Understanding Economics · Chapter 2

How Markets Work

Why can the same airline seat cost $89 one week and $400 the next?

A flight seat today: $89

The same seat a week later: $400

Nothing about the seat changed. Why did the price?

Illustrative numbers

Quick recap of Chapter 1

Demand slopes down, supply slopes up

The price settles where they cross: equilibrium

Below it, a shortage. Above it, a surplus.

Section 2

Elasticity

How strongly do buyers react to a price change?

The law of demand tells us the direction.

Elasticity tells us how much.

Price elasticity of demand =

% change in quantity demanded

÷ % change in price

Reading the number

Elasticity	Name	What it means
More than 1	Elastic	Buyers react a lot
Less than 1	Inelastic	Buyers barely react
Exactly 1	Unit elastic	Same % change both ways

Worked example: a streaming service

Illustrative numbers

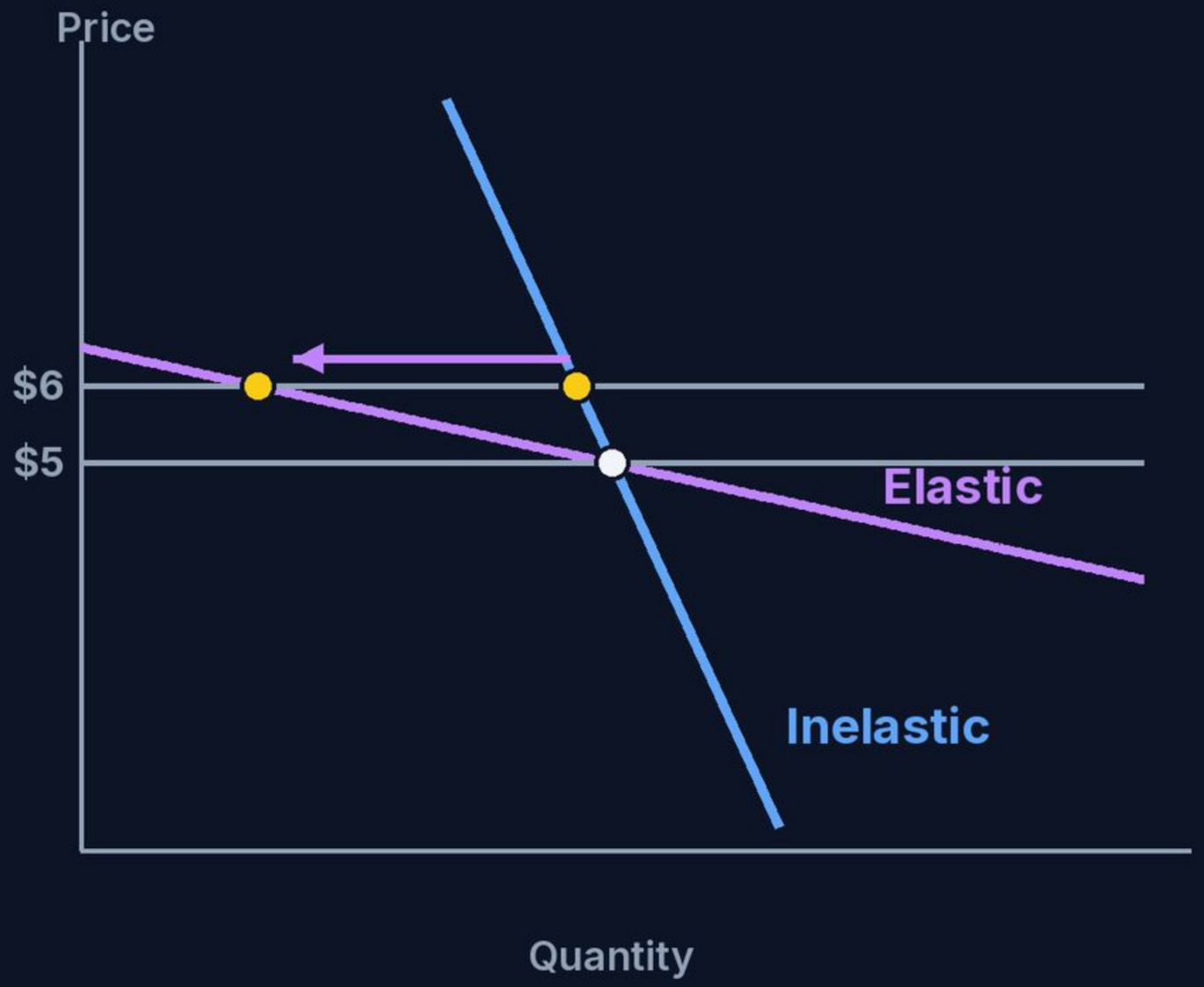
	Before	After
Monthly price	$10	$12
Subscribers	1,000	700

Price: +$2 on an average of $11 → +18%

Subscribers: −300 on an average of 850 → −35%

Elasticity ≈ 35 ÷ 18 ≈ 1.9 → elastic

Steep vs. flat demand



Flat curve

Same $1 price rise: quantity collapses.

