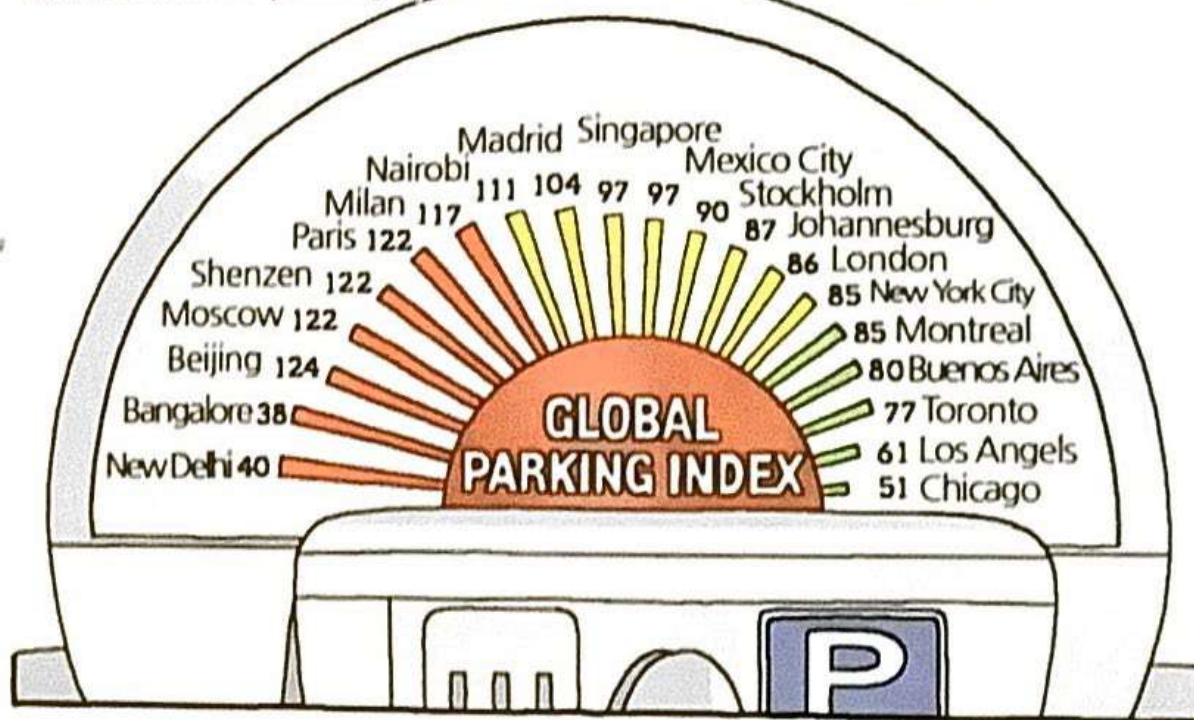
The invisible hand can solve the parking problem

invisible hand
can be solved
parking problem



The invisible hand can solve the parking problem

Every year, "Parkopedia" releases the Global Parking Index based on data from 50 million parking spaces in 6,500 cities in 75 countries.



The invisible hand can solve the parking problem



The invisible hand can solve the parking problem

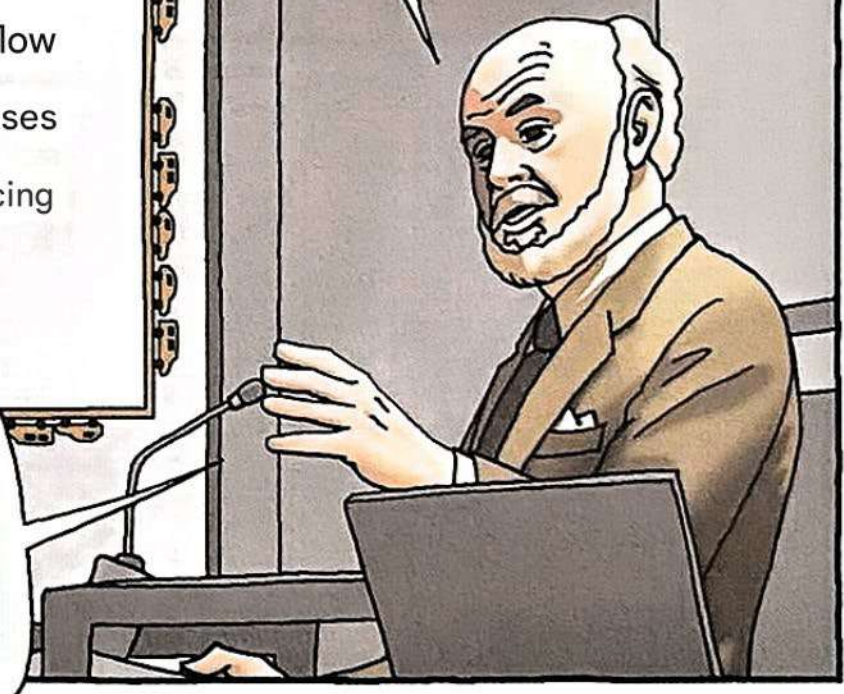
Donald Shoep, a professor of urban planning at UCLA, declared that there should be no free parking spaces on the streets.



Reduce traffic flow
by reducing cruises
rather than reducing
trips.

The cost of preserving free parking
spaces on the street is reflected
in various service fees or rents,
and generates huge intangible social
costs.

There is no such thing
as free parking.



The invisible hand can solve the parking problem

As Professor Donald points out, another important issue is that as the number of free parking spaces increases, more and more people will use their cars for unnecessary purposes.



He proposed the "85% theory," which proposes charging differentiated parking fees based on occupancy rates. This ratio is based on his research finding that public parking is most effectively utilized when the occupancy rate of roadside parking spaces reaches 85%.

What advice does Professor Donald have?

