FIRMS AND MARKETS II

PMAP 8141: Economy, Society, and Public Policy

October 15, 2019

Fill out your reading report on iCollege!

PLAN FOR TODAY

Surplus, taxes, incidence, and DWL

Changes in supply and demand

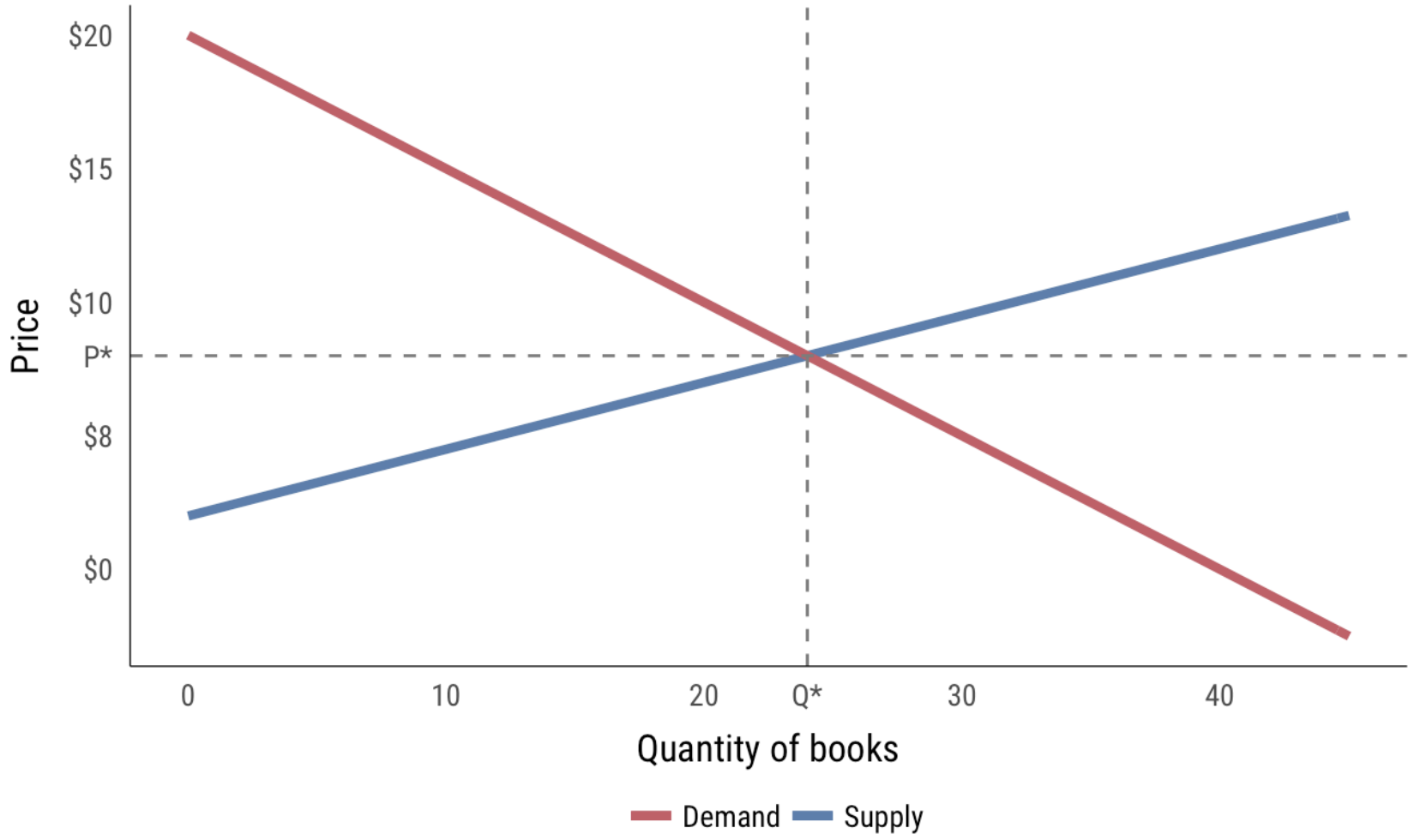
Price taking

Escaping the price taking world

SURPLUS, TAXES, INCIDENCE, AND DWL

$$\text{Demand: } P = -0.5Q + 20$$

$$\text{Supply: } P = 0.25Q + 2$$



Consumer surplus

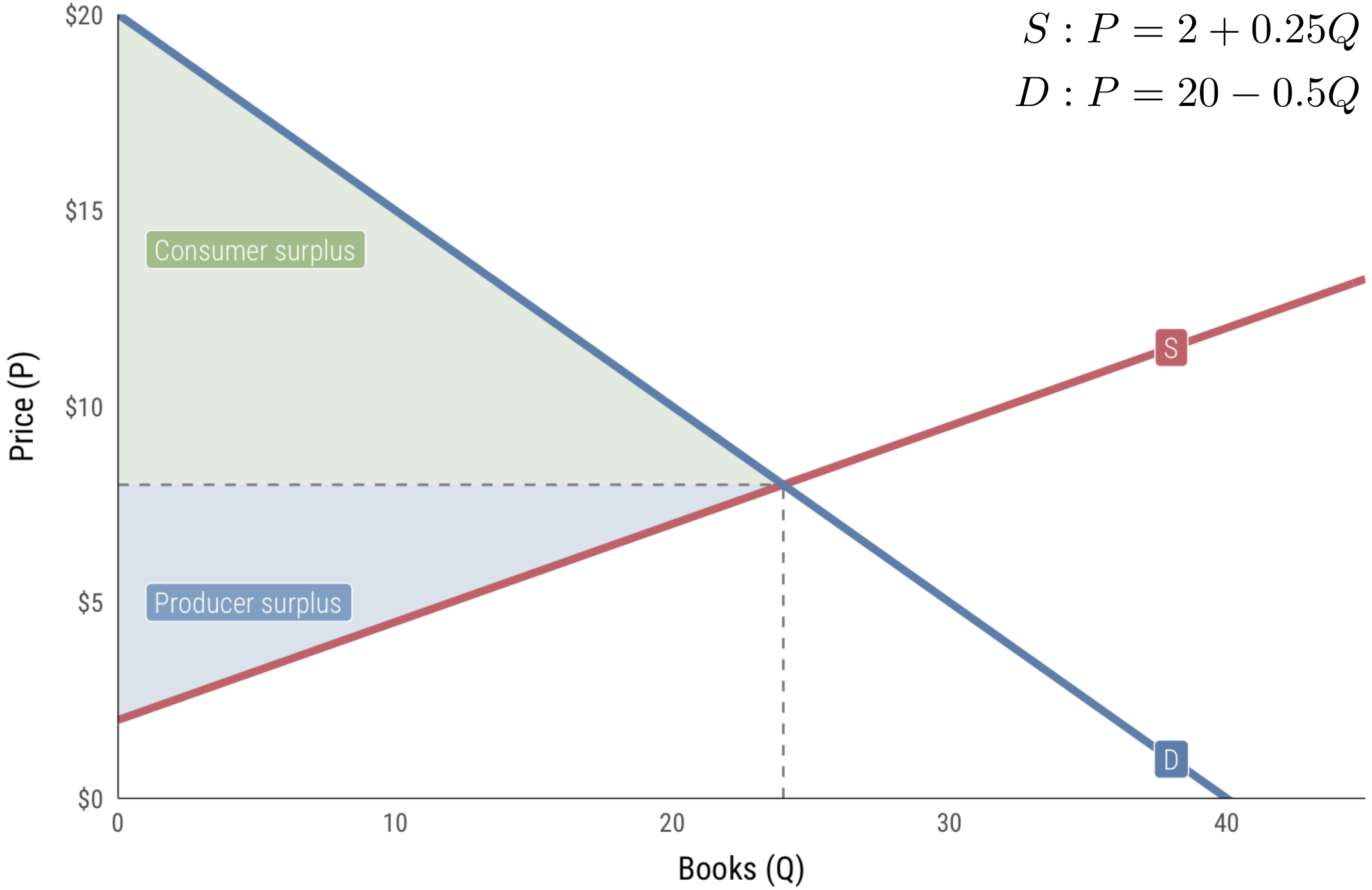
Difference between WTP and price

How good of a deal consumer gets

Producer surplus

Difference between price and WTA

How good of a deal producer gets


$S : P = 2 + 0.25Q$
$D : P = 20 - 0.5Q$
$20
$15
$10
$5
$0
Price (P)
Consumer surplus
Producer surplus
S
D
0
10
20
30
40
Books (Q)

WHY DO GOVERNMENTS TAX?

Raise revenue for services

Redistribute resources

Encourage or discourage consumption

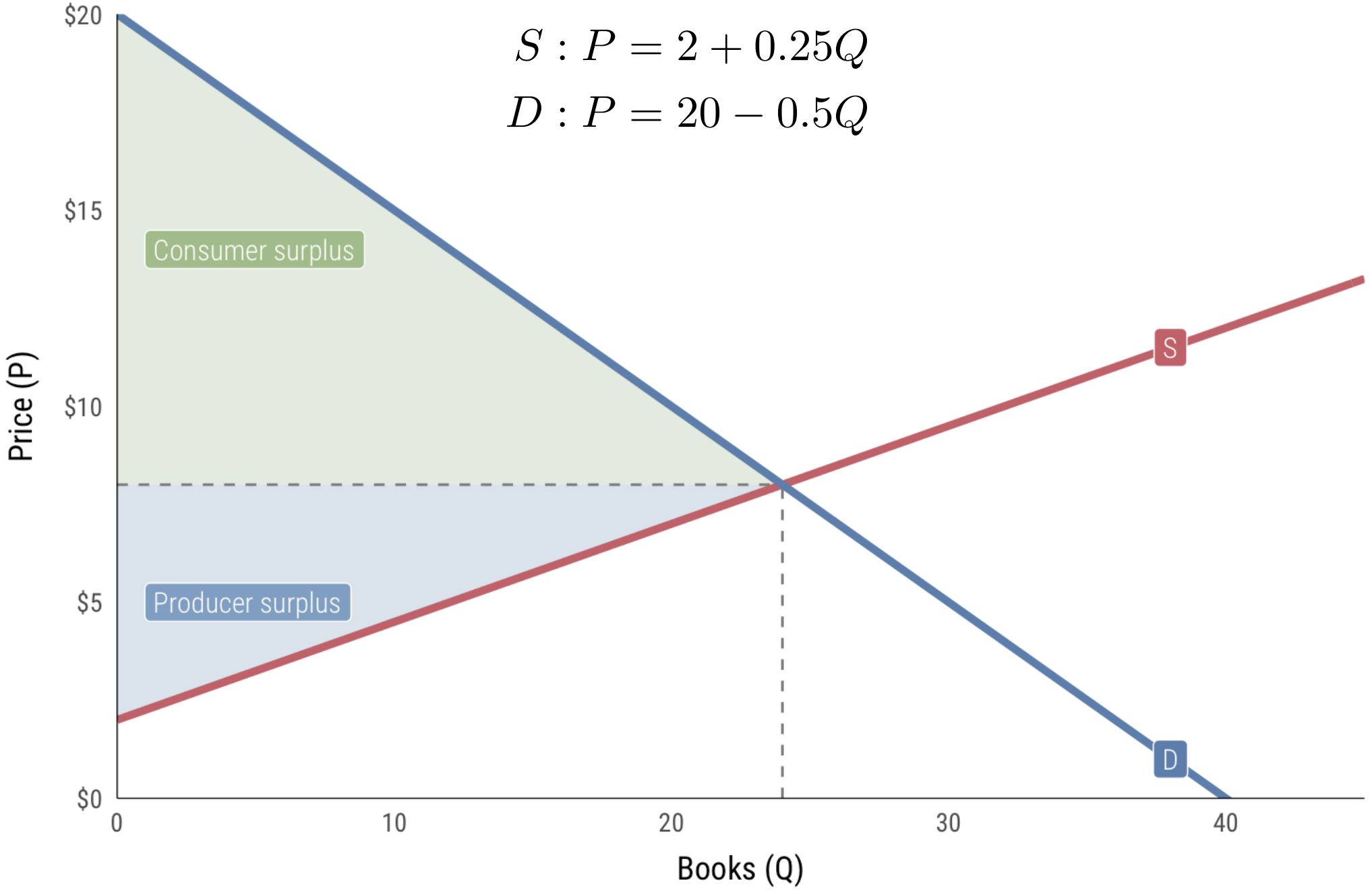
WHAT HAPPENS WHEN GOVERNMENTS TAX?

Revenue raised for public goods

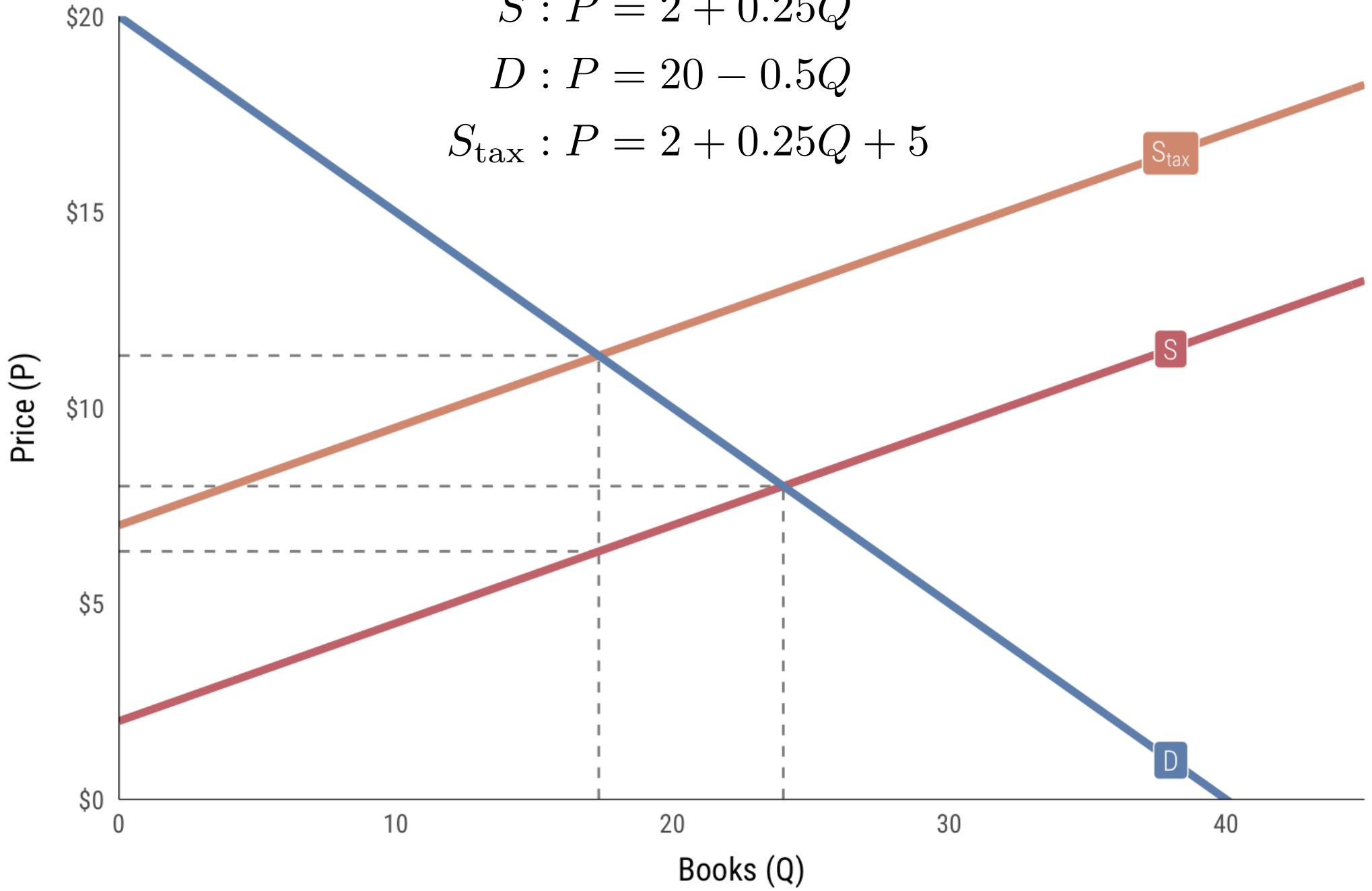
Resources redistributed

Markets distorted; loss of efficiency

$$S : P = 2 + 0.25Q$$
$$D : P = 20 - 0.5Q$$



$$S : P = 2 + 0.25Q$$
$$D : P = 20 - 0.5Q$$
$$S_{\text{tax}} : P = 2 + 0.25Q + 5$$