Elastic. Think one brand of coffee.

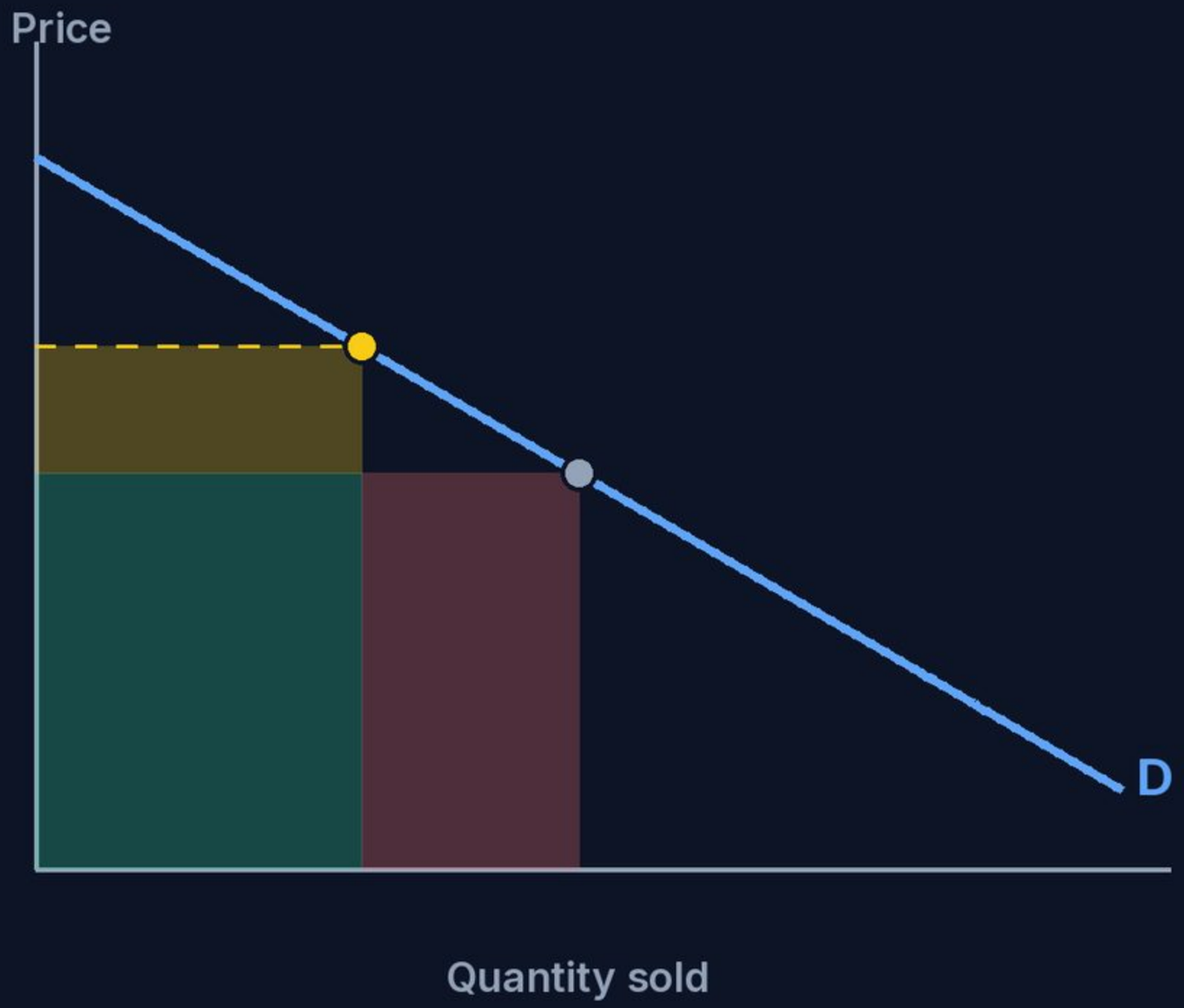
Rule of thumb: flatter = more elastic.

The two extremes

Perfectly inelastic: a vertical line. Quantity doesn't change at all. (Close to it: a life-saving medicine.)

Perfectly elastic: a flat line. The tiniest price rise and sales go to zero. (Close to it: one farmer's wheat, identical to everyone else's.)

Revenue is a rectangle



Total revenue

= price × quantity

The shaded rectangle.

Raise the price: gain the yellow strip (more per unit still sold).

Lose the red strip (sales that disappear).

Which is bigger?
Elasticity decides.