Optimal rules for setting street parking prices: Occupancy

rate

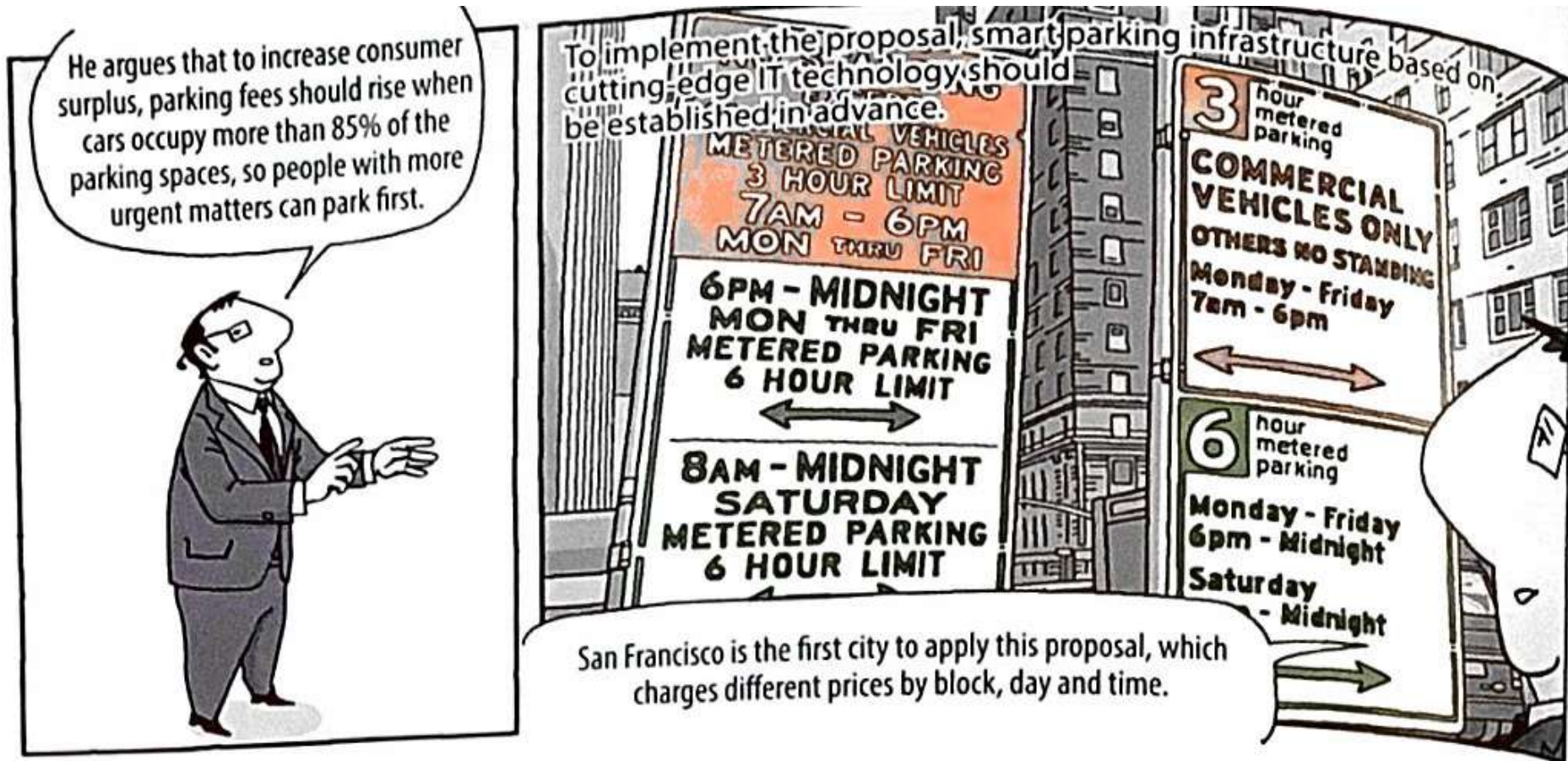
Occupancy surveys or monitoring

If occupancy is $>85\%$, then increase the price.

If occupancy is less than 85%, lower the price.

If the occupancy rate reaches 85%, the price remains unchanged.

The invisible hand can solve the parking problem



The invisible hand can solve the parking problem



PARKING LOT

Open 24 hours

In 2012, San Francisco launched a variable parking fee system, with hourly parking fees ranging from 25 cents to \$6, to reflect market demand.

monthly specials

278⁷⁷

Evening specials

9²⁹

Early Bird Special

16⁰⁵

Parking is only for

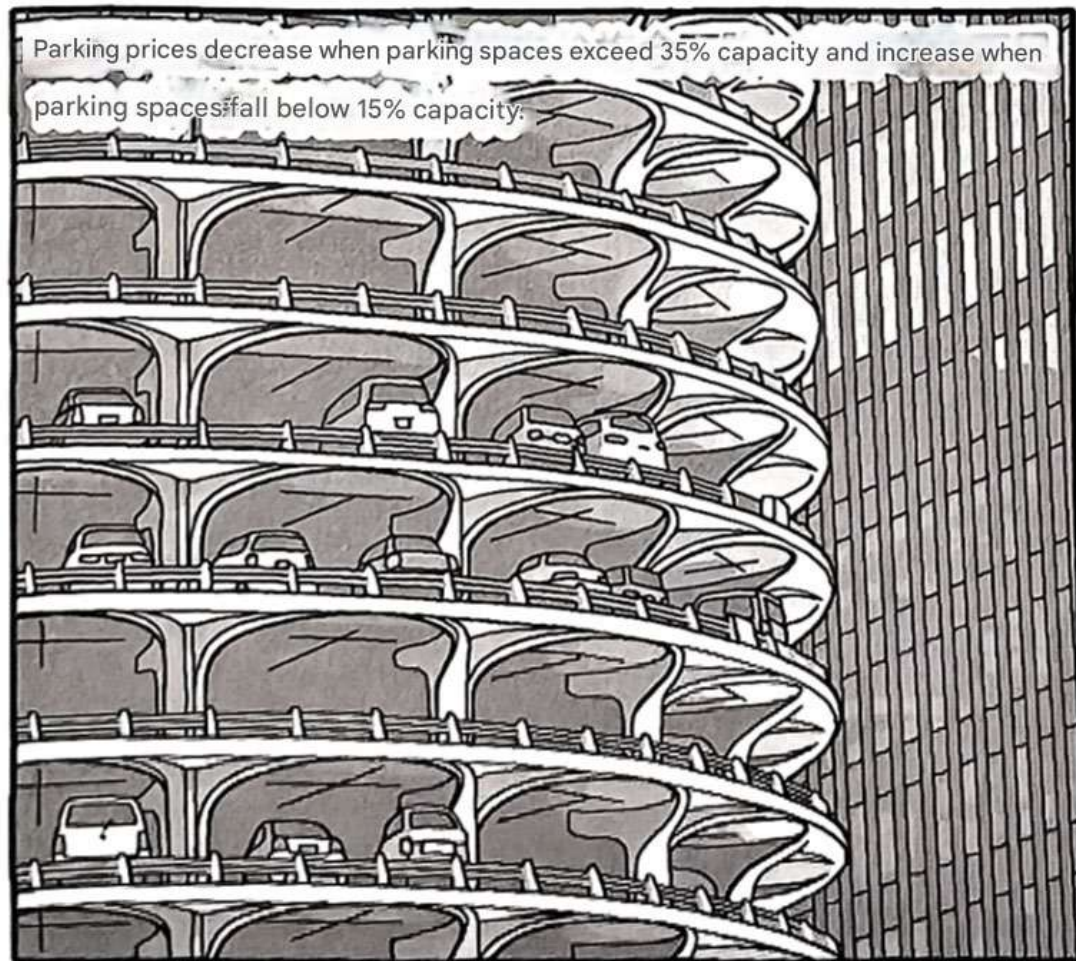
- 1st Floor
- 2nd Floor
- 3rd Floor
- 4th Floor
- 5th Floor

Camerton And there

Up to 1 hour	\$2.50
Up to 2 hours	\$4.00
Up to 3 hours	\$5.50
Up to 4 hours	\$7.00
Up to 5 hours	\$8.50
Up to 6 hours	\$10.00
Up to 7 hours	\$11.50
Up to 8 hours	\$13.00
Up to 9 hours	\$14.50
Up to 10 hours	\$16.00
Up to 11 hours	\$17.50
Up to 12 hours	\$19.00
Up to 13 hours	\$20.50
Up to 14 hours	\$22.00
Up to 15 hours	\$23.50
Up to 16 hours	\$25.00
Up to 17 hours	\$26.50
Up to 18 hours	\$28.00
Up to 19 hours	\$29.50
Up to 20 hours	\$31.00
Up to 21 hours	\$32.50
Up to 22 hours	\$34.00
Up to 23 hours	\$35.50
Up to 24 hours	\$37.00