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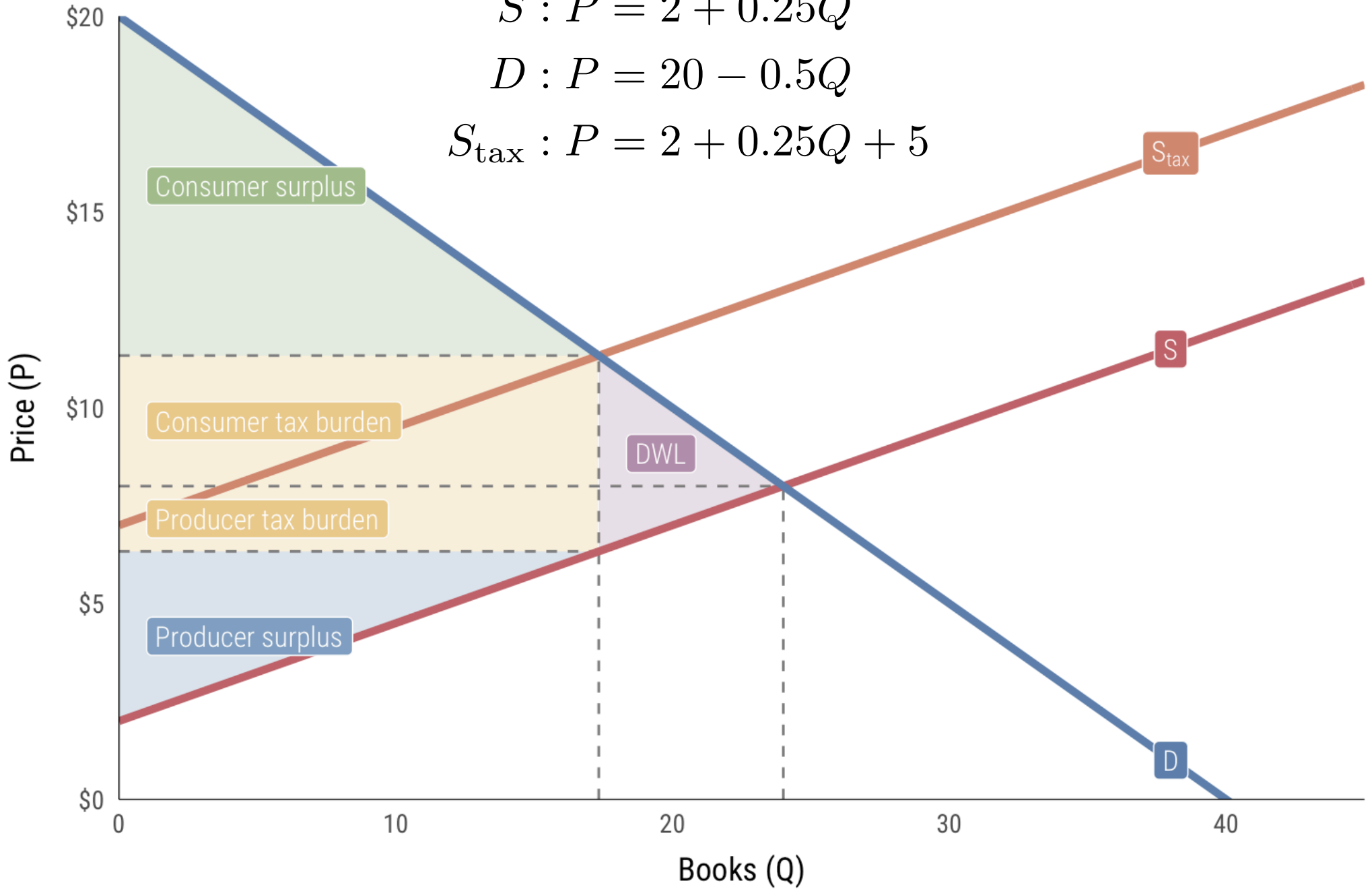


$$S_1 : P = 2 + 0.25Q$$

$$D_1 : P = 10 - 0.05Q$$

$$S_{1\ \text{tax}} : P = 2 + 0.25Q + 5$$

$$S_3 : P = 2 + 0.05Q$$

$$D_3 : P = 20 - 0.5Q$$

$$S_{3\ \text{tax}} : P = 2 + 0.05Q + 5$$

$$S_2 : P = 2 + 0.25Q$$

$$D_2 : P = 20 - 2Q$$

$$S_{2\ \text{tax}} : P = 2 + 0.25Q + 5$$

$$S_4 : P = 2 + 1.5Q$$

$$D_4 : P = 20 - 0.5Q$$

$$S_{4\ \text{tax}} : P = 2 + 1.5Q + 5$$

P and Q at competitive equilibrium

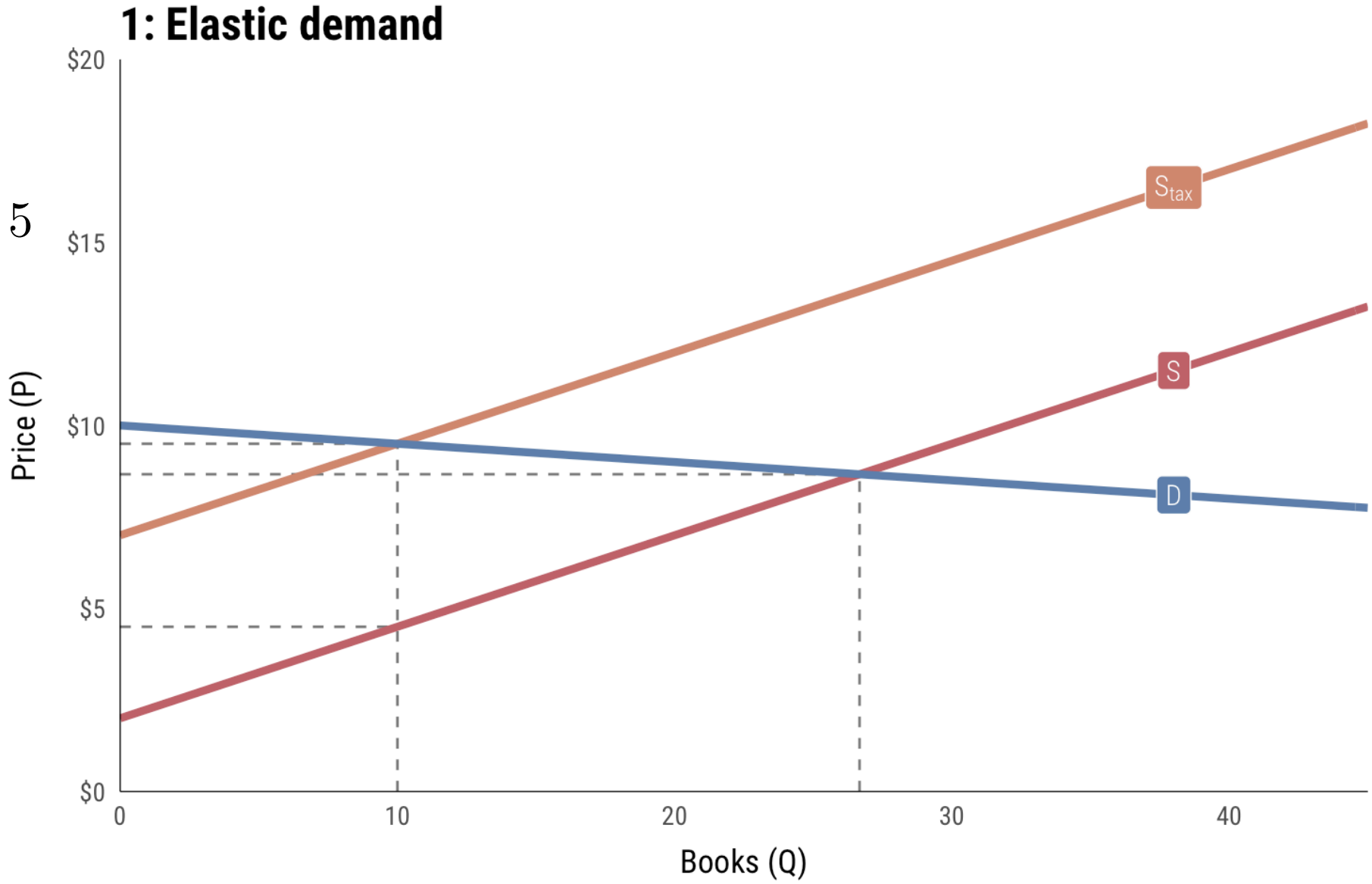
Size of producer and consumer surpluses

P and Q at tax equilibrium

Size of DWL

Producer and consumer incidence

$$S_1 : P = 2 + 0.25Q$$
$$D_1 : P = 10 - 0.05Q$$
$$S_{1\ \text{tax}} : P = 2 + 0.25Q + 5$$



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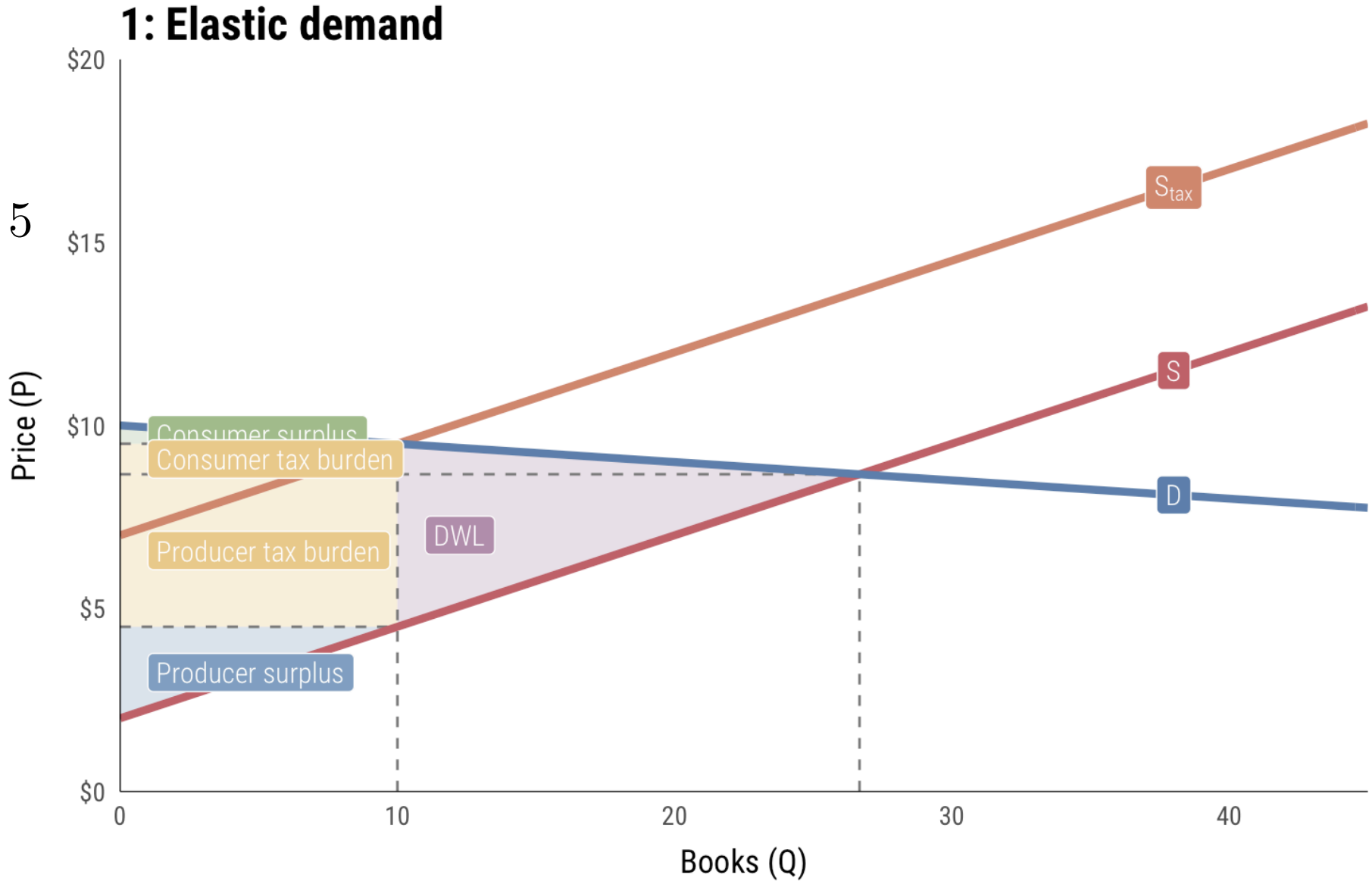

