Presentation to accompany

Principles of Microconomics, Fourth Edition

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Lecture 6

Previously...

- Government policies
  - price ceiling
  - price floor
  - taxes

Today...

- Efficiency of markets
  - consumer surplus
  - producer surplus
- Application
  - welfare consequences of taxation

Market Equilibrium

- Market equilibrium reflects the way markets allocate scarce resources
- Whether the market allocation is desirable can be addressed by welfare economics
- Do the equilibrium price and quantity maximize the total welfare of buyers and sellers?

Welfare

Welfare economics is the study of how the allocation of resources affects economic well-being

- Buyers and sellers receive benefits from taking part in the market
- The equilibrium in a market maximizes the total welfare of buyers and sellers

Welfare

Equilibrium in the market results in maximum benefits, and therefore maximum total welfare for both the consumers and the producers of the product

- Consumer surplus measures economic welfare from the buyer's side
- Producer surplus measures economic welfare from the seller's side

Consumer Surplus

Willingness to pay is the maximum amount that a buyer will pay for a good;
it measures how much the buyer values the good or service

Buyer	Willingness to Pay
John	$100
Paul	80
George	70
Ringo	50

Consumer surplus is the buyer's willingness to pay for a good minus the amount the buyer actually pays for it

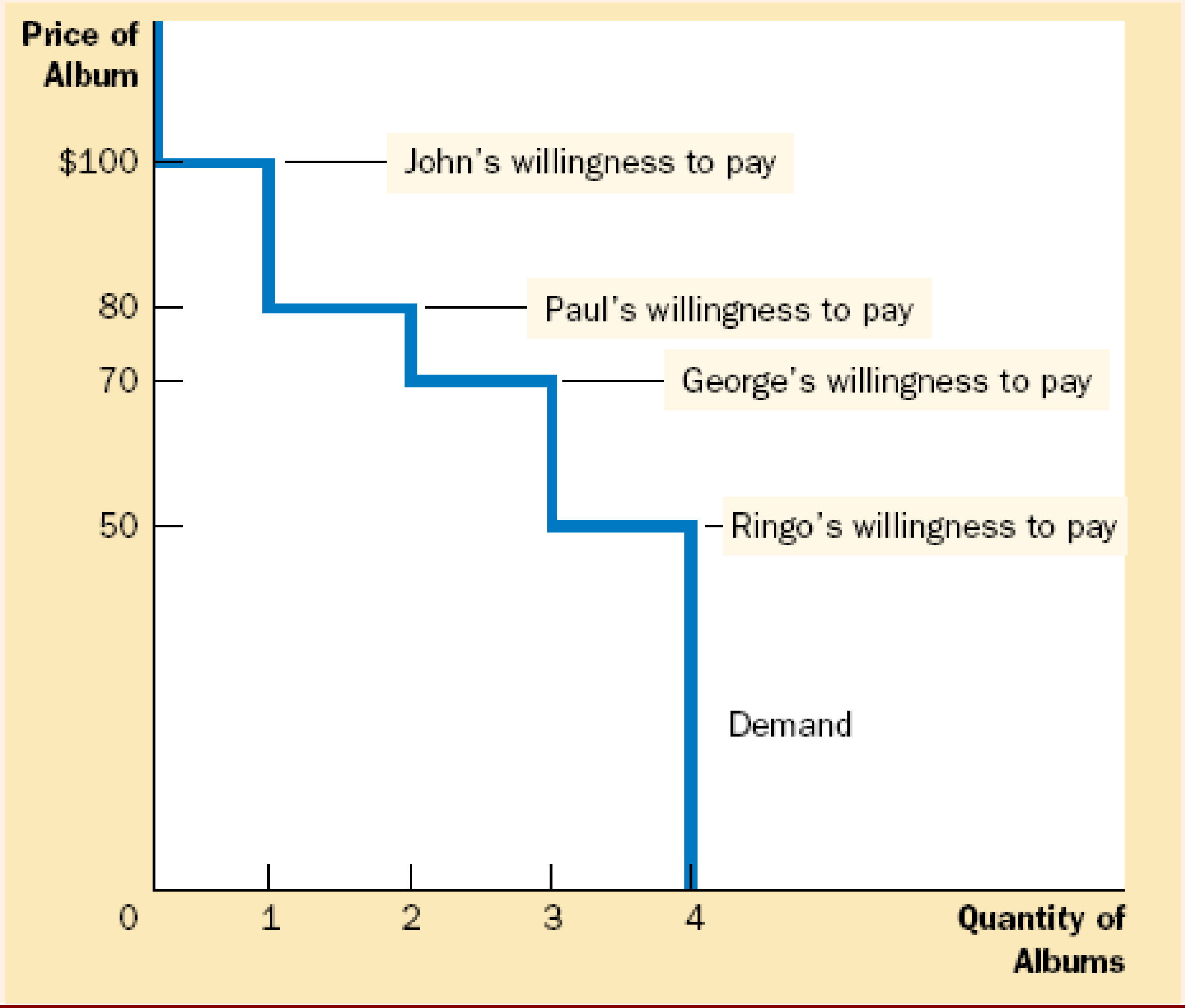
Consumer Surplus

The market demand curve depicts the various quantities that buyers would be willing and able to purchase at different prices