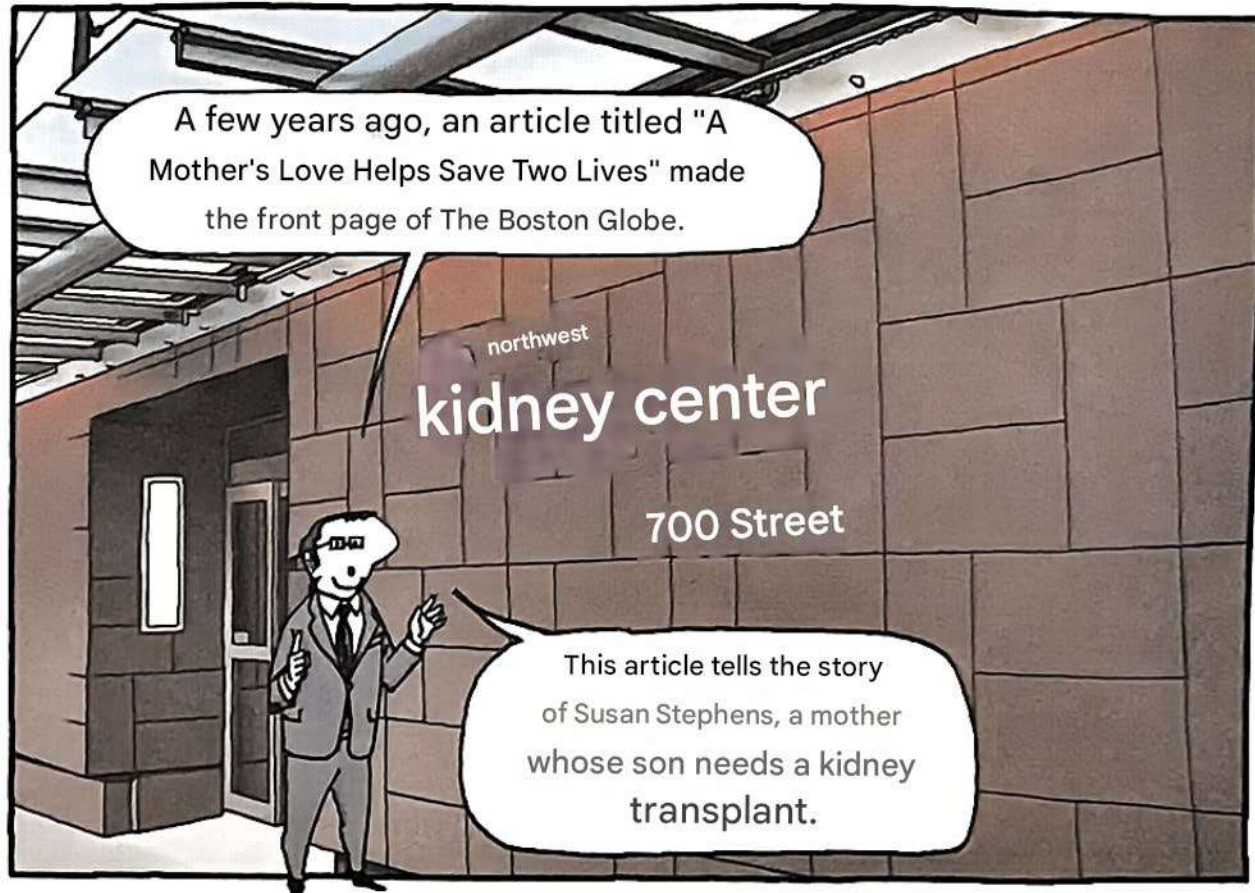


The invisible hand can solve the parking problem

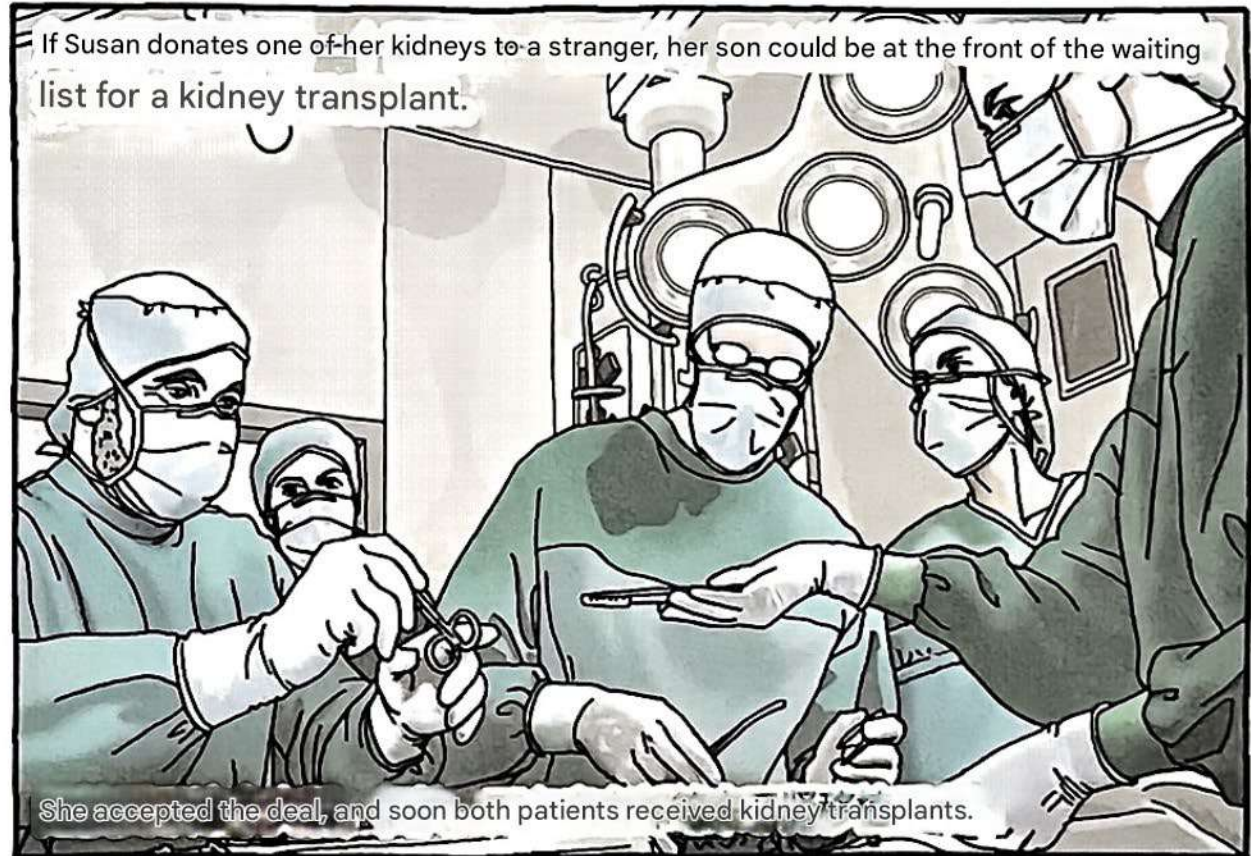


Should a market for human organs exist?

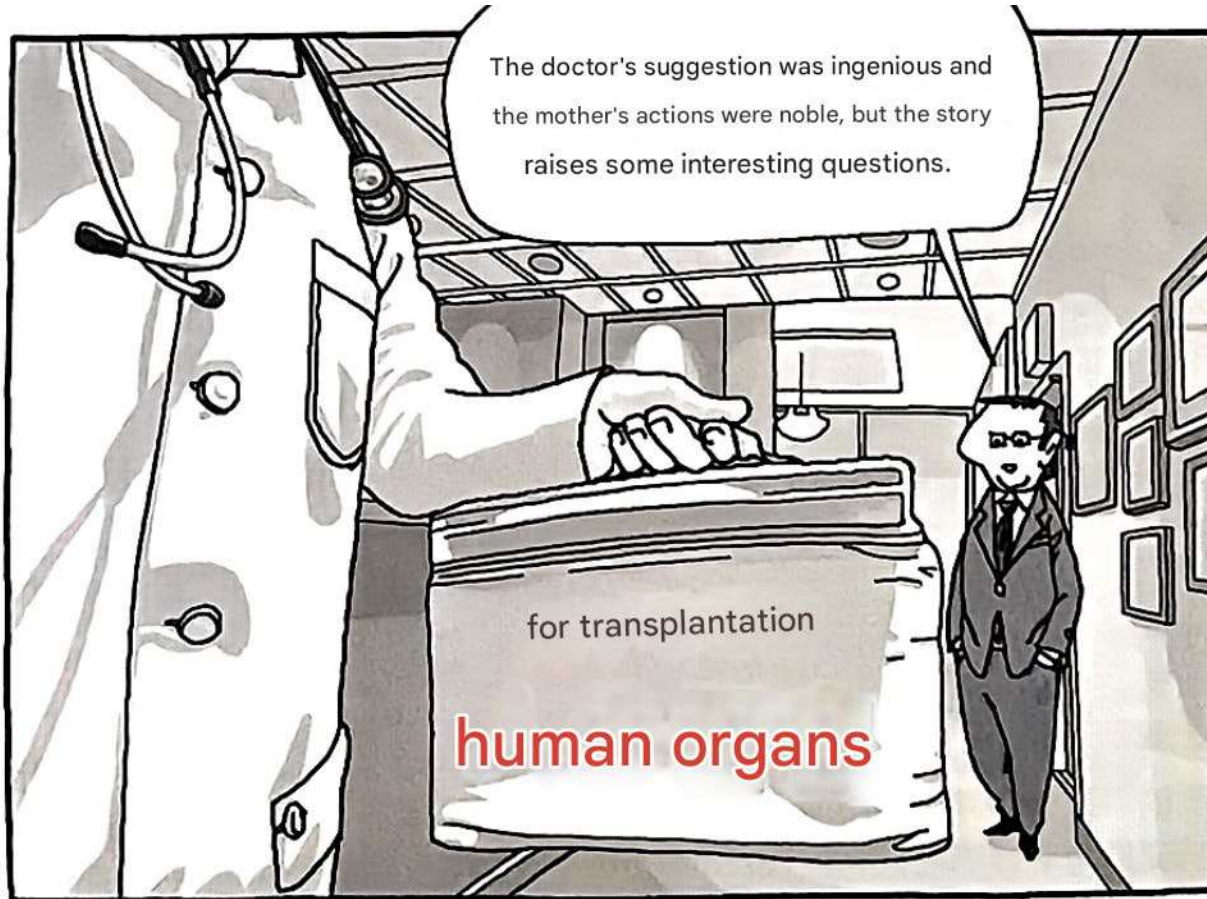
Should a market for
human organs exist?