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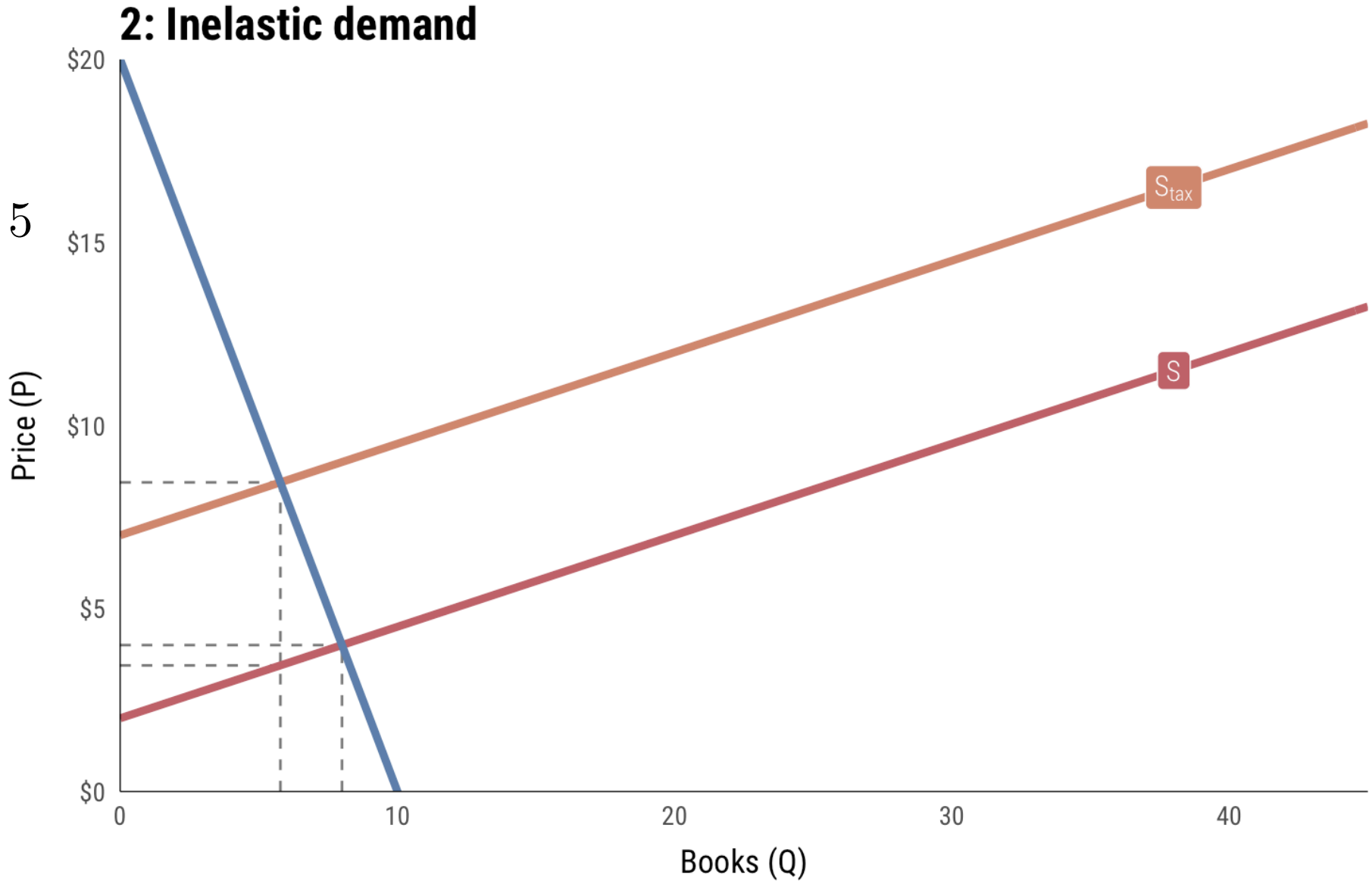

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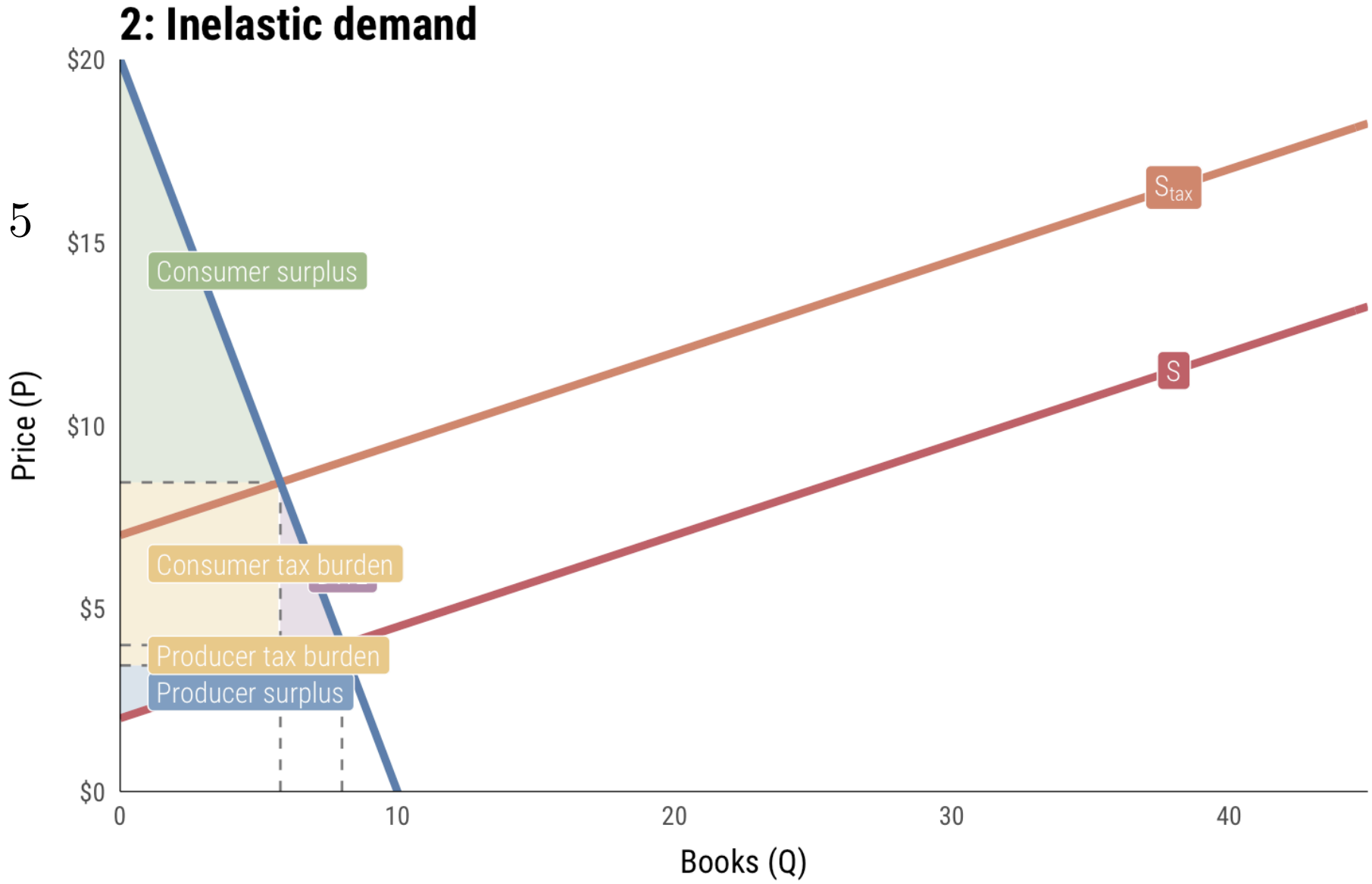

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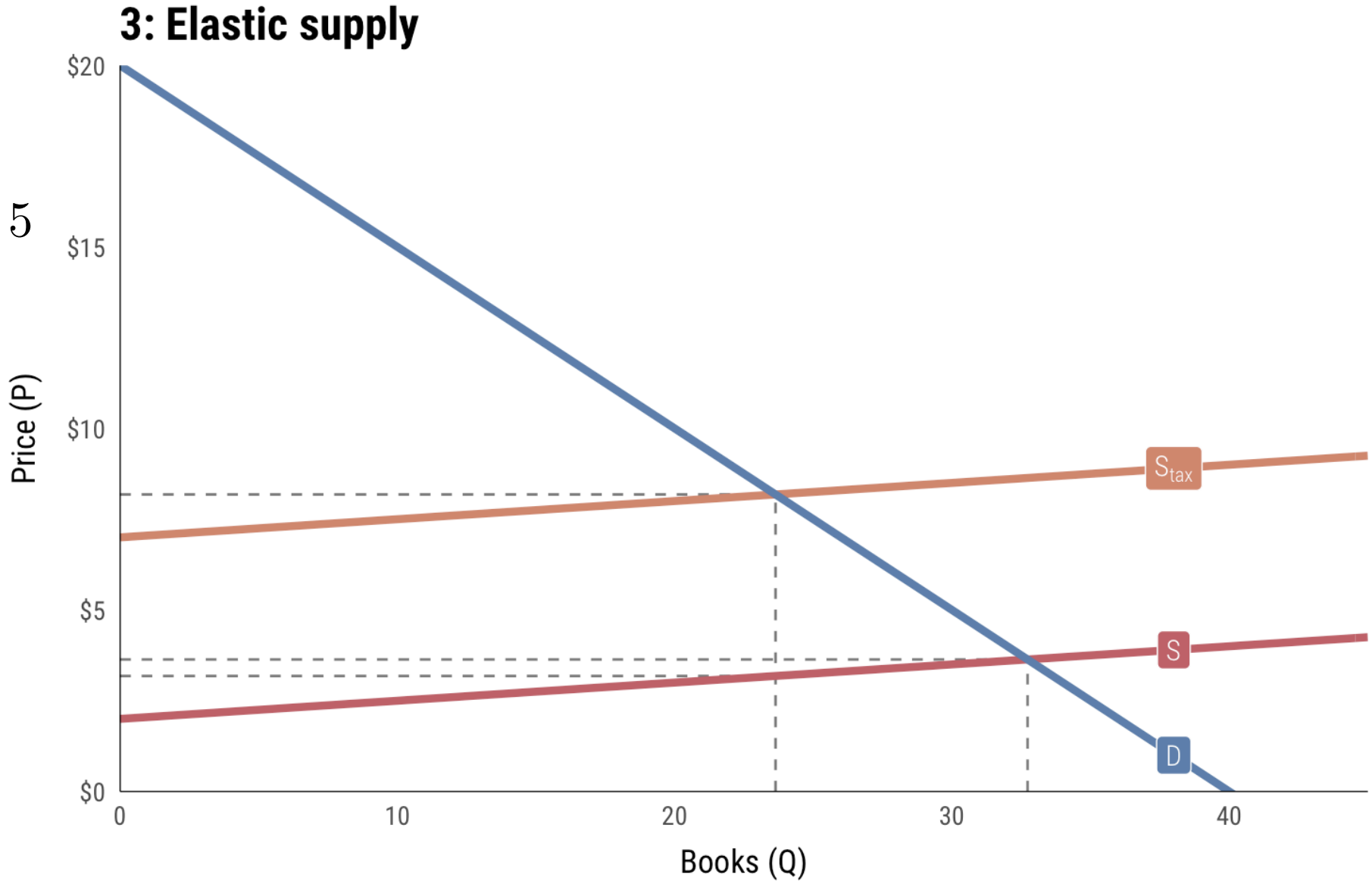

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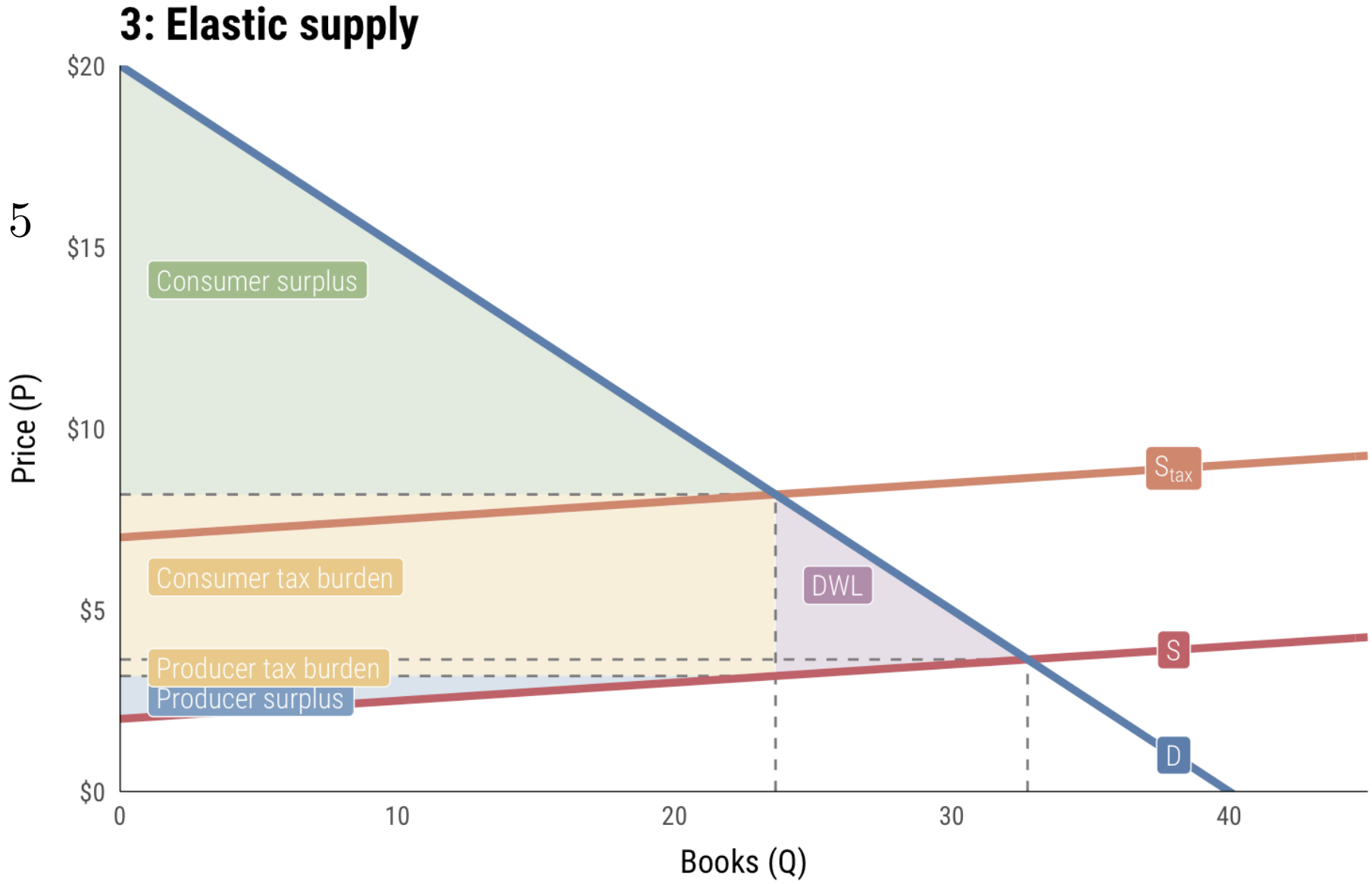