The total revenue test

If demand is…	Raise the price	Cut the price
Elastic (> 1)	Revenue falls ↓	Revenue rises ↑
Inelastic (< 1)	Revenue rises ↑	Revenue falls ↓
Unit elastic (= 1)	No change	No change

Streaming: $10 → $12, revenue $10,000 → $8,400 (elastic)

Gas station (illustrative): price +18%, gallons −5% → revenue up

What makes demand elastic?

- **Substitutes:** more alternatives → more elastic
- **Necessity vs. luxury:** necessities are inelastic
- **Share of your budget:** big-ticket items → more elastic
- **Time:** more elastic in the long run
- **How narrowly you define it:** "one brand" vs. "food"

Pause and predict · 1 of 2

An airline raises fares 10% on one route. Who reacts more: vacation travelers or business travelers on a last-minute trip? For which group does revenue go up?

Answer

Vacation travelers are more elastic: flexible dates, other destinations, driving. Business travelers are inelastic: they must go, now. Revenue rises from business travelers.

One more: elasticity of supply

Same idea, for sellers: how much more do they make when the price rises?

Time: given time, sellers can build, hire, and expand → more elastic

Spare capacity: a T-shirt printer can add a shift; a stadium can't add seats tonight

Back to the puzzle: the $89 vs. $400 seat

The seats are fixed: the plane has the same seats either way, so supply can't stretch

Early bookers are elastic: they can change dates or skip the trip, so fares start low

Last-minute flyers are inelastic: they have to go, so a high fare doesn't stop them

Same seat, different elasticities, different prices

Section 4

Who gains from a market?

Consumer surplus, producer surplus, and deadweight loss

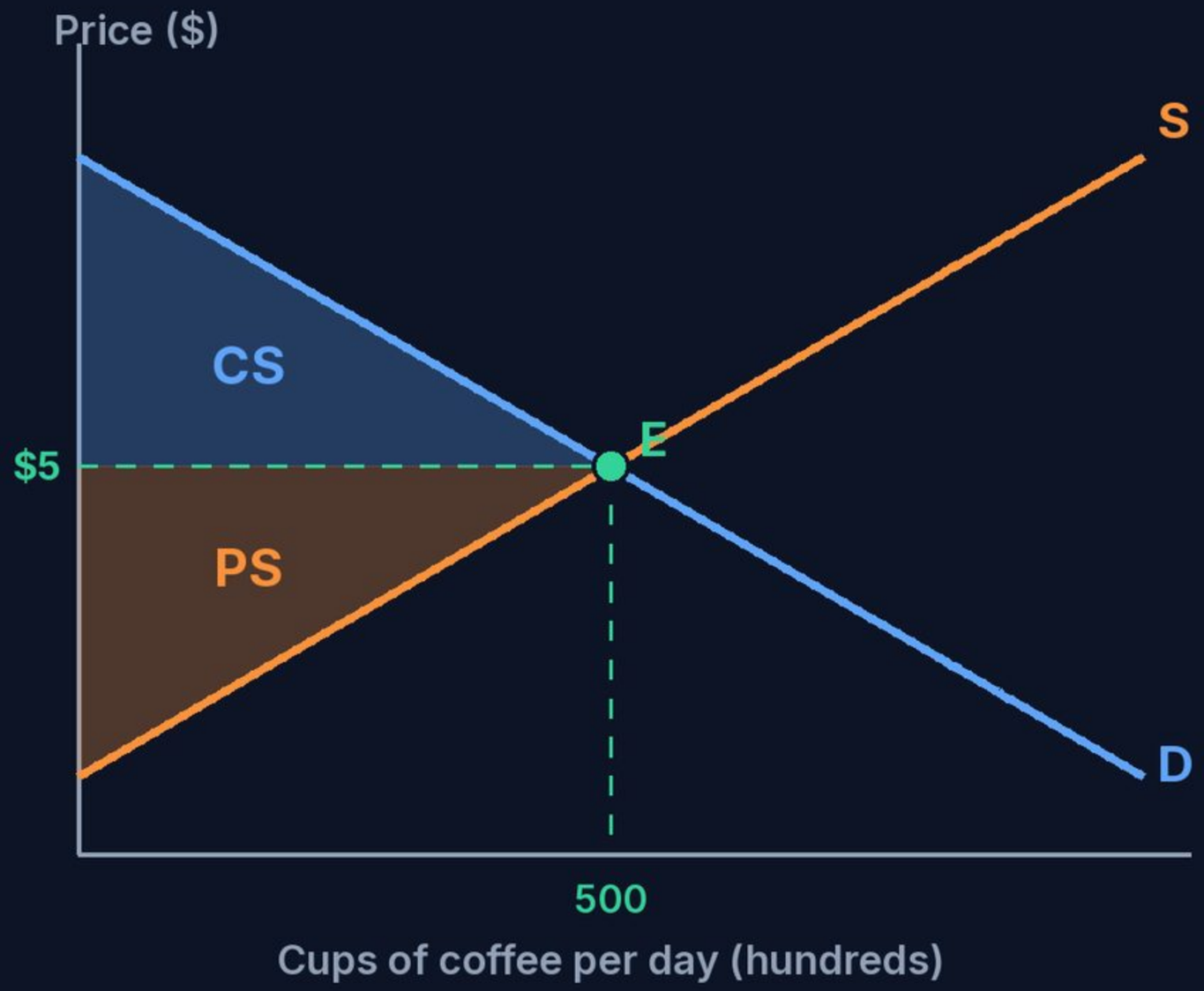
Willingness to pay

Four fans, one concert ticket priced at $50 (illustrative)