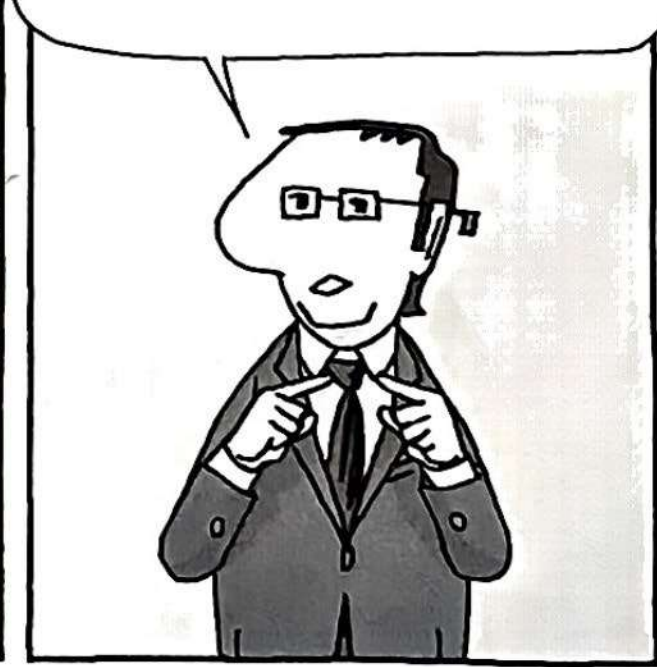
Should a market for human organs exist?



Should a market for human organs exist?



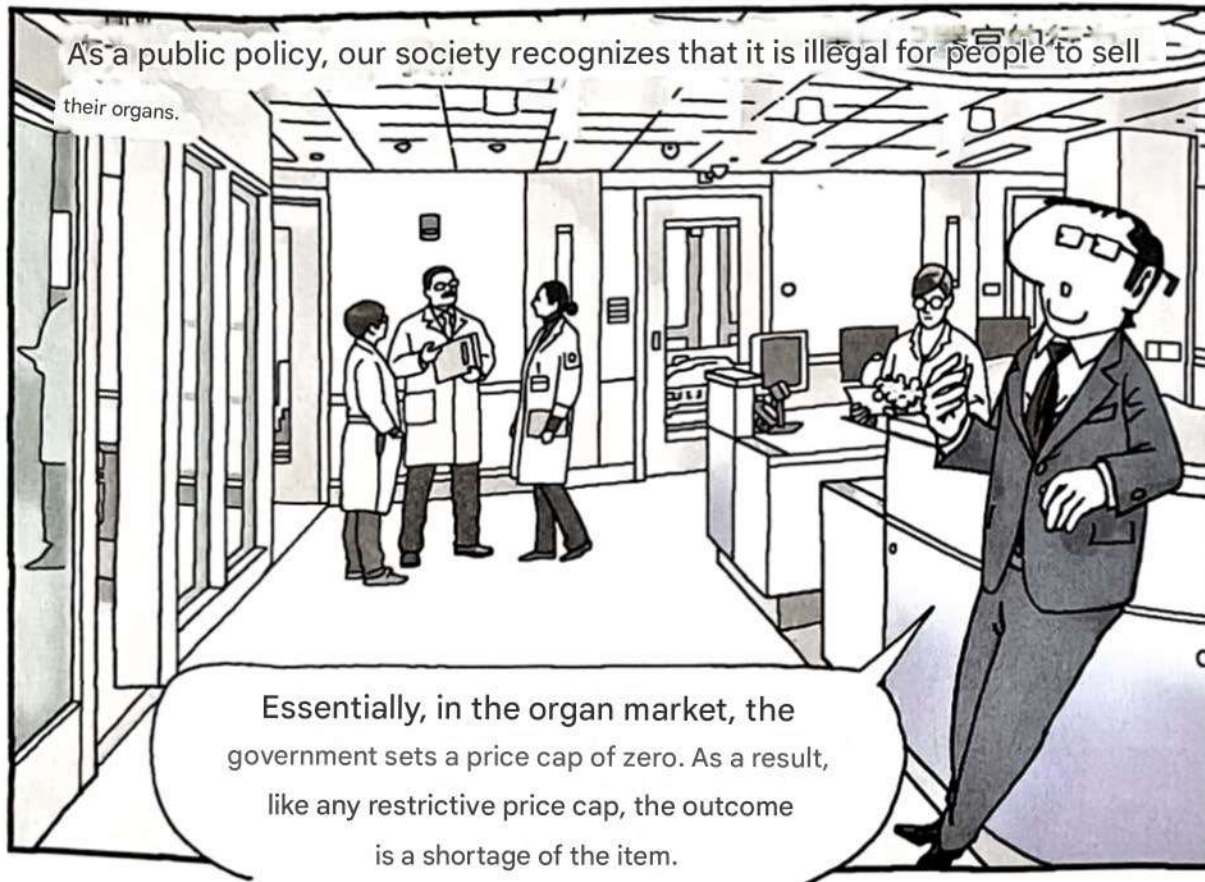
If a mother can donate one kidney to another, should the hospital allow her to exchange one kidney for experimental, expensive cancer treatments that she cannot afford?



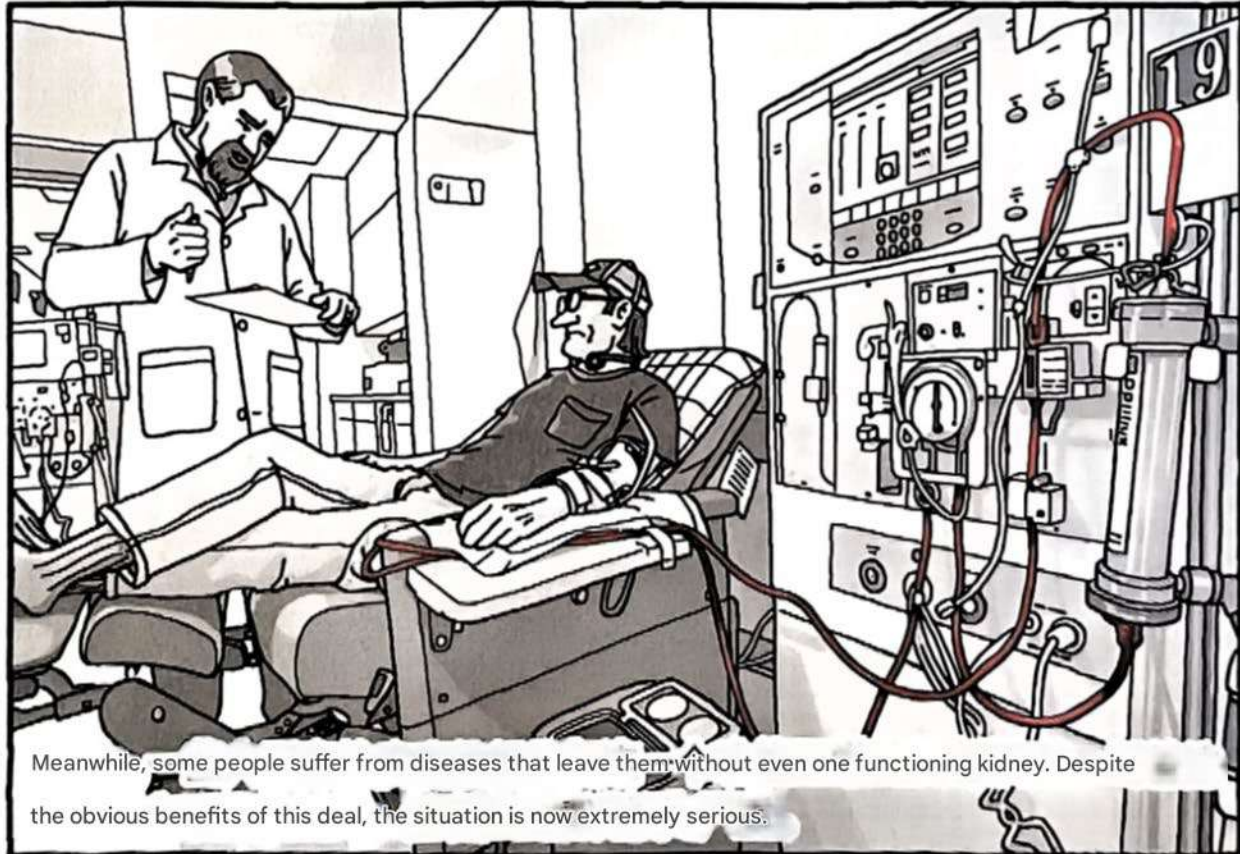
Should a market for human organs exist?