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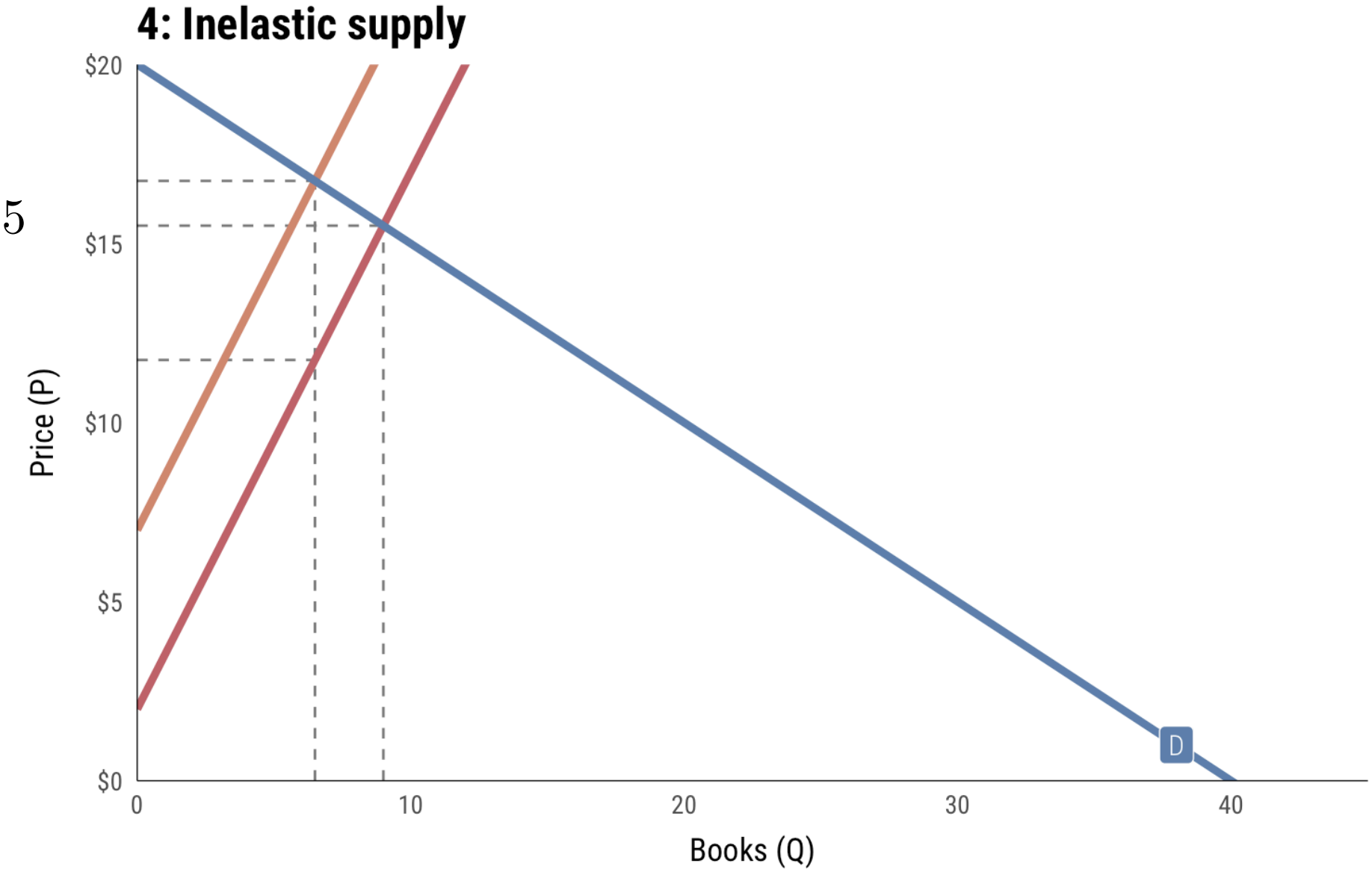

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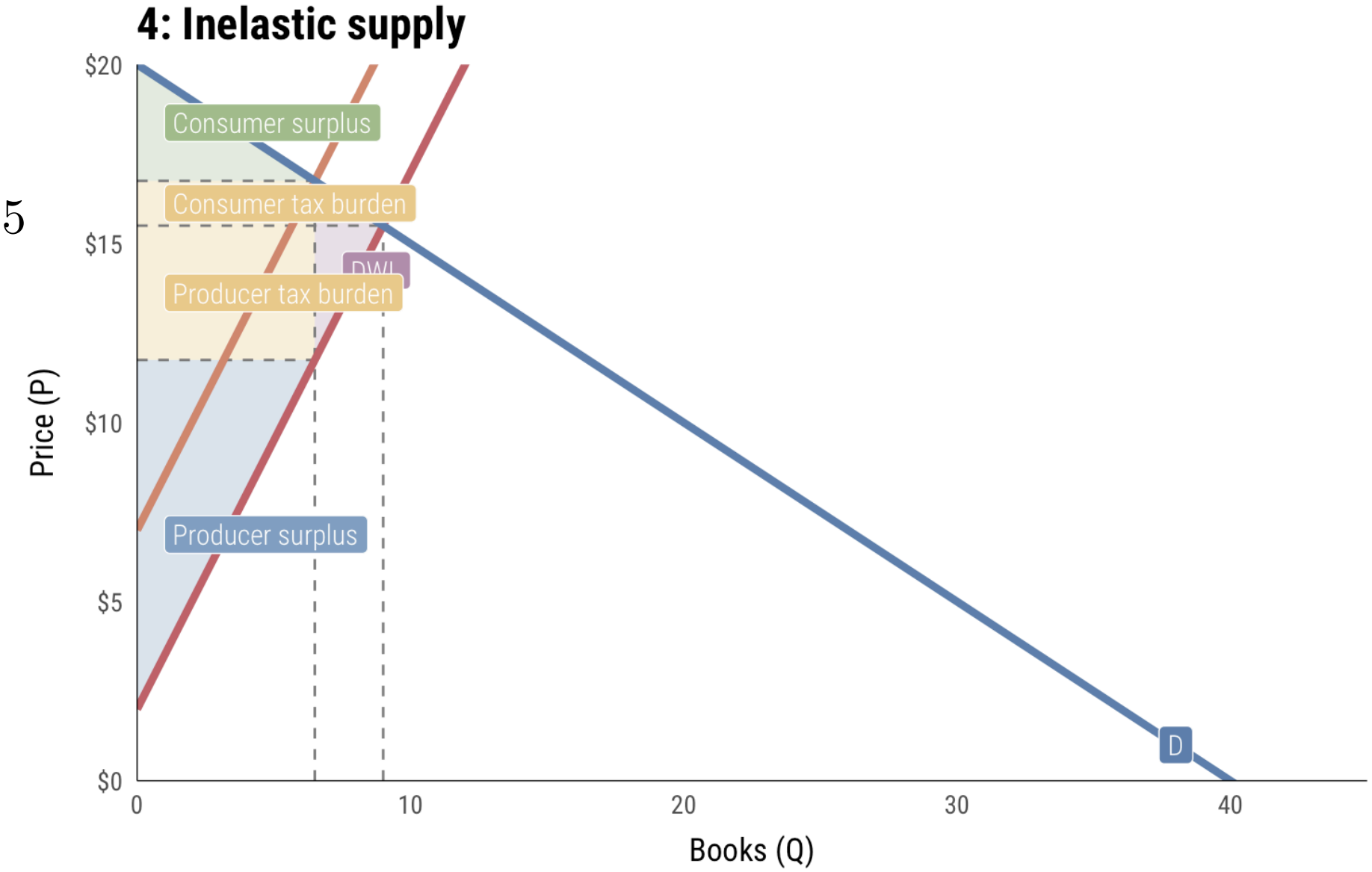


TAX INCIDENCE AND ∈

Incidence depends on elasticity of supply or demand

Tax burden falls on those least able to escape it

INCIDENCE WITHIN CONSUMERS

Progressive taxes

Rich pay more

Income taxes (but loopholes)

Regressive taxes

Poor pay more

Sales taxes, payroll taxes

TAX FAIRNESS

Benefits principle

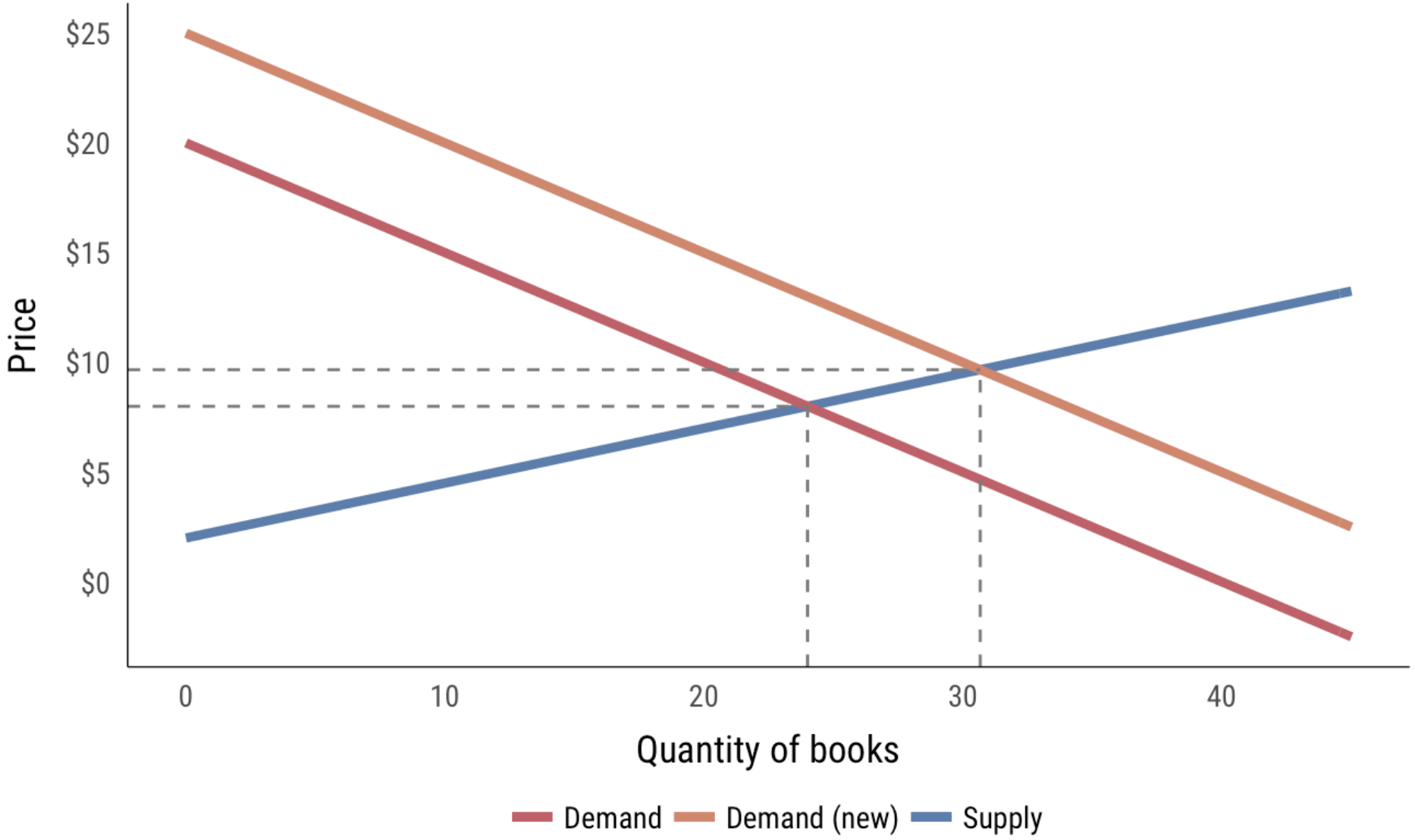
Those who benefit from public spending should bear the burden of the tax

Ability-to-pay principle

Those with a greater ability to pay a tax should pay more tax

CHANGES IN SUPPLY AND DEMAND

CHANGE IN DEMAND



CHANGE IN DEMAND

Demand higher at every possible point

Structural change

Price increases; quantity increases (or decreases/decreases)