Fan	Would pay up to	Buys at $50?	Surplus
Fan 1	$100	Yes	$50
Fan 2	$80	Yes	$30
Fan 3	$60	Yes	$10
Fan 4	$40	No	—

Consumer surplus = $50 + $30 + $10 = $90

Consumer & producer surplus



The coffee market

Illustrative numbers.

$5 a cup, 500 cups a day.

Consumer surplus: under demand, over the price.

Producer surplus: over supply, under the price.

CS = ½ × 500 × $4 = $1,000

PS = $1,000 too

At equilibrium, total surplus is as big as it can be.

Anything that blocks a trade worth making creates deadweight loss.

Section 5

Price ceilings & price floors

When the government sets the price

Price ceiling = a legal **maximum** price

Price floor = a legal **minimum** price

A price ceiling below equilibrium



Cap above E

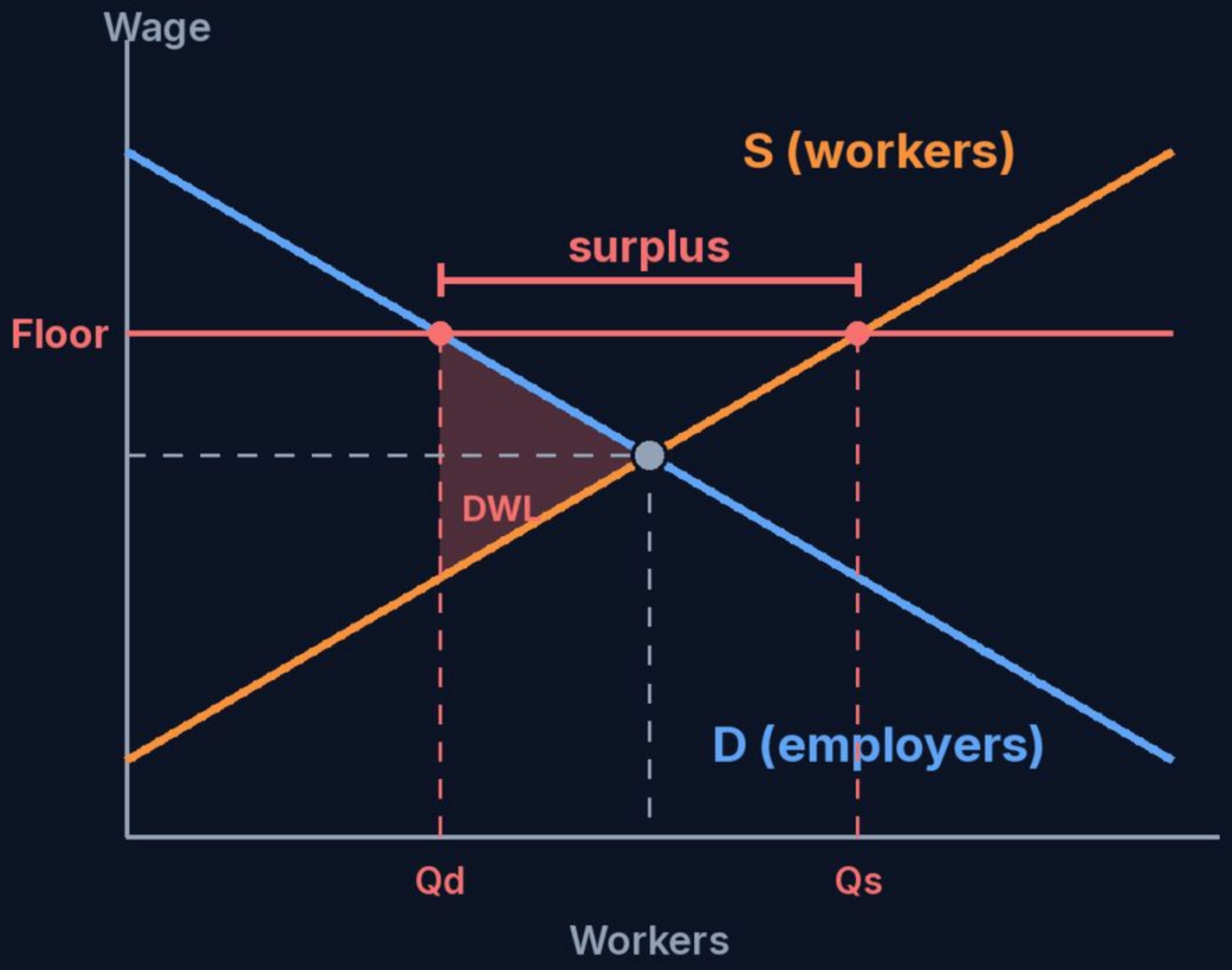
Non-binding. Nothing changes.