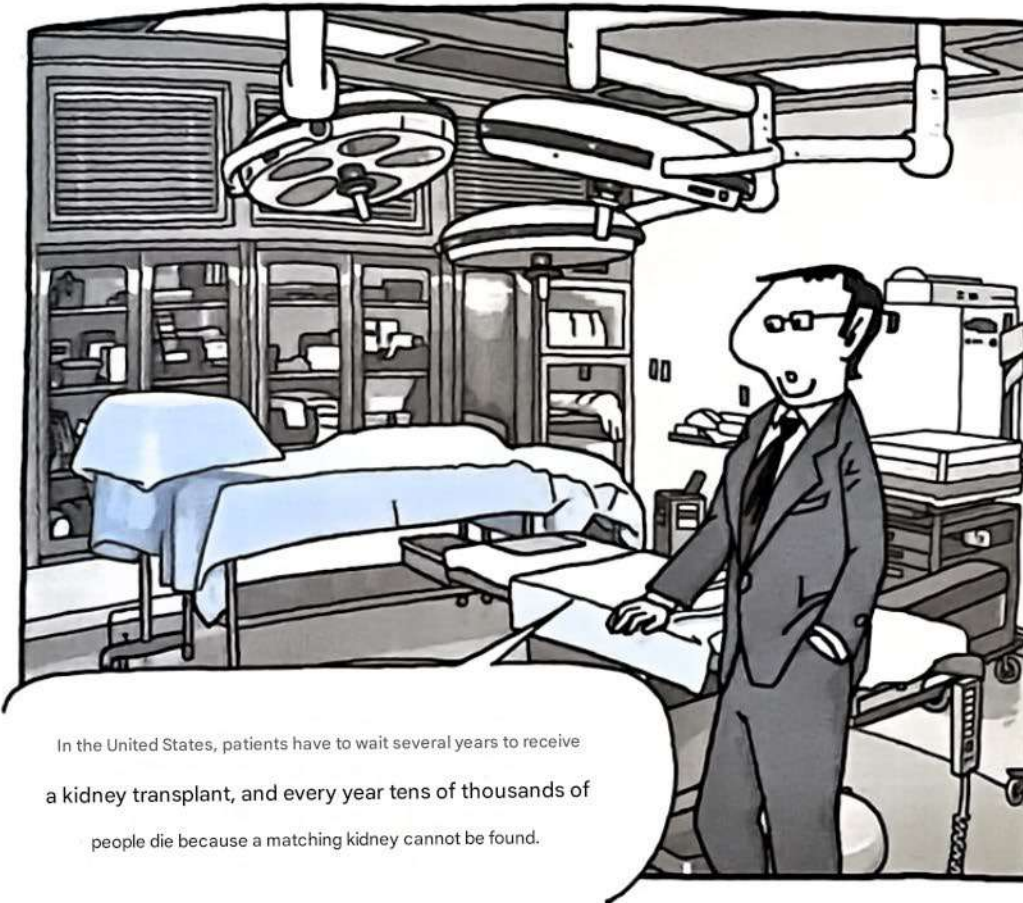
Should a market for human organs exist?



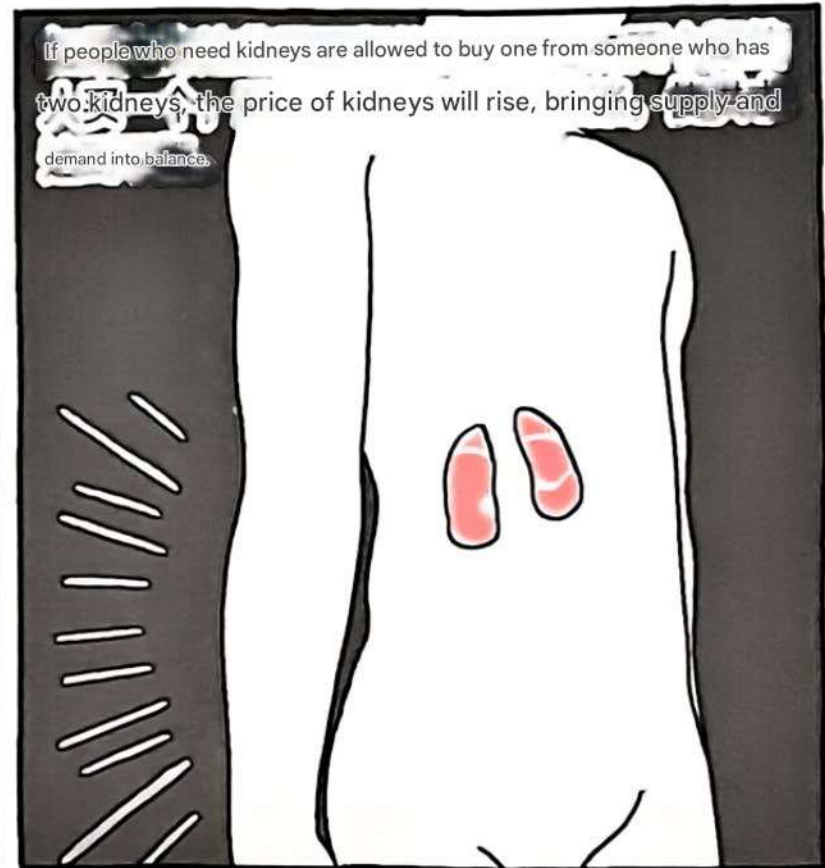
Should a market for human organs exist?



Should a market for human organs exist?



In the United States, patients have to wait several years to receive a kidney transplant, and every year tens of thousands of people die because a matching kidney cannot be found.



If people who need kidneys are allowed to buy one from someone who has two kidneys, the price of kidneys will rise, bringing supply and demand into balance.

Should a market for human organs exist?