Supply remains the same

People start preferring hamburgers over pizza

CHANGE IN QUANTITY DEMANDED

Prices and quantity change…

…but not because of structural issues

Movement *along* demand curve

Supply remains the same

Price of pizza changes

Two ways to get from 24 to 31ish

A → C

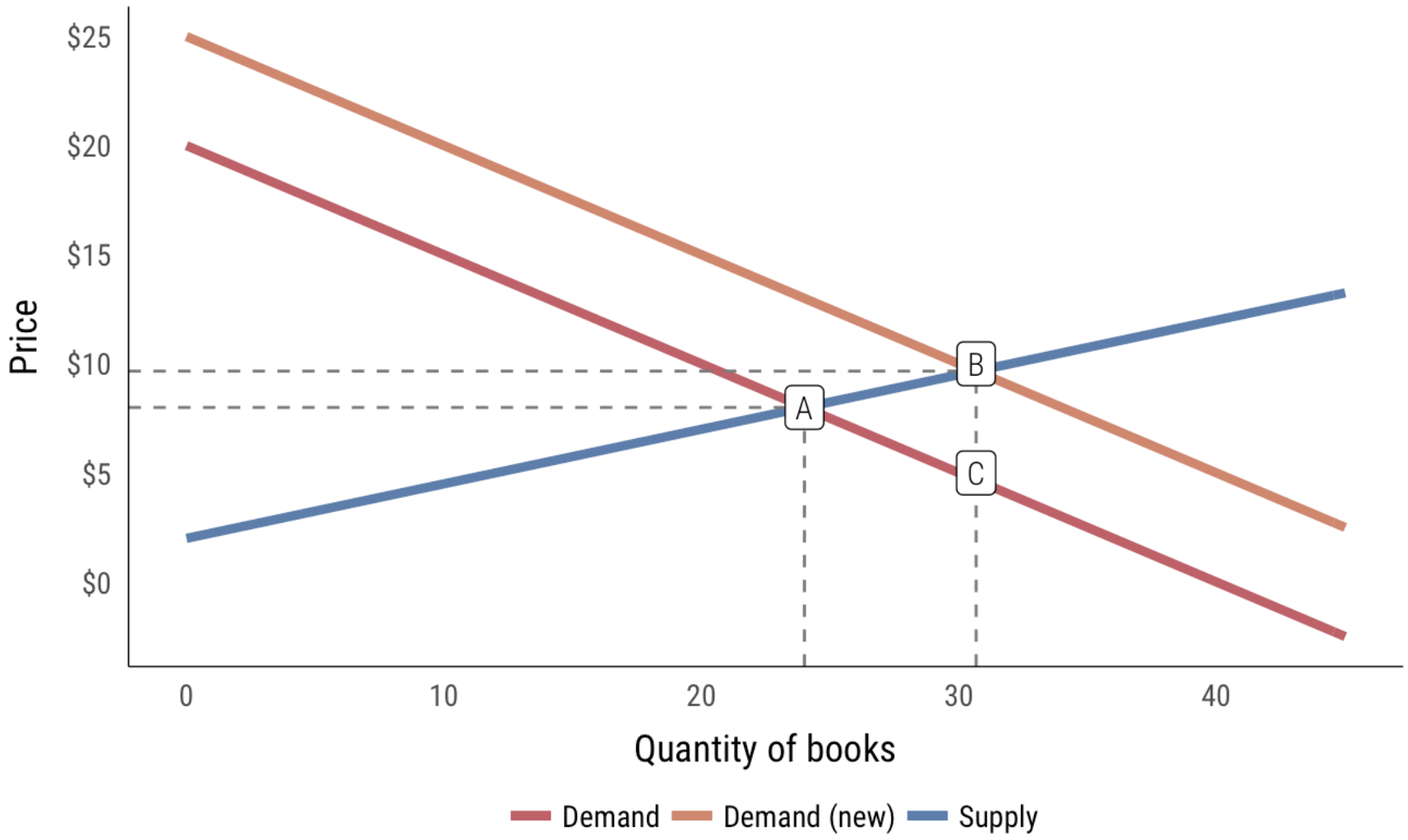
Change in quantity demanded

Only price changes

A → B

Change in demand

New demand curve



CAUSES OF SHIFTING DEMAND

Change in price of complementary goods

Change in price of substitute goods

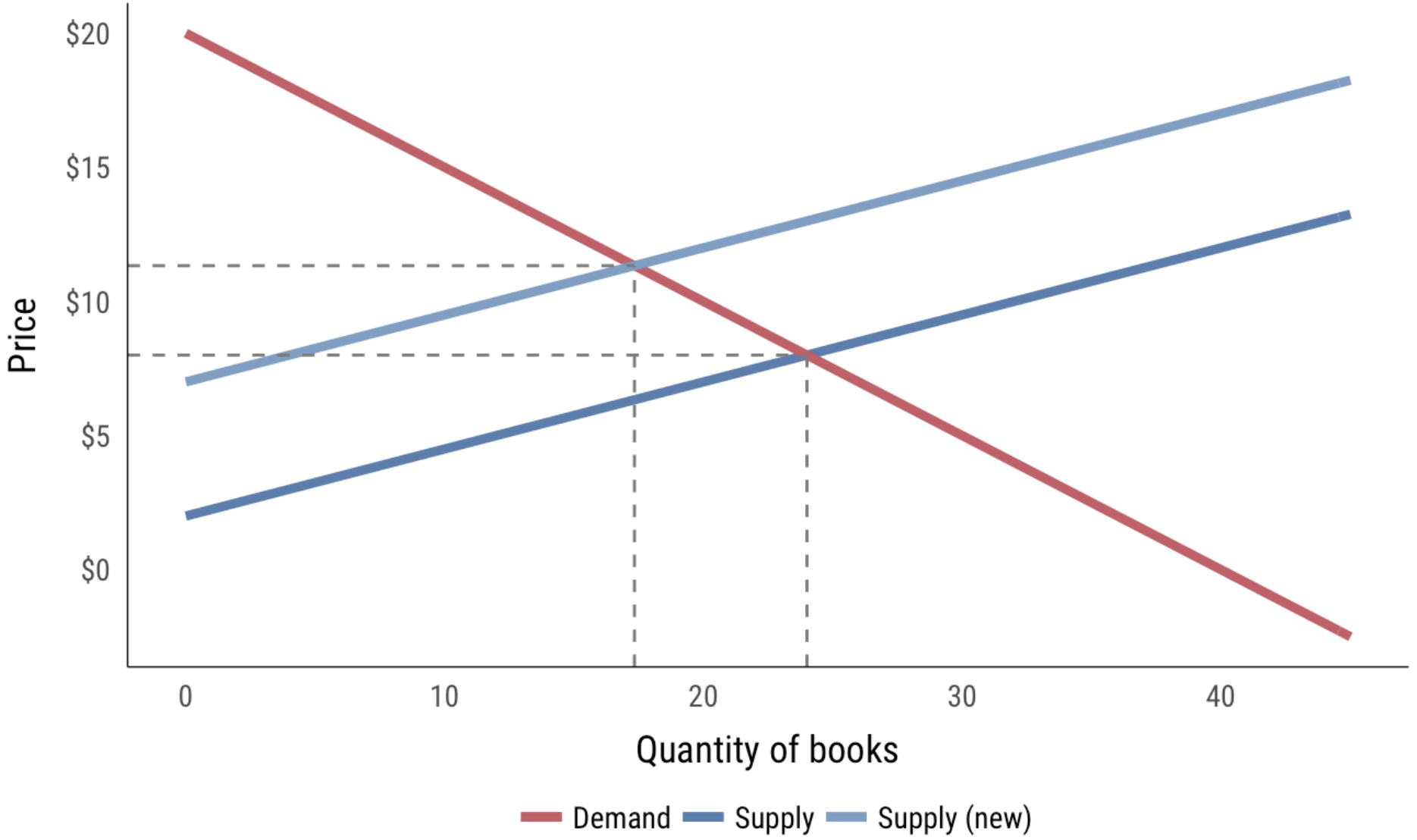
Change in population of buyers

Change in income

Change in preferences

Orange market	Dr. Oz promotes new fad diet where everyone eats 10 oranges a day
Car market	Consumer income rises
Car market	Gas prices double
Shoe market	More manufacturers make shoes
Lettuce market	Price drops by 10 cents

CHANGE IN SUPPLY



CHANGE IN SUPPLY

Supply higher at every possible point

Structural change

Price increases; quantity increases (or decreases/decreases)