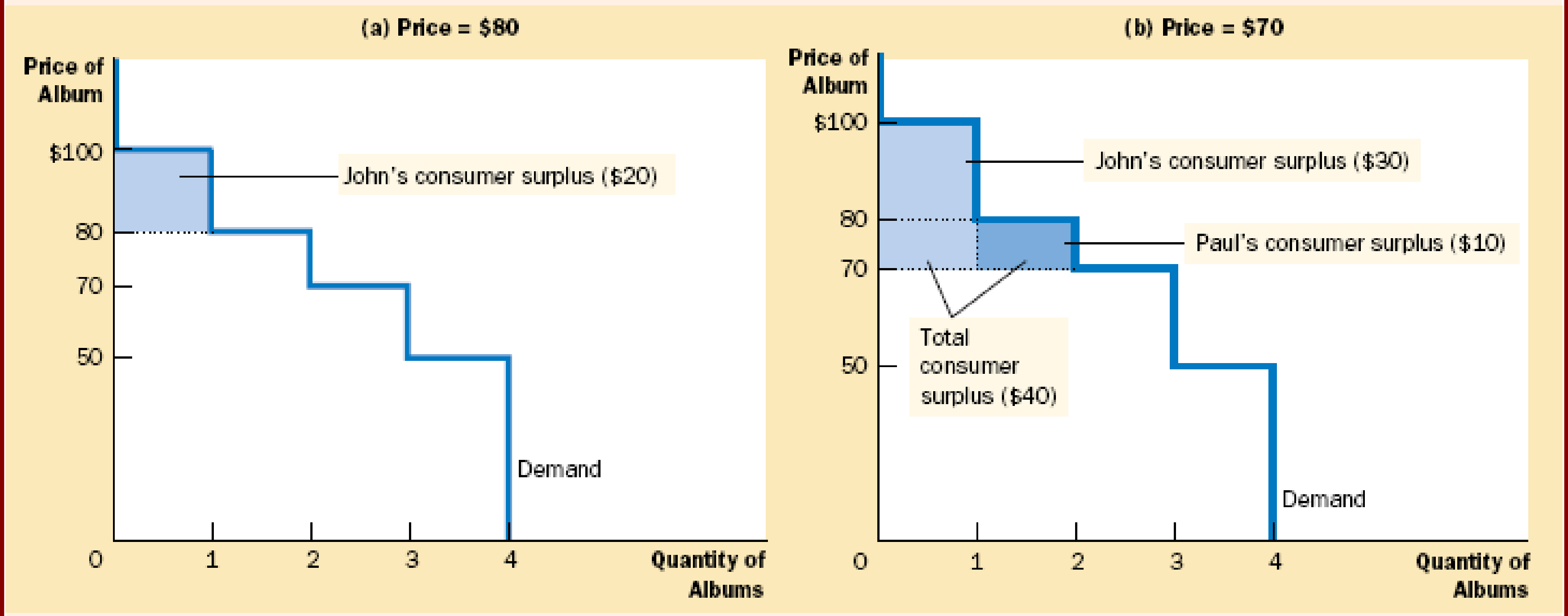
Consumer Surplus

Price	Buyers	Quantity Demanded
More than $100	None	0
$80 to $100	John	1
$70 to $80	John, Paul	2
$50 to $70	John, Paul, George	3
$50 or less	John, Paul, George, Ringo	4