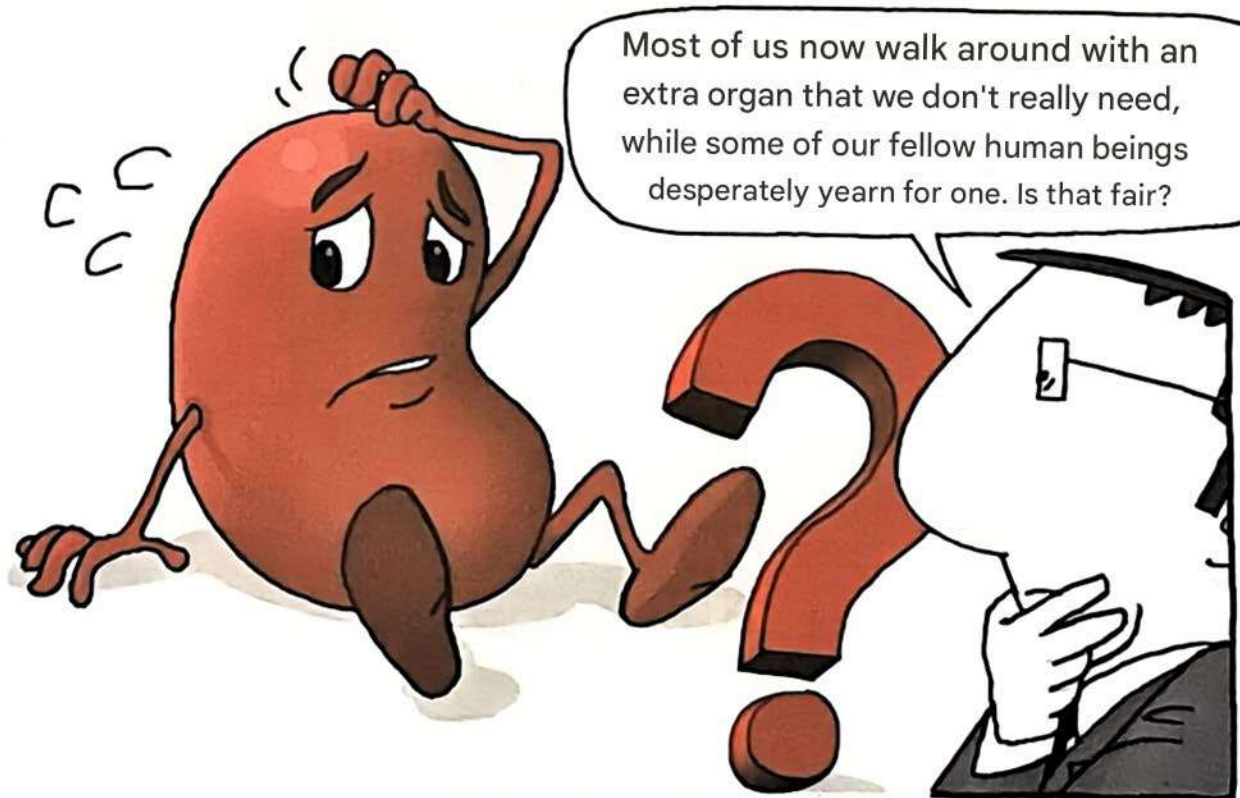


Should a market for human organs exist?

They believe that the organ market will benefit the rich at the expense of the poor, because organs will be allocated to those who are most willing and able to buy them.



However, the fairness of the current system is also questionable.



Who benefits from Airbnb?

Who benefits from
Airbnb?

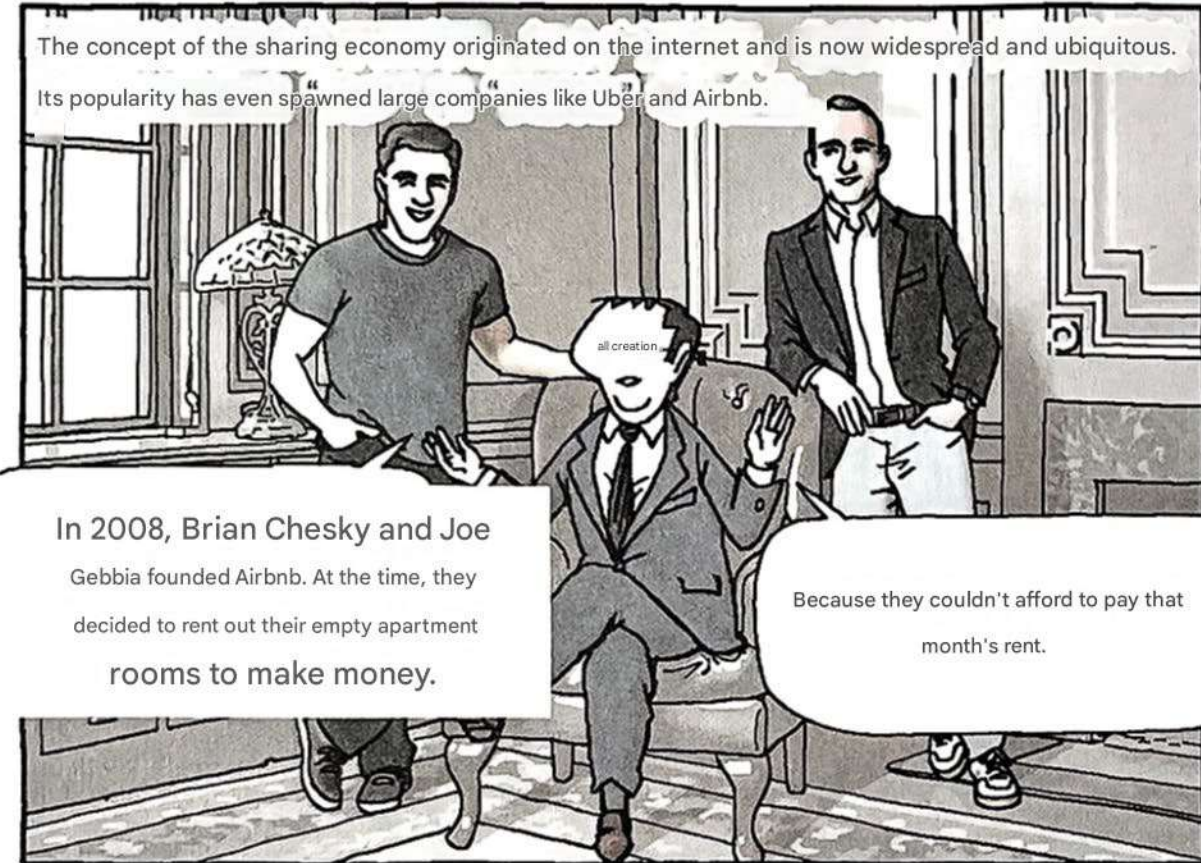
In 2008, Professor Lawrence Lessig stated that, unlike commercial economics, the sharing economy is an economic model whose cultural approach is not reflected in prices, but rather in complex social relationships.



We should shift from
"You can't use it because
it's mine" to "Let's use it
together, even though
it's mine."

Who benefits from Airbnb?

The concept of the sharing economy originated on the internet and is now widespread and ubiquitous. Its popularity has even spawned large companies like Uber and Airbnb.