Demand remains the same

Cost of production changes because of technology or input costs

CHANGE IN QUANTITY SUPPLIED

Prices and quantity change…

…but not because of structural issues

Movement *along* supply curve

Demand remains the same

Price of product changes

Two ways to get from 24 to 17ish

A → C

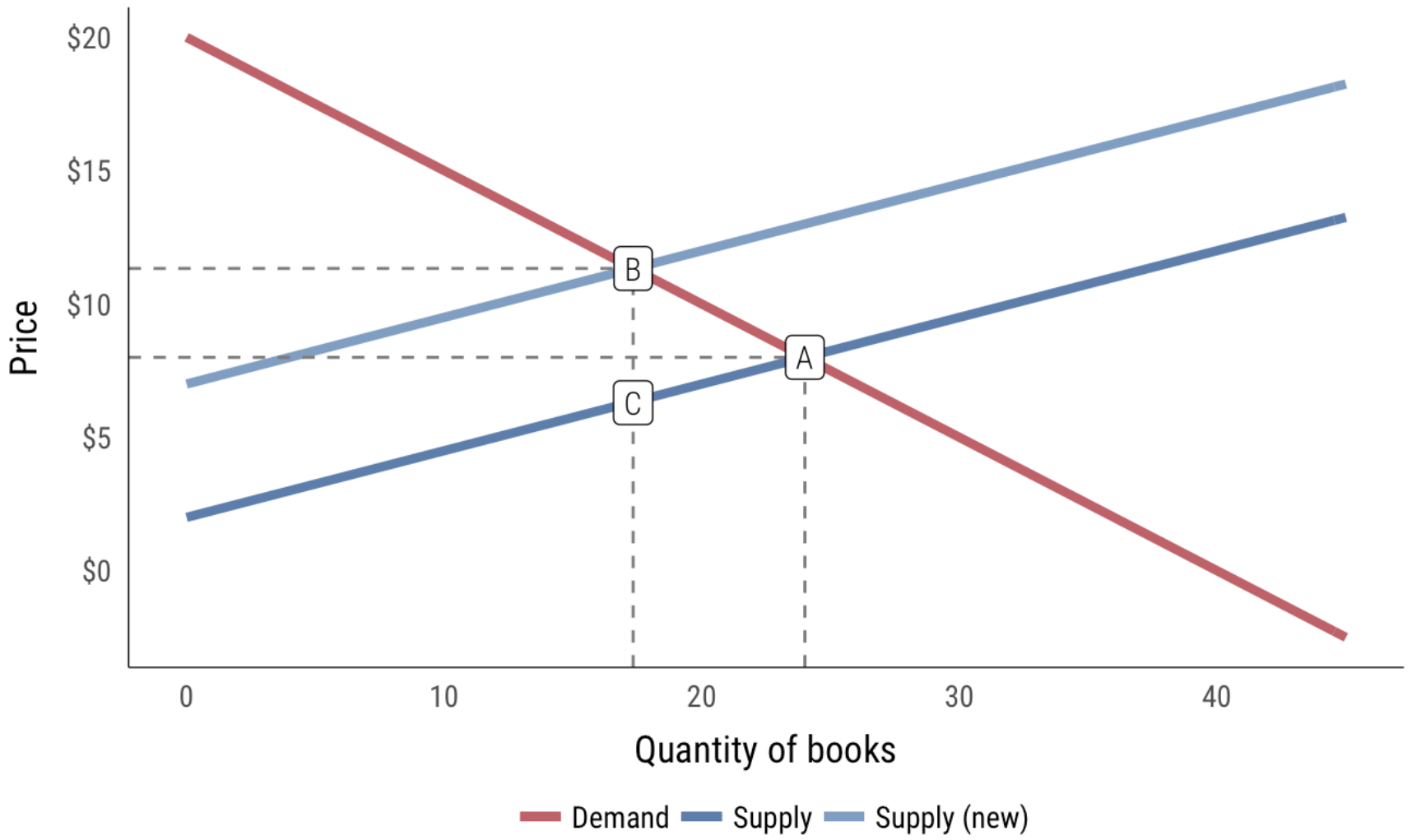
Change in quantity supplied

Only price changes

A → B

Change in supply

New supply curve



CAUSES OF SHIFTING SUPPLY

Change in cost of inputs

Change in cost of production

Change in weather

Change in number of suppliers

Expectation of lower prices

Car market

New engine design reduces production costs

Orange market

Freeze in Florida kills 50% of the crop

Shoe market

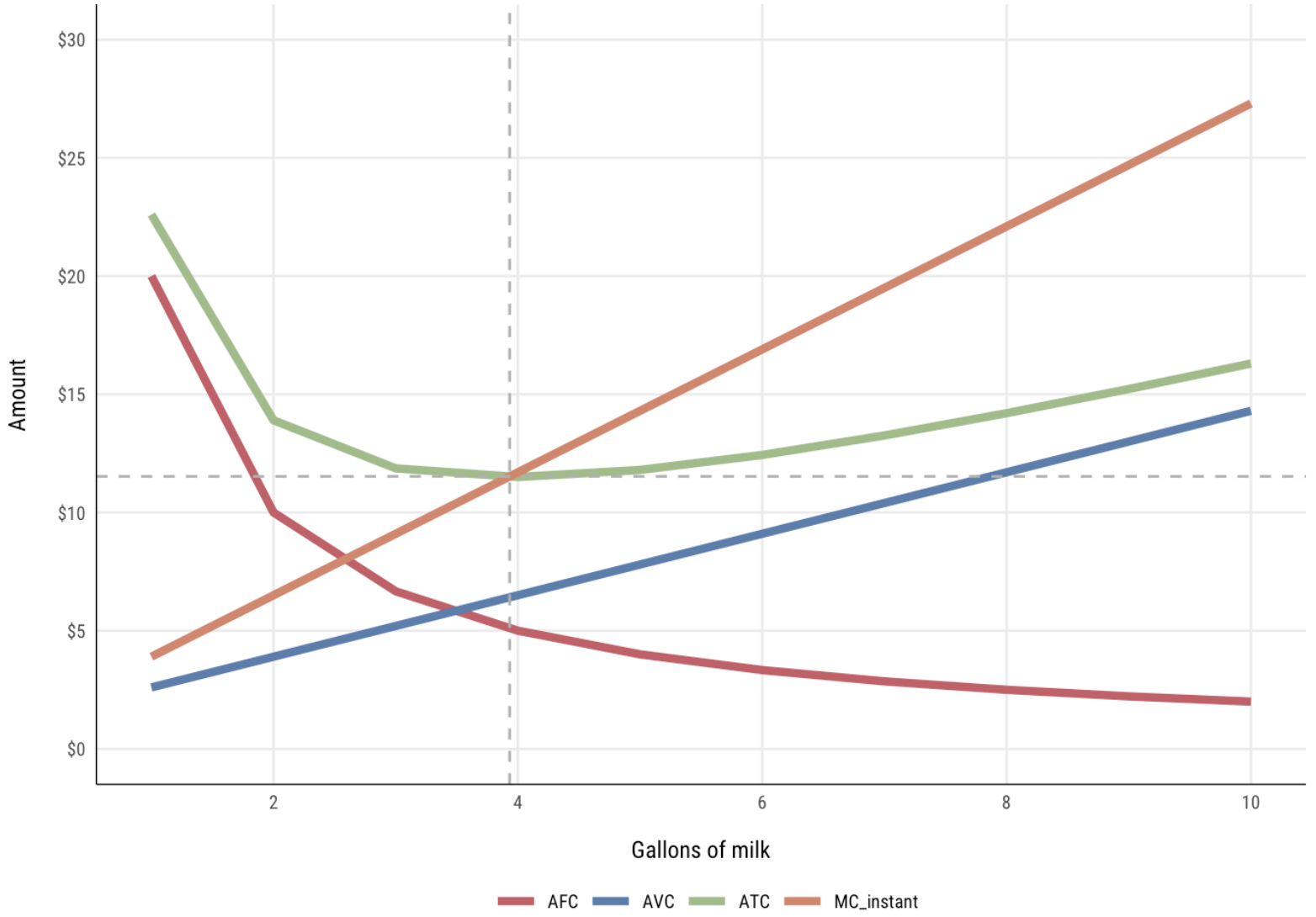
Price of shoes increases

Shoe market

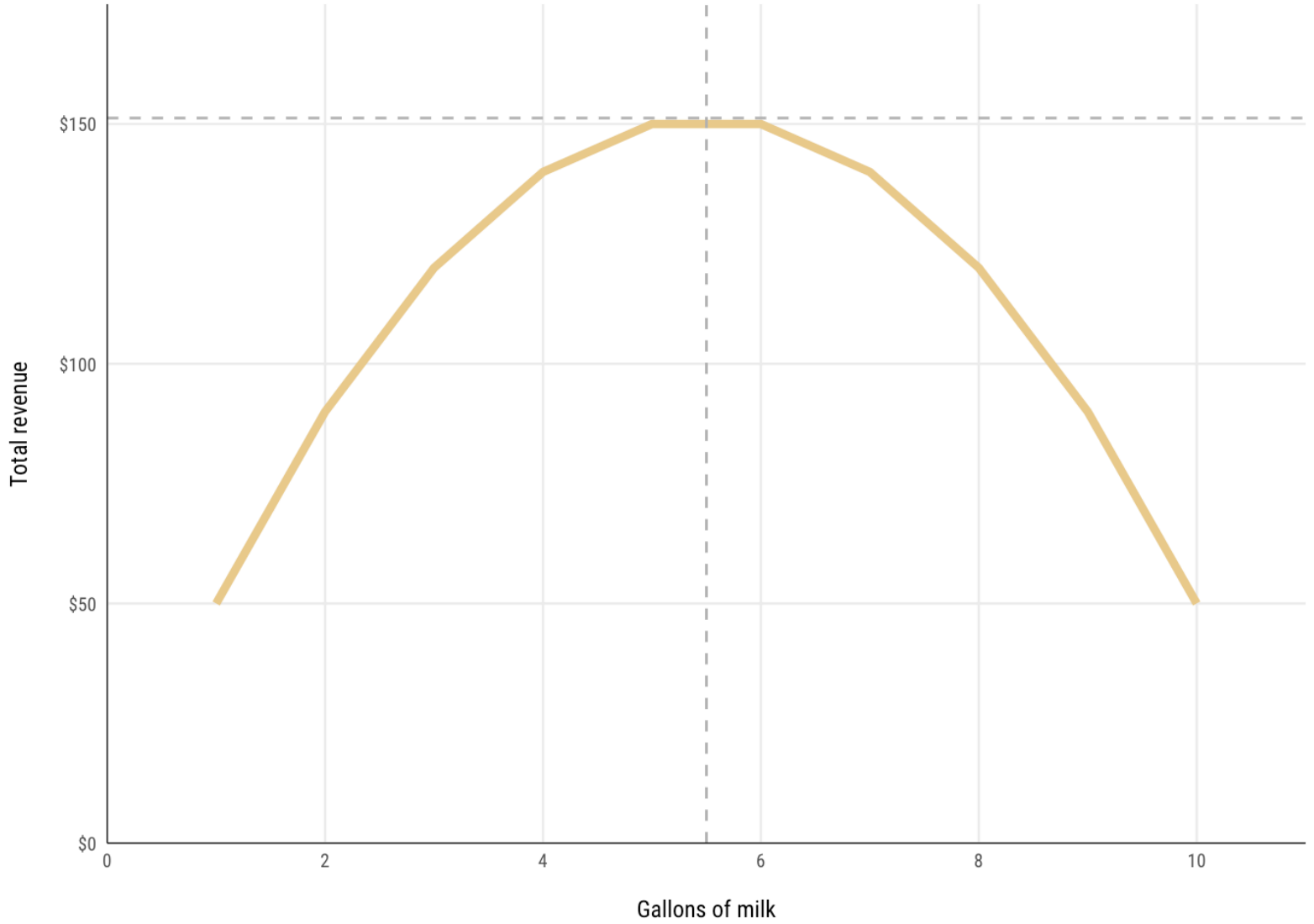
Price of leather increases

PRICE TAKING

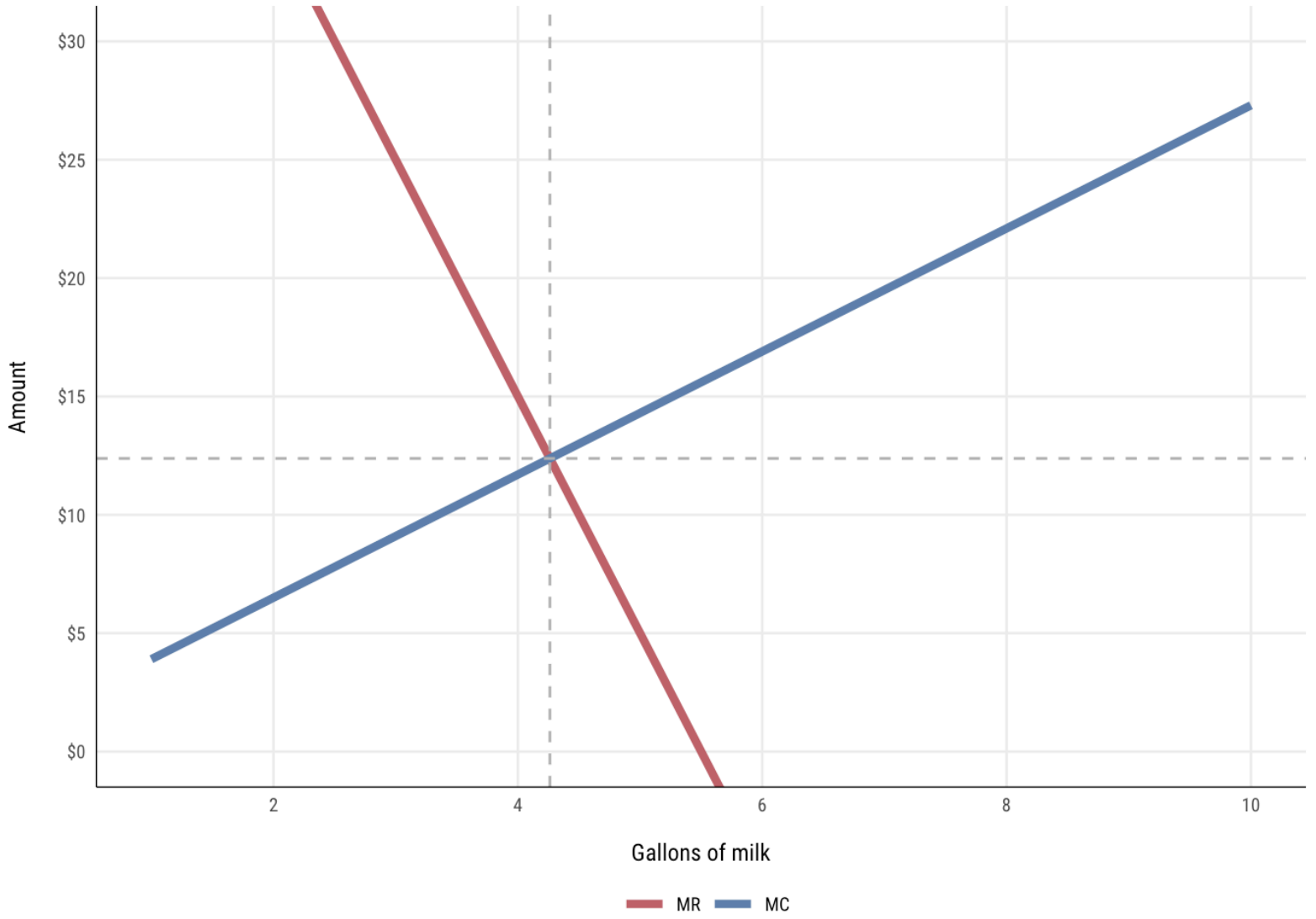
COST MINIMIZATION



REVENUE MAXIMIZATION



PROFIT MAXIMIZATION



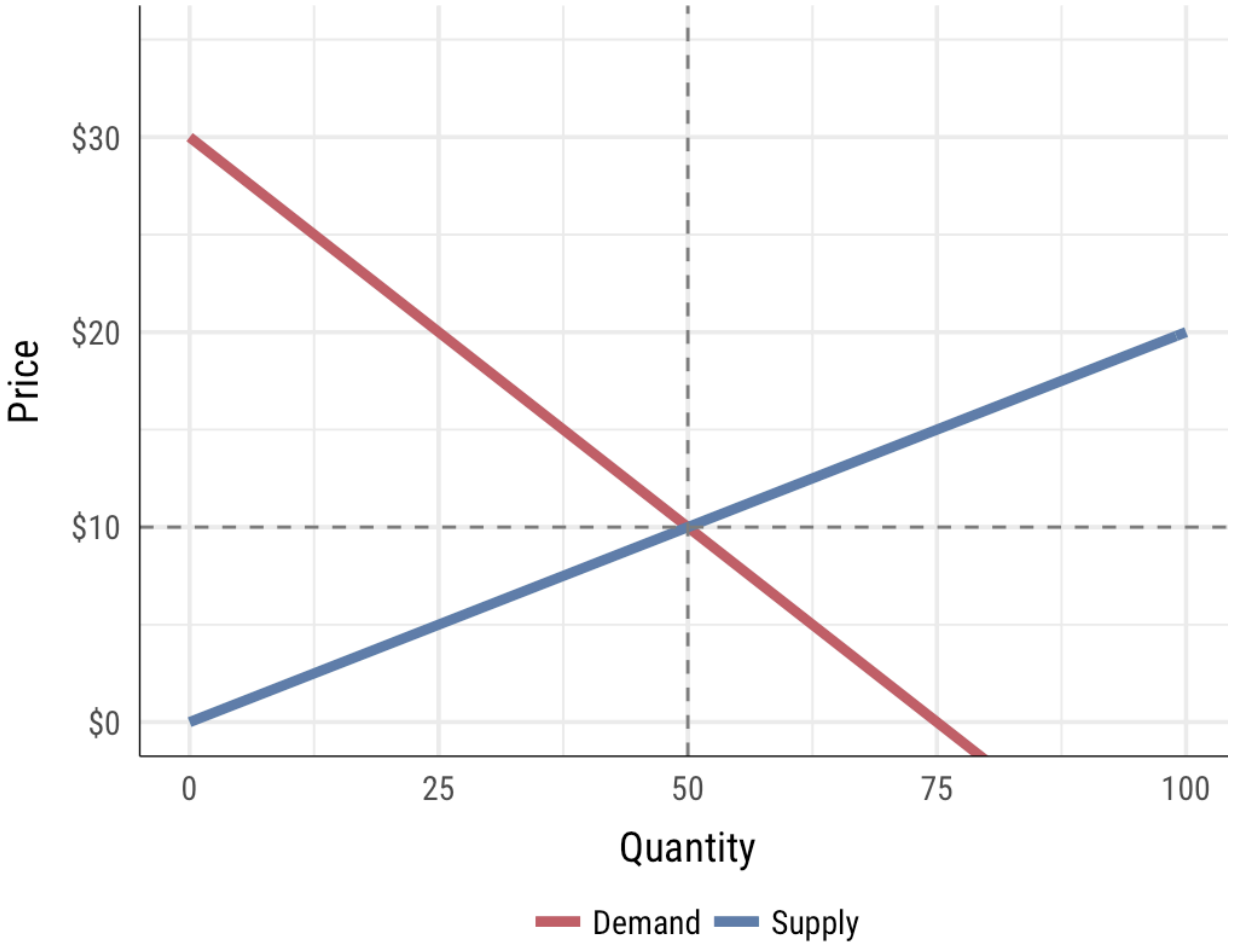
OPTIMAL THINGS

Max π: MC = MR

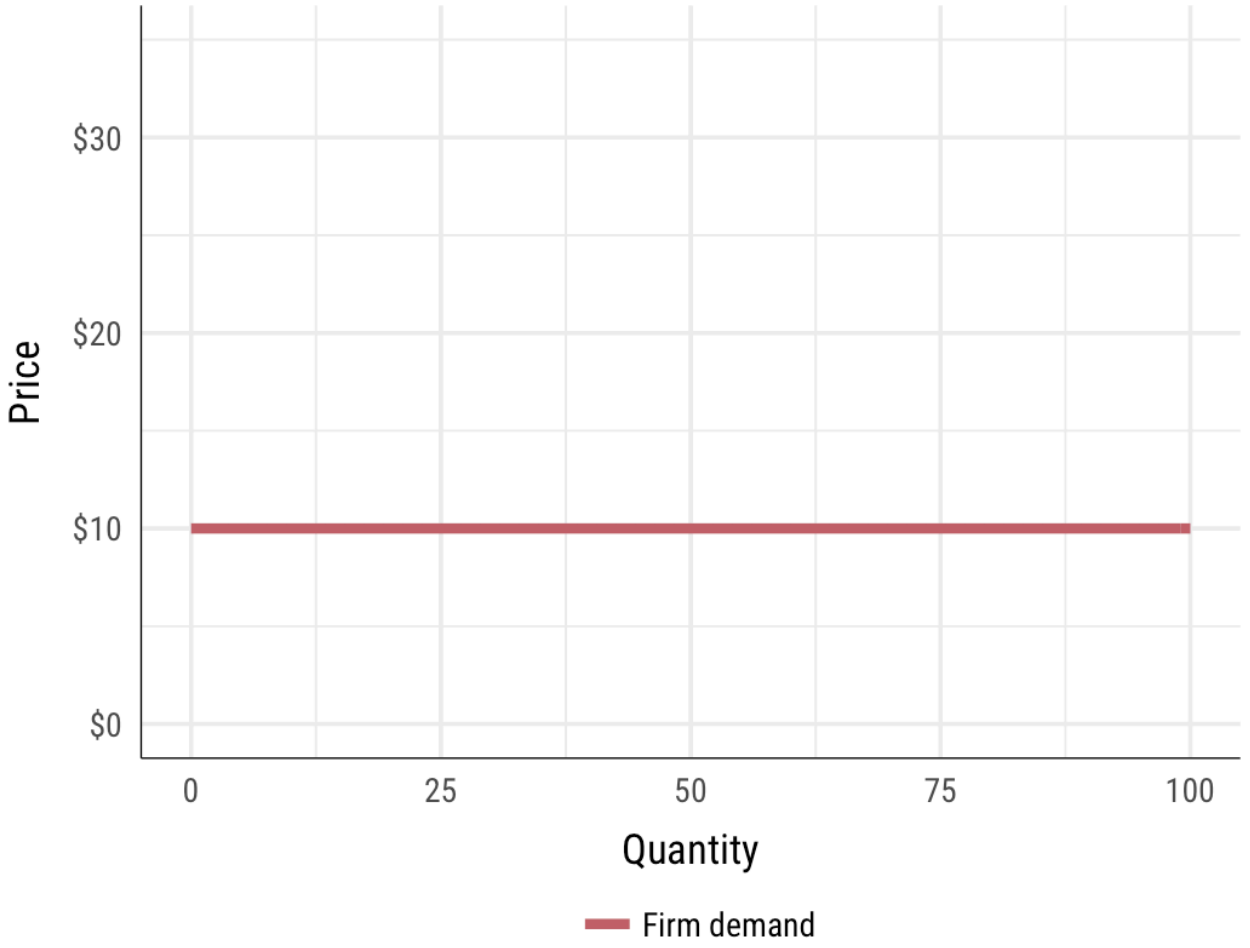
Best Q: Demand = MC

In perfect competition, Demand = MC = MR = P

Market demand



Firm demand



PRICE TAKING

Firm decisions have no impact on the price of a good

You’re stuck with whatever the prevailing market price is ± some markup

BUT WHAT IF???

What if you could affect the price?

Would you want to?

Costs matter.
Set the price to *your* MC, maximize *your* profit.

ESCAPING THE PRICE TAKING WORLD

Escape with market power!

Ability to influence market prices

This is why people get MBAs;
move market away from perfect competition price

WAYS TO ESCAPE

Price discrimination

Monopolies

Switching costs

Branding and differentiation

Cost and input controls

Government regulation

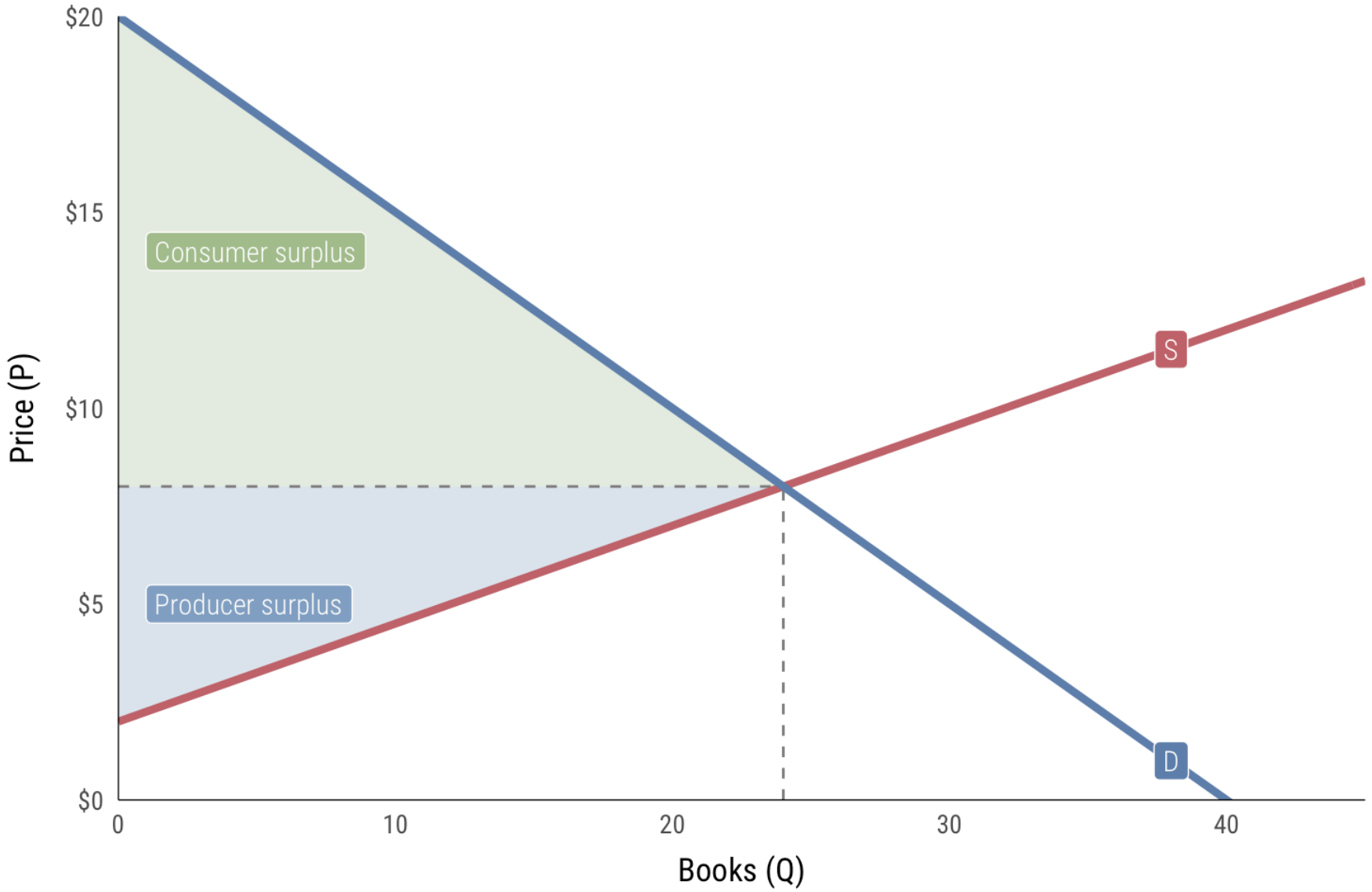
PRICE DISCRIMINATION

With perfect information, firms can set individualized demand curves for customers