What shortages bring with them

If price can't ration, something else does

- **Waiting:** lines, waitlists, long searches
- **Quality slips:** less reason to maintain or improve
- **Side deals:** key fees, resale markets, under-the-table payments
- **Luck & connections** decide who gets one

A price floor above equilibrium



Wage floor above E

Workers who want jobs: Qs.

Jobs employers offer: Qd.

The gap is a surplus of labor.

Those who keep jobs earn more.

How big the job loss is, in practice: heavily studied, and debated.

Ceilings vs. floors

	Price ceiling	Price floor
Binding when…	Below equilibrium	Above equilibrium
Creates a…	Shortage	Surplus
Example	Rent caps, ticket caps	Minimum wage, crop supports
Side effects	Waiting, quality, resale	Unsold goods, fewer jobs

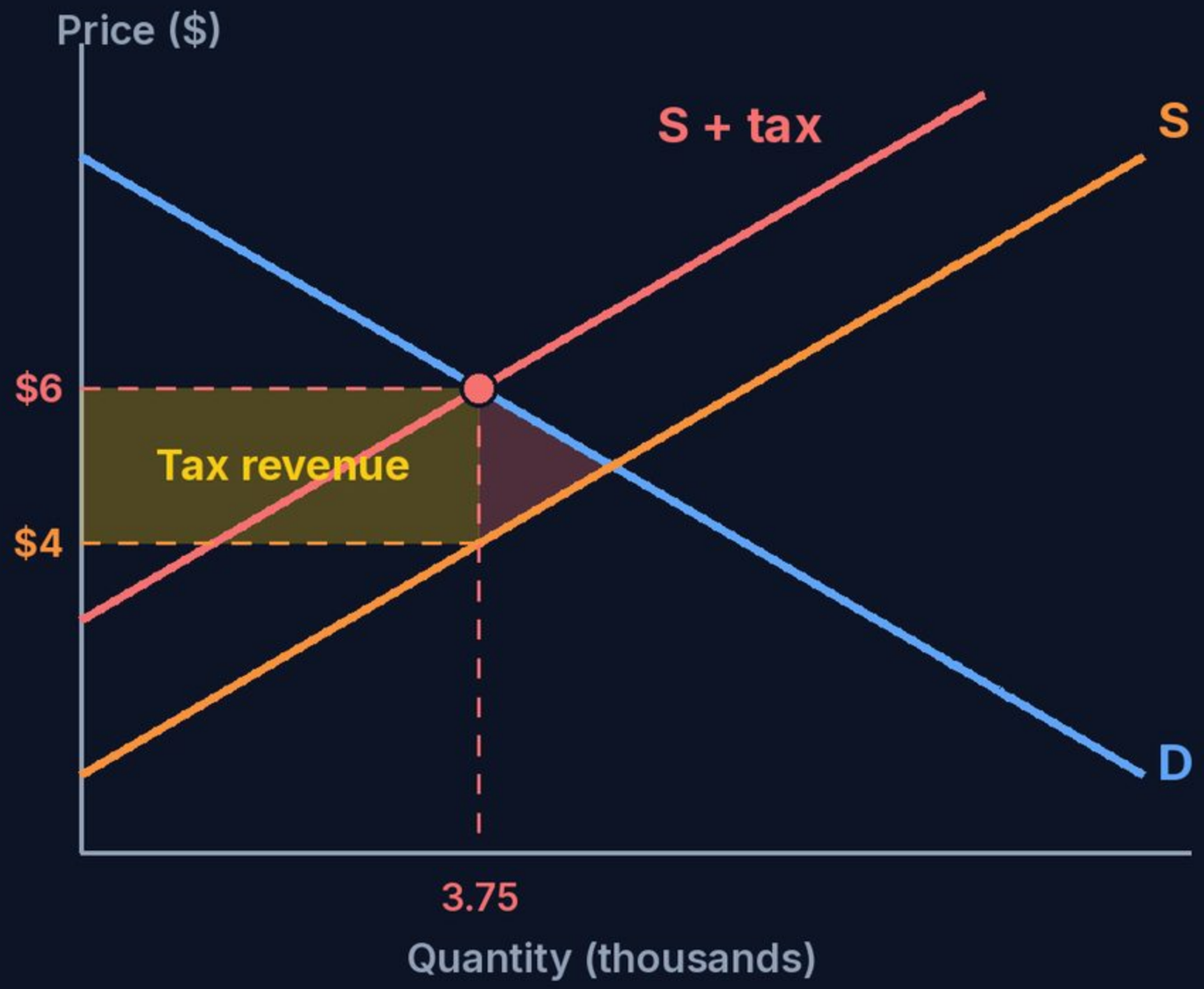
Both bring deadweight loss when the quantity traded falls below equilibrium.