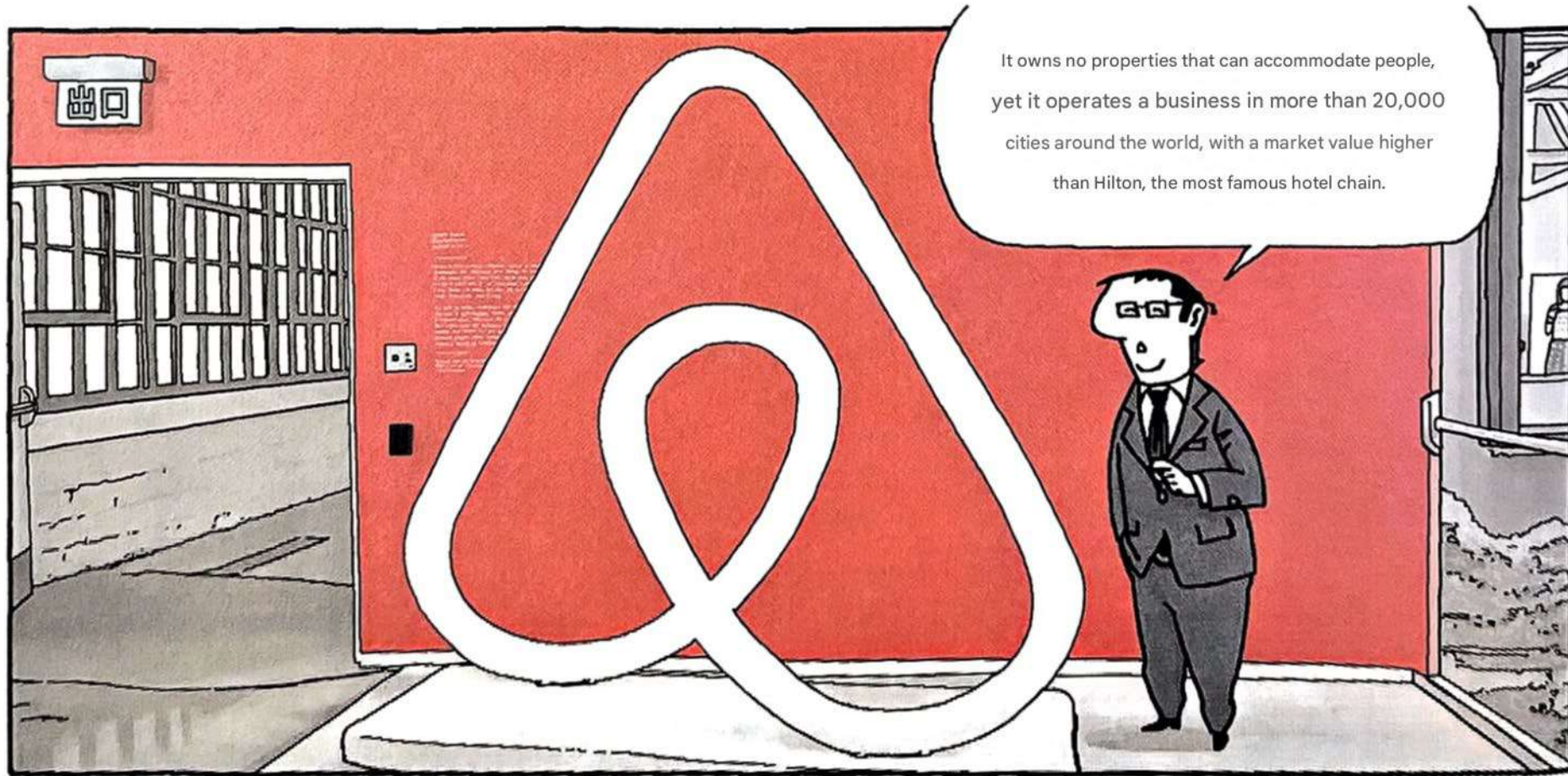


In 2008, Brian Chesky and Joe Gebbia founded Airbnb. At the time, they decided to rent out their empty apartment rooms to make money.

Airbnb provides a service that connects people looking for vacant rooms with vacant room providers worldwide, a service delivered via the internet and mobile applications.



Who benefits from Airbnb?



Who benefits from Airbnb?

People rent out their houses because they need to travel for work, or some people rent out spare rooms to pay rent, or some people rent out extra houses.

Using Airbnb is both economical and beneficial for hosts, as they can easily list their available rental properties through Airbnb instead of building new accommodations for travelers!

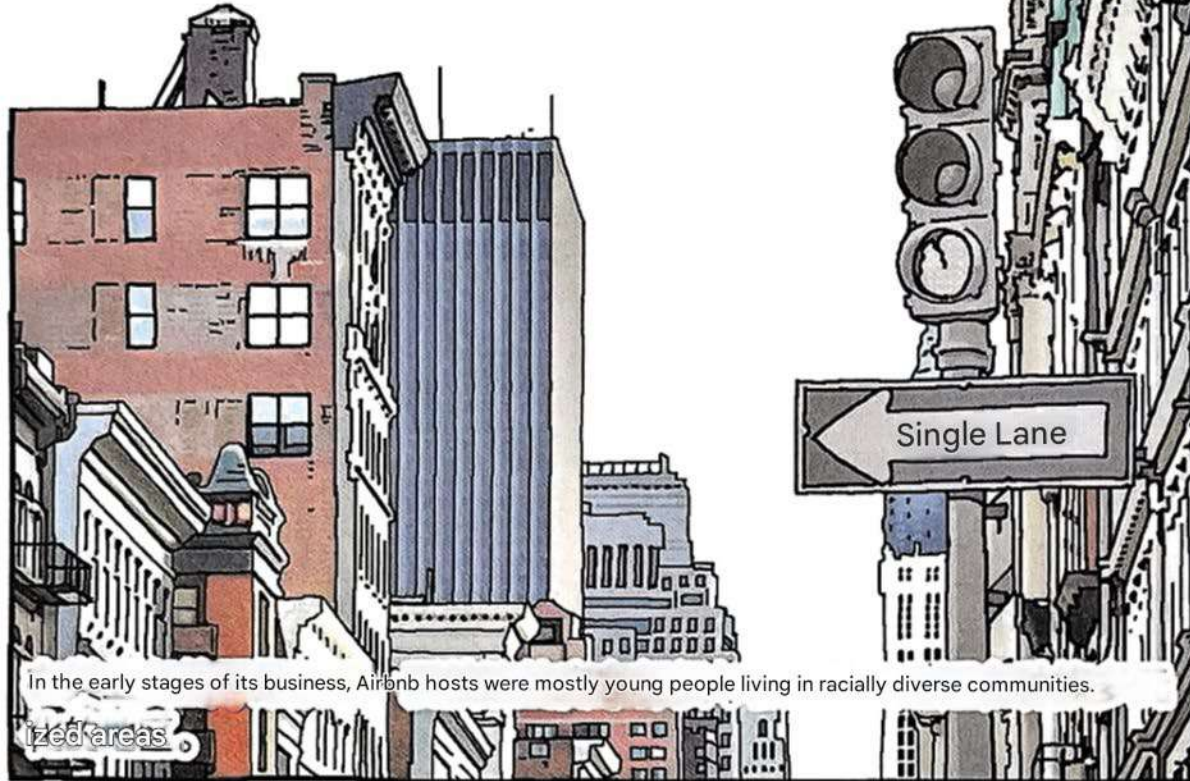


Who benefits from Airbnb?



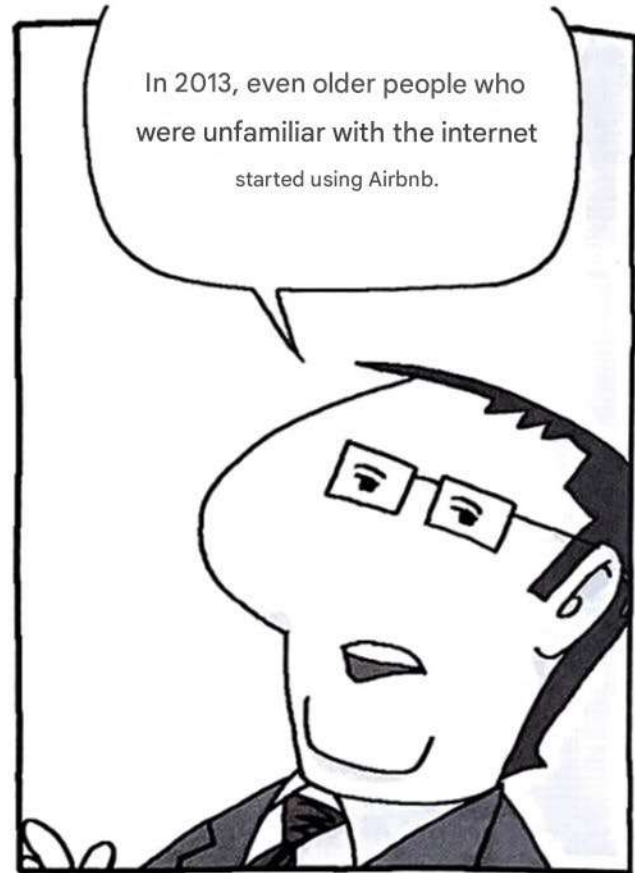
Who benefits from Airbnb?

In 2012, Airbnb started in city centers.

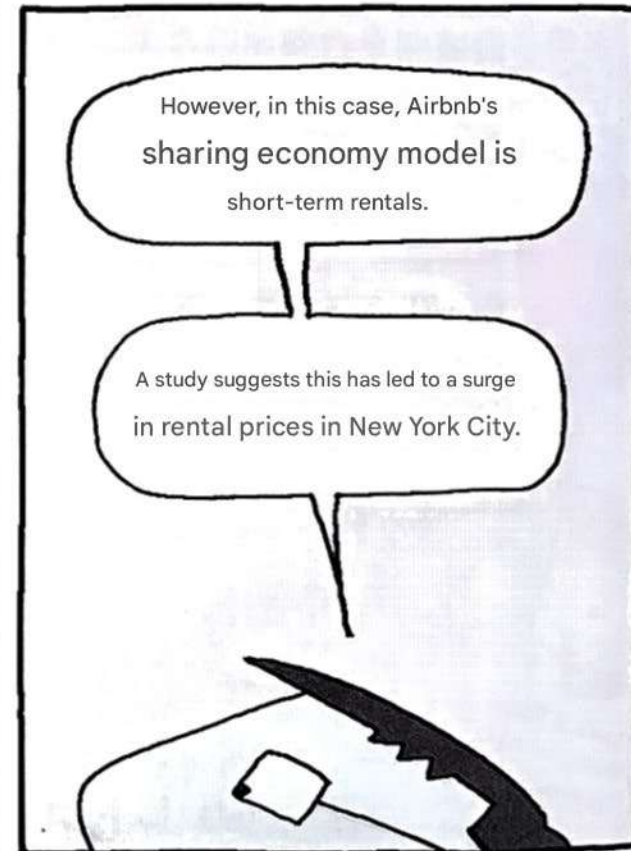


In the early stages of its business, Airbnb hosts were mostly young people living in racially diverse communities.