Price = WTP

Lyft/Uber **Airplane tickets** **Amazon**

PRICE DISCRIMINATION



MONOPOLIES

The whole market is only one firm, so market demand *is* firm demand

Monopolists will naturally produce less quantity at higher prices than firms in competitive markets

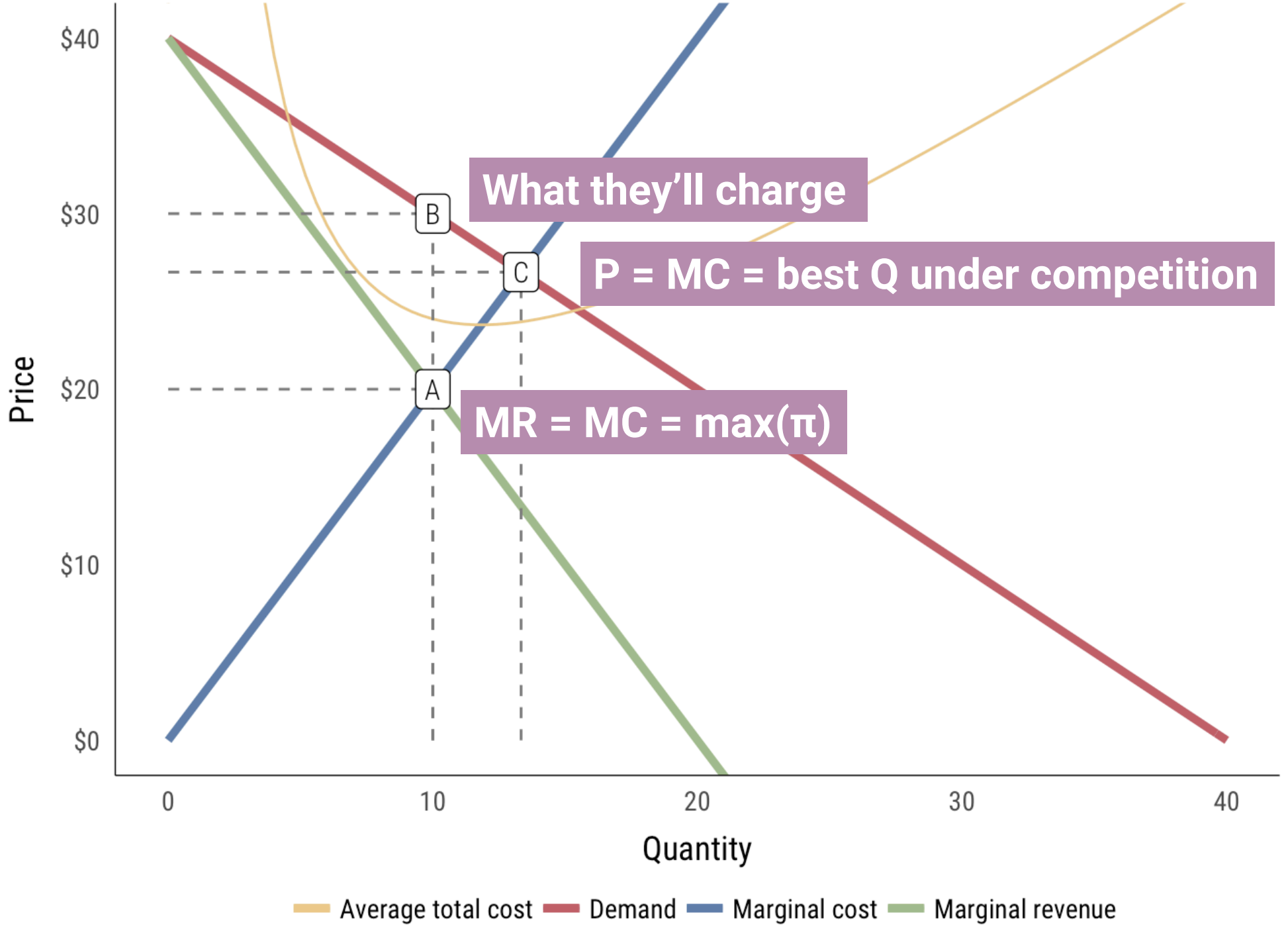
Creates deadweight loss, just like taxes

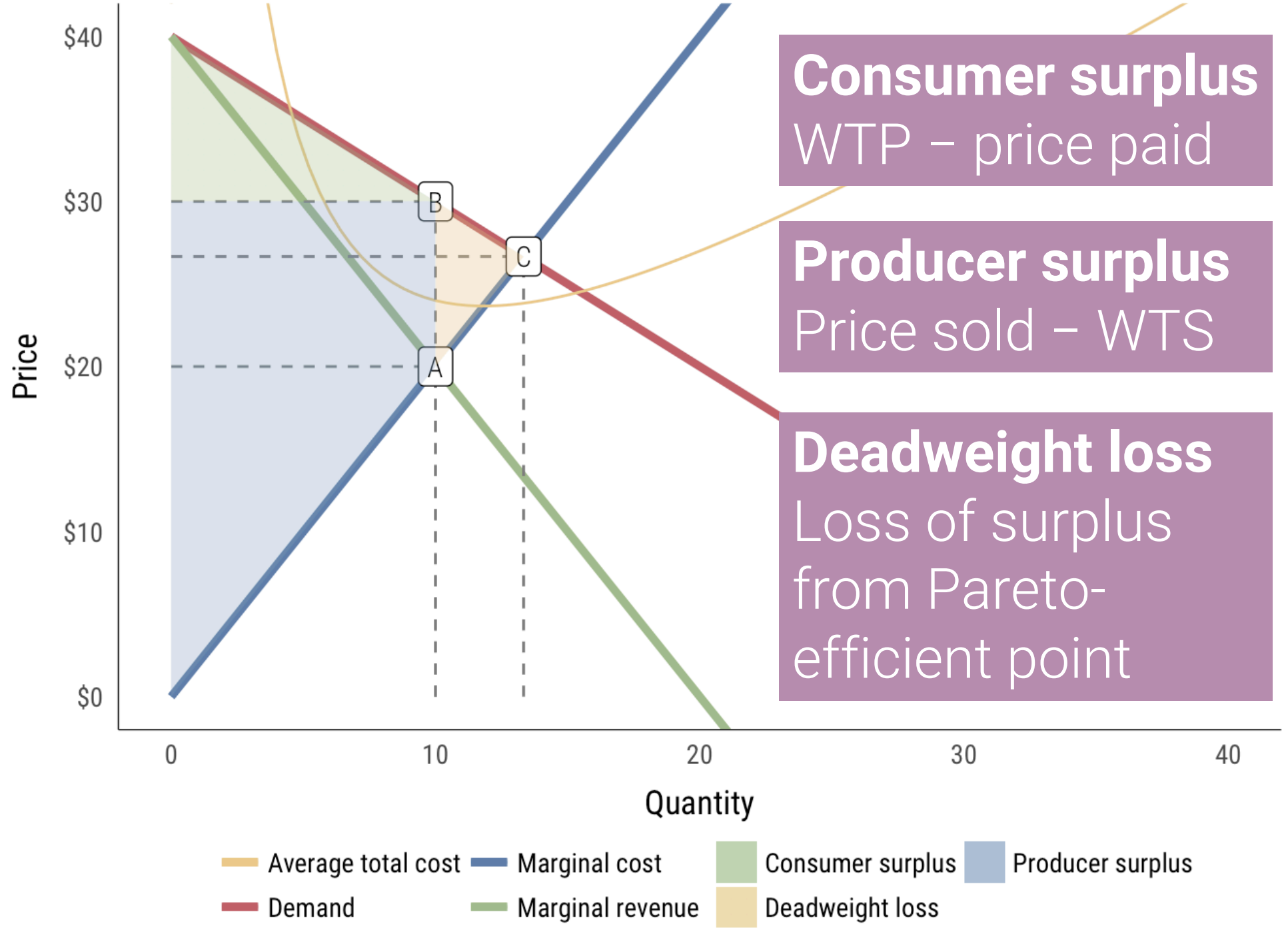
MONOPOLIES

Math time!

$$P = -Q + 40$$

$$TC = Q^2 + 140$$


What they'll charge
P = MC = best Q under competition
MR = MC = max(π)
$40
$30
$20
$10
$0
Price
A
B
C
0
10
20
30
40
Quantity
Average total cost
Demand
Marginal cost
Marginal revenue



Consumer surplus
WTP – price paid

Producer surplus
Price sold – WTS

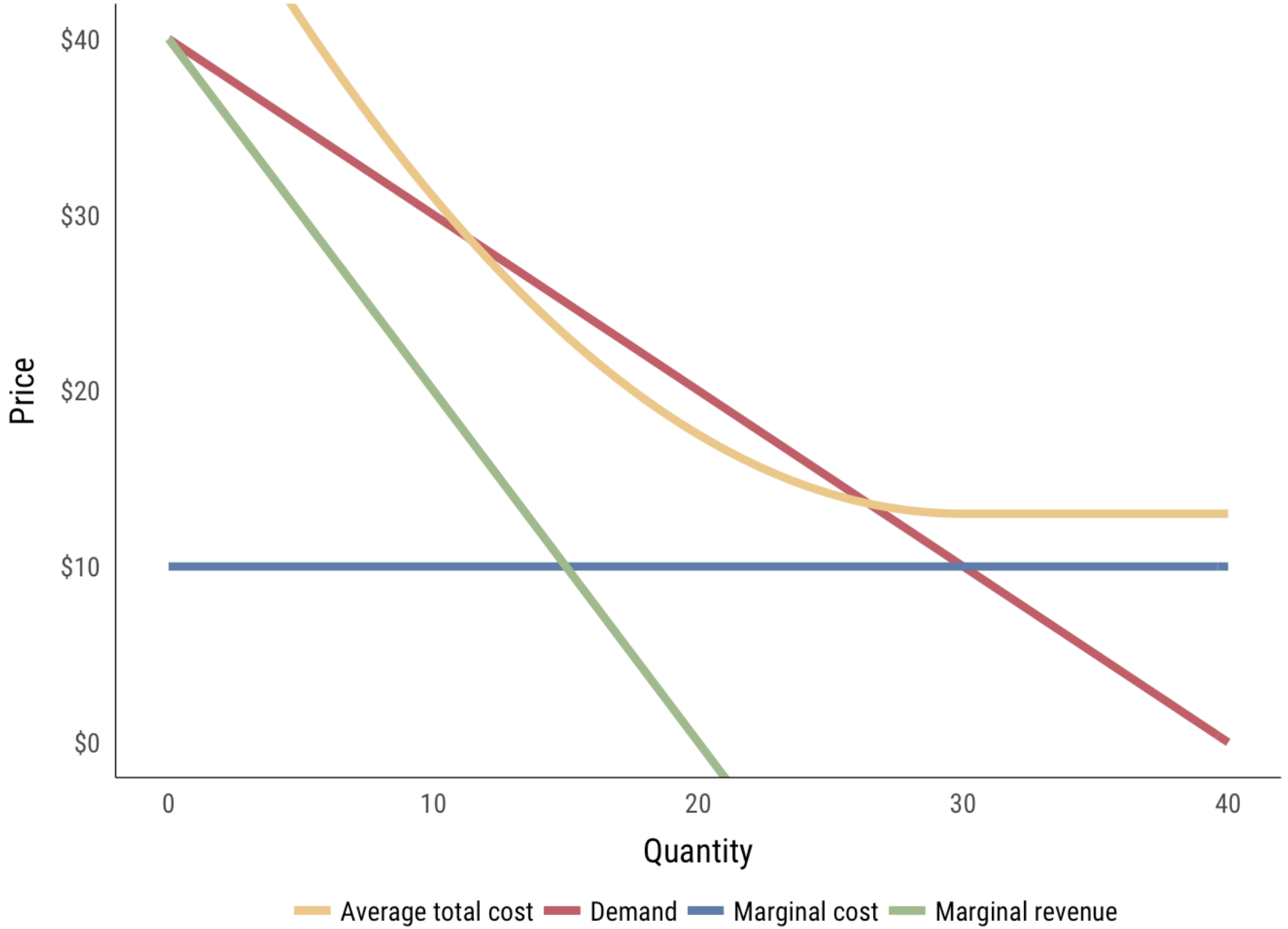
Deadweight loss
Loss of surplus from Pareto-efficient point