Section 6

Taxes, and who really pays them

Plus a short look at tariffs

A $2 tax on each unit



After the tax

Buyers pay $6 (+$1).

Sellers keep $4 (−$1).

Sales fall to 3,750.

Revenue: $2 × 3,750 = $7,500

DWL: ½ × 1,250 × $2 = $1,250

Who pays more? The less elastic side



Inelastic demand

Buyers pay +$1.50.

Sellers keep −$0.50.

Buyers carry 3/4 of the tax.

Who writes the check doesn't decide who pays.

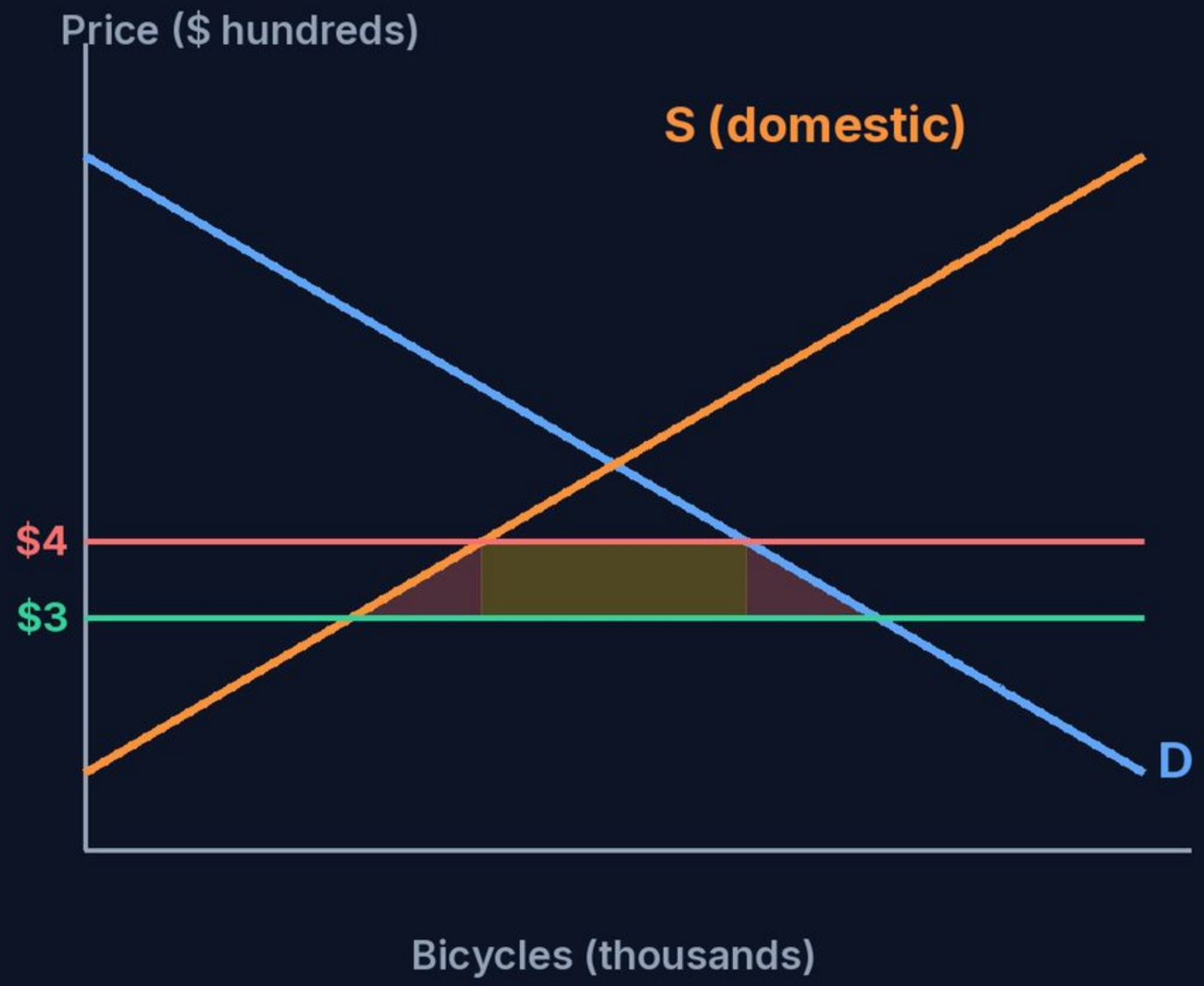
Pause and predict · 2 of 2

A new 50¢ tax per gallon is charged to gas stations. In the short run, drivers can't easily change how much they drive. Who ends up paying most of the 50¢?