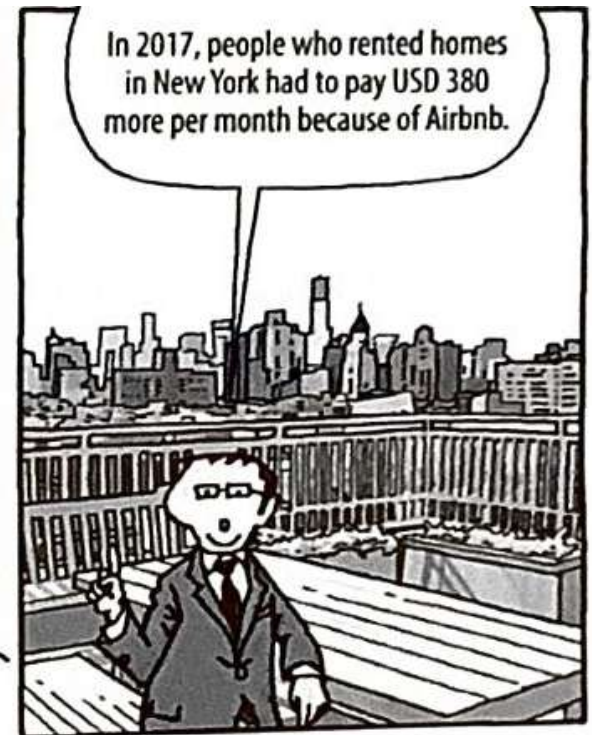
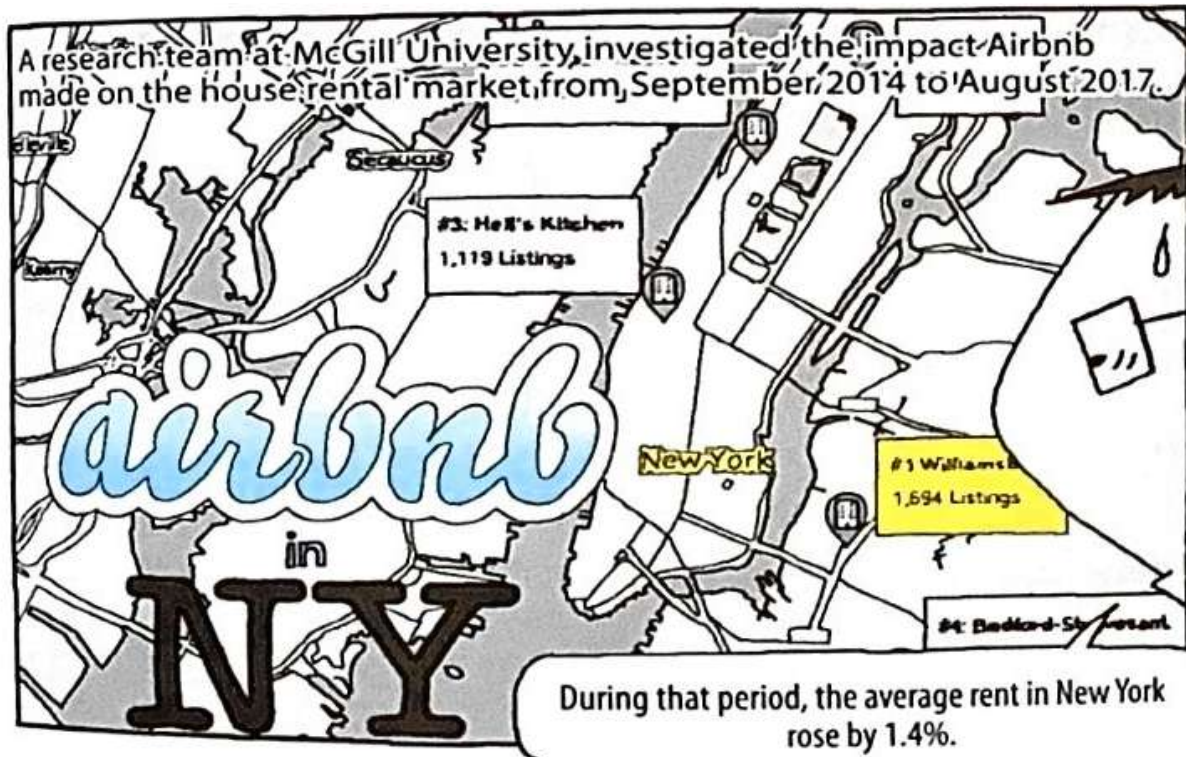
In 2013, even older people who were unfamiliar with the internet started using Airbnb.



Who benefits from Airbnb?



Who benefits from Airbnb?



SUMMARY



- One possible indicator of socioeconomic welfare is the sum of consumer surplus and producer surplus, which we call total surplus. Since the amount paid by buyers equals the amount received by sellers, we can express total surplus as follows:
 - $\text{Consumer surplus} = \text{Buyer's valuation} - \text{Amount paid by buyers}$
 - $\text{Producer surplus} = \text{Amount received by sellers} - \text{Seller's cost}$
 - $\text{Total surplus} = \text{Consumer surplus} + \text{Producer surplus} = \text{Buyer's valuation} - \text{Seller's cost}$

SUMMARY



- Efficiency refers to allocating resources to maximize the total surplus received by all members of society, while equality refers to the even distribution of economic prosperity among members of society. The efficiency problem focuses on whether the "cake" is made as large as possible, while the equality problem focuses on how to cut this cake into smaller pieces and whether these pieces are distributed equally among members of society.

SUMMARY



- The demand curve reflects buyers' valuations, and the supply curve reflects sellers' costs. At any quantity below the equilibrium level, buyers' valuations exceed sellers' costs. Therefore, increasing production and consumption increases total surplus. This continues until the quantity reaches the equilibrium level.
- Similarly, at any quantity above the equilibrium level, buyers' valuations are less than sellers' costs. In this case, reducing the quantity increases total surplus, and this continues until the quantity falls to the equilibrium level. Therefore, to maximize total surplus, a social planner would choose the quantity where the supply and demand curves intersect.

SUMMARY



- Supply and demand equilibrium maximizes the sum of consumer surplus and producer surplus. In other words, the invisible hand of the market guides buyers and sellers to allocate resources efficiently. In cases of market failure (such as due to market power or externalities), the market fails to allocate resources efficiently.

思考题

1. Jane values her time at \$60 per hour. She spent 2 hours giving Colleen a massage. Colleen was willing to pay \$300 for the massage, but they agreed on a price of \$200. In this transaction,
- a. Consumer surplus is \$20 more than producer surplus.
 - b. Consumer surplus is \$40 more than producer surplus.
 - c. Producer surplus is \$20 more than consumer surplus.
 - d. Producer surplus is \$40 more than consumer surplus.

思考题

2. The demand curve for cookies is downward sloping. When the price of cookies is \$2, the quantity demanded is 100. If the price of cookies rises to \$3, how will consumer surplus change?

- a. Decrease by less than \$100
- b. Decrease by more than \$100
- c. Increase by less than \$100
- d. Increase by more than \$100

思考题

3. John has been working as a tutor, earning \$300 per semester. When the university increased the payment to tutors to \$400, Emily entered the market and started tutoring. By how much did the producer surplus increase due to the price increase?

- a. Less than \$100
- b. \$100-\$200
- c. \$200-\$300
- d. More than \$300

思考题

4. The efficient allocation of resources maximizes _____.
a. Consumer surplus
b. Producer surplus
c. Consumer surplus plus producer surplus
d. Consumer surplus minus producer surplus

思考题

5. When the market is in equilibrium, the buyers are those with the _____ willingness to pay, and the sellers are those with the _____ costs.

- a. highest, highest
- b. highest, lowest
- c. lowest, highest
- d. lowest, lowest

思考题

6. Producing a quantity greater than the supply-demand equilibrium is inefficient because the marginal buyer's willingness to pay is:

- a. Negative
- b. Zero
- c. Positive, but less than the marginal seller's cost
- d. Positive, and greater than the marginal seller's cost