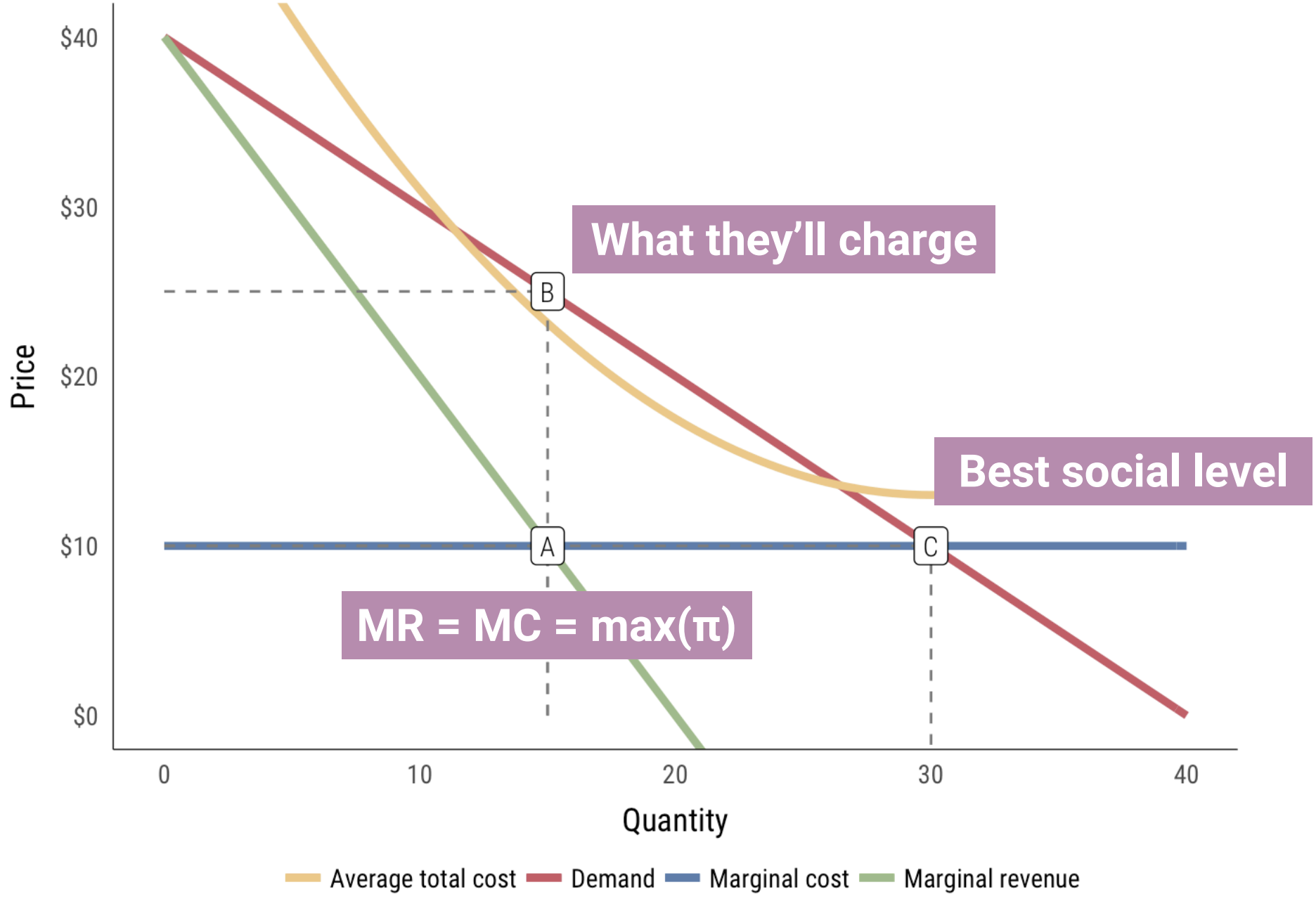
NATURAL MONOPOLIES

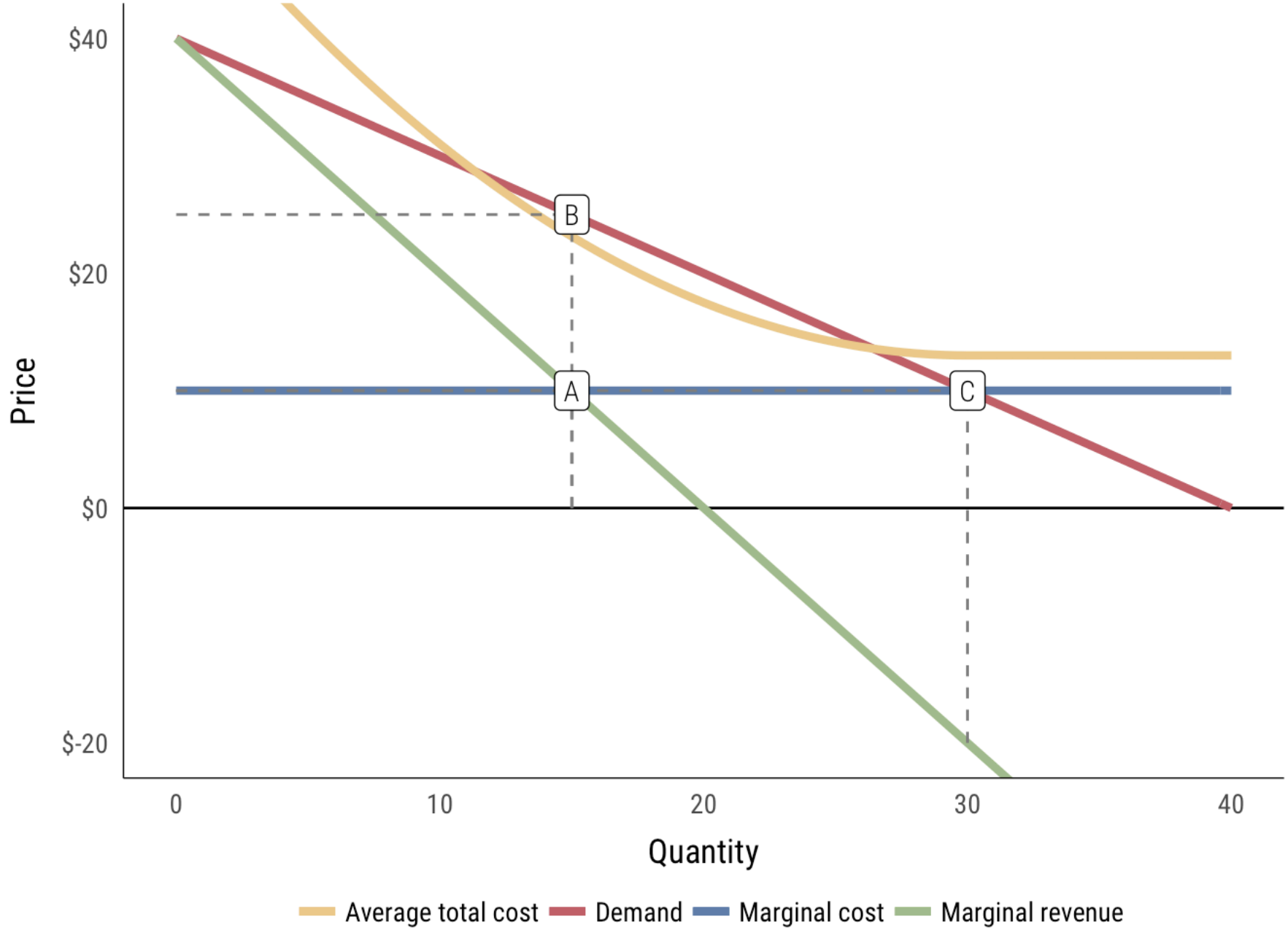
Big expensive things with large capital outlays and low marginal cost

Generally more efficient to just have one firm handle it

Utilities **Public transportation**


$40
$30
$20
$10
$0
Price
0
10
20
30
40
Quantity
Average total cost
Demand
Marginal cost
Marginal revenue


$40
$30
$20
$10
$0
Price
0
10
20
30
40
Quantity
B
A
C
What they'll charge
Best social level
MR = MC = max(π)
Average total cost
Demand
Marginal cost
Marginal revenue


$40
$20
$0
$-20
Price
B
A
C
0
10
20
30
40
Quantity
Average total cost
Demand
Marginal cost
Marginal revenue

SWITCHING COSTS

Make it harder for consumers to switch away from you

Brand-exclusive benefits

Technology constraints

Search costs

Network costs

BRANDING + DIFFERENTIATION

Make your stuff nonsubstitutable

Advertising

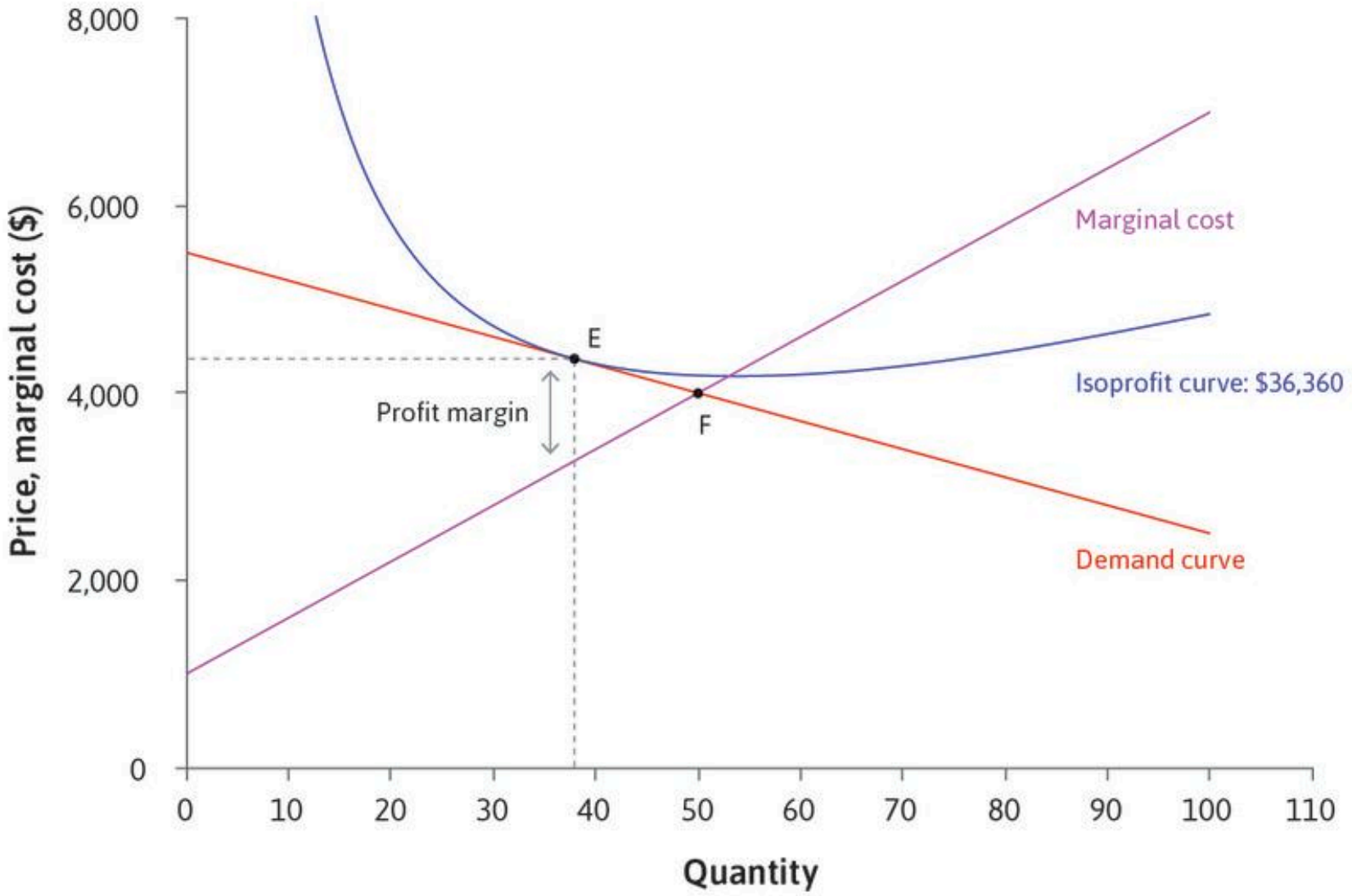
Brand loyalty

BRANDING + DIFFERENTIATION

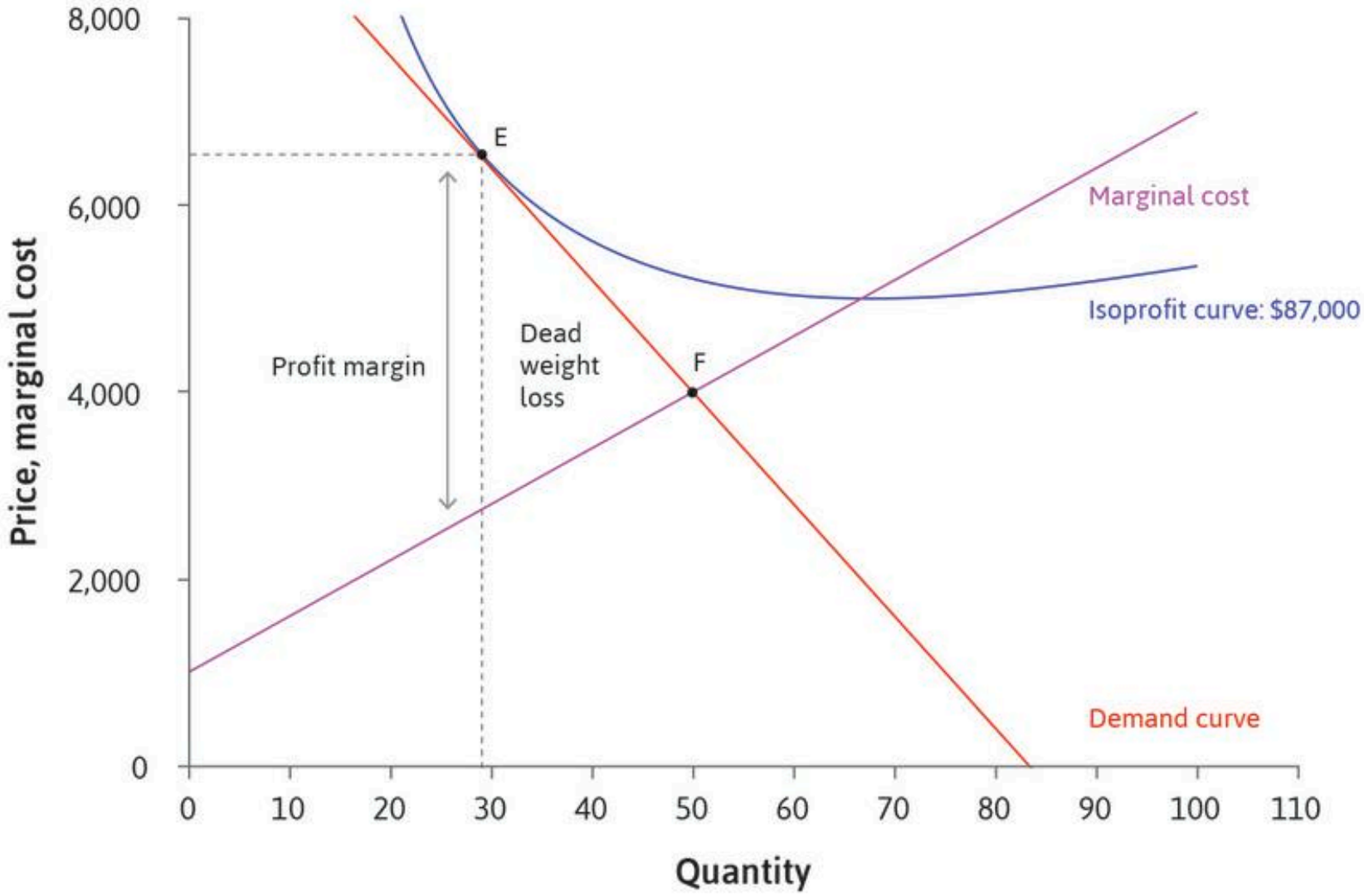
If people are stuck with you
(or like you a lot, or believe in your product,
or if your stuff generally isn't substitutable)
you can charge them more

Markup depends on elasticity

ELASTIC DEMAND



INELASTIC DEMAND



COST AND INPUT CONTROLS

Own the means of production

Control scarce inputs

Control cheap supply chains

GOVERNMENT REGULATION

Make the government stop others from competing with you

Patents and intellectual property

Licensing

Prohibition of competition