Answer

Drivers. Short-run gas demand is inelastic, so the pump price rises by most of the 50¢, even though the stations write the check.

Tariffs: a tax on imports



Add a $1 tariff

Price rises to $4.

Home output ↑ to 3.75k.

Buyers ↓ to 6.25k.
Imports shrink to 2.5k.

Gain: home producers, tariff revenue (yellow).

Lose: buyers. Two DWL triangles (red).

Section 7

Costs & profit

A quick look inside the business

Fixed vs. variable costs

A food truck (illustrative)

Fixed costs don't change with output: the truck lease, insurance, permits

Variable costs rise with output: ingredients, packaging, fuel

Total cost = fixed + variable

Marginal cost: the cost of one more

A bakery, loaves per day (illustrative)

Loaves	Total cost	Marginal cost per loaf
0	$200	—
100	$300	$1.00
200	$380	$0.80
300	$480	$1.00
400	$640	$1.60

Accounting profit vs. economic profit

Someone runs a café for a year (illustrative)

	Amount
Revenue	$200,000
Explicit costs (rent, beans, staff)	−$150,000
Accounting profit	$50,000
Salary given up at their old job	−$70,000
Economic profit	−$20,000

Section 8

Competition vs. monopoly

Why the number of sellers changes everything

The spectrum of markets

Type	Sellers	Product	Examples
Perfect competition	Very many	Identical	Wheat, corn
Monopolistic competition	Many	Different	Coffee shops, restaurants
Oligopoly	A few	Same or different	Airlines, phone carriers
Monopoly	One	No close substitute	Local water utility

Perfect competition

Each seller is a price taker: charge more, and buyers go elsewhere

So each firm produces until price = marginal cost

Profits attract new sellers; losses make some leave

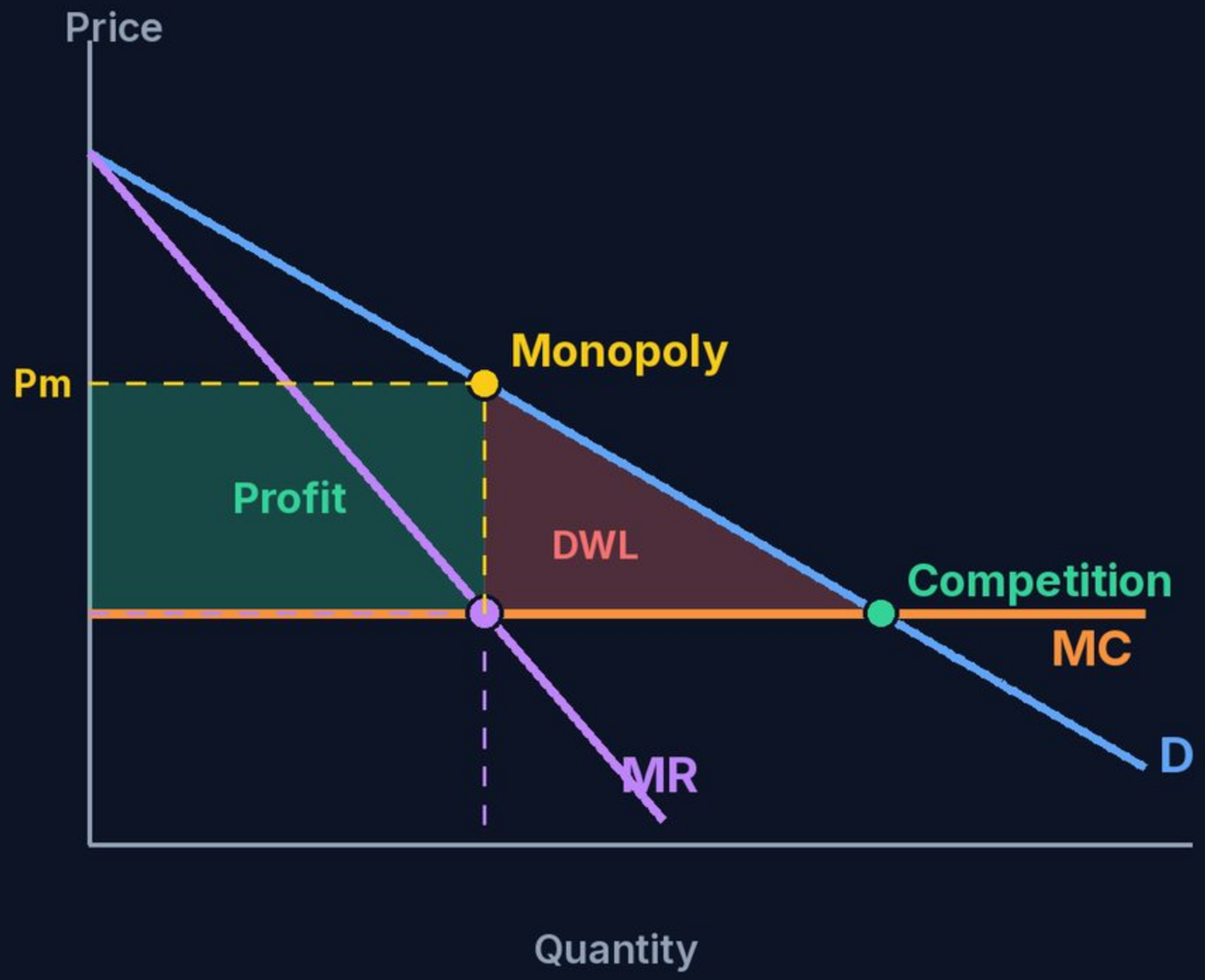
Long run: price falls to cost, and economic profit → zero

Monopoly: why marginal revenue < price

One seller, illustrative numbers. Marginal cost: $4 per unit

Price	Units sold	Total revenue	Marginal revenue
$10	1	$10	$10
$9	2	$18	$8
$8	3	$24	$6
$7	4	$28	$4
$6	5	$30	$2

Monopoly on the graph



Monopoly

Pick Q where MR = MC.

Then charge what demand allows: Pm.

Competition: P = MC, more output, lower price.

Profit for the monopoly. DWL for society.

Oligopoly: a few rivals watching each other

- Each firm's best move depends on the others
- Together, they'd profit most by acting like one monopoly
- But each one is tempted to undercut
- That tension is studied with game theory

The prisoner's dilemma: two gas stations

Daily profit (illustrative) · North station's / South station's

	South charges high	South charges low
North charges high	$1,000 / $1,000	$300 / $1,200
North charges low	$1,200 / $300	$600 / $600

Whatever South does, North does better charging low. Same for South. Both charge low and earn $600, though both high would earn $1,000.

Why monopolies get regulated

The cost: higher prices, less output, deadweight loss, less pressure to improve

Antitrust: block mergers that kill competition; ban price-fixing

Natural monopoly: when one network is cheapest (water pipes, power lines), regulate the price instead

Patents: a deliberate, temporary monopoly to reward invention

Recap

Recap & self-check

The whole chapter in two minutes

Recap

- Elasticity = % change in quantity ÷ % change in price
- Revenue test: elastic → price rise lowers revenue; inelastic → raises it
- Surplus: buyers and sellers both gain; equilibrium makes the total biggest
- Ceilings below equilibrium → shortage; floors above → surplus
- Taxes: the less elastic side pays more; tariffs are taxes on imports
- Monopoly: MR < P → less output, higher price, deadweight loss

Cheat sheet · Chapter 2

Elasticity

%ΔQ ÷ %ΔP

(midpoint: change ÷ average)

Above 1: elastic · below 1: inelastic

Revenue test

Elastic: price ↑ → revenue ↓

Inelastic: price ↑ → revenue ↑

More elastic when:

substitutes · luxury · big budget share · long run · narrow product

Government in markets

Ceiling below equilibrium → shortage

(waiting, quality, resale)

Floor above equilibrium → surplus

(unsold goods, fewer jobs)

Tax: the less elastic side pays more

Who writes the check doesn't matter

Tariff = tax on imports: producers gain, buyers lose more

All three → deadweight loss

Firms & markets

Fixed vs. variable cost

MC = cost of one more

Economic profit = revenue – all costs, incl. opportunity cost

Produce where MR = MC

Competition: P = MC, profit → 0

Monopoly: MR < P → less Q, higher P, DWL

Oligopoly: prisoner's dilemma

Self-check 1 of 3

A coffee shop raises its prices 10%, and the number of cups it sells falls 25%. Is demand elastic or inelastic? Did revenue go up or down?

Answer

Elasticity = 25 ÷ 10 = 2.5, so elastic. Revenue went down: the lost sales outweigh the higher price.

Self-check 2 of 3

A city sets a maximum price on parking that is above what parking usually costs there. What happens?

Answer

Nothing. It's a non-binding ceiling: it's above equilibrium, so the market price is already below it.

Self-check 3 of 3

Why does a monopoly sell less than a competitive market would, even though selling more would bring in more customers?

Answer

To sell more, it must cut the price on every unit, so MR < P. It stops where MR = MC, before P = MC, which means a higher price and less output.

Where this fits

6 chapters, each one building on the last

#	Chapter
1	Foundations, Supply & Demand
2	How Markets Work: elasticity, price controls, taxes, competition
3	Market Failures & the Labor Market: pollution, public goods, hidden information, wag
4	Growth, Employment & Inflation: GDP, jobs, inflation, recessions, debt
5	Money, Banking & Interest Rates
6	Trade, Financial Markets & Real Estate

Next up · Chapter 3

Market Failures & the Labor Market

Pollution, public goods, hidden information, and wages