Consumer Surplus

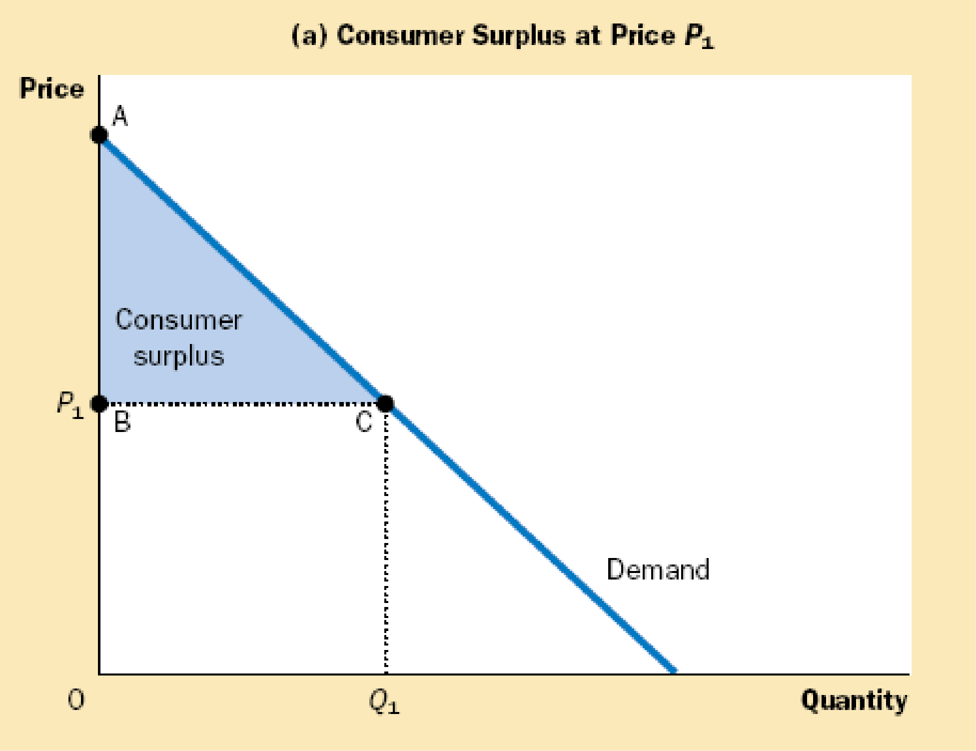


Consumer Surplus



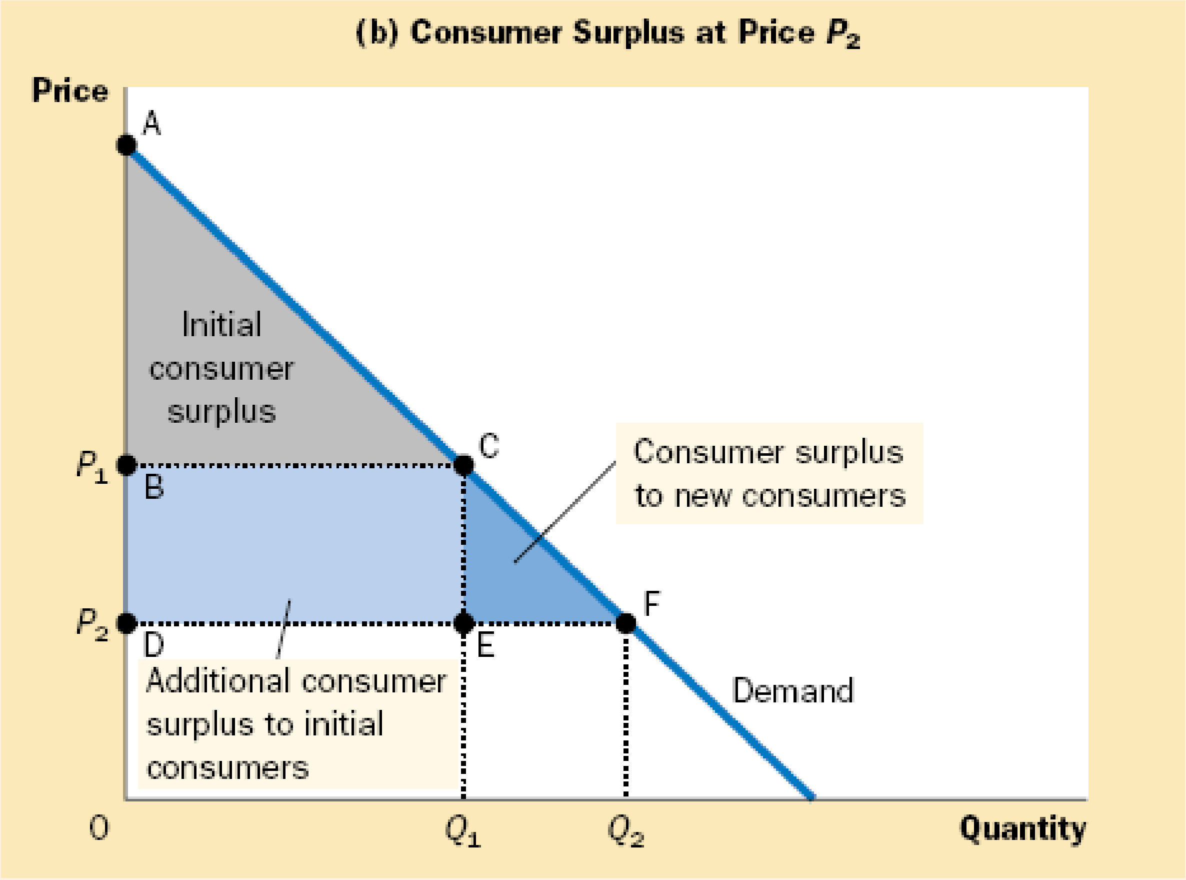
Consumer Surplus

The area below the demand curve and above the price measures the consumer surplus in the market



Consumer Surplus

Effect of decrease in price:



Consumer Surplus

What does consumer surplus measure?

Consumer surplus, the amount that buyers are willing to pay for a good minus the amount they actually pay for it, measures the benefit that buyers receive from a good as the buyers themselves perceive it

Producer Surplus

Producer surplus is the amount a seller is paid for a good minus the seller's cost

It measures the benefit to sellers participating in a market

Seller	Cost
Mary	$900
Frida	800
Georgia	600
Grandma	500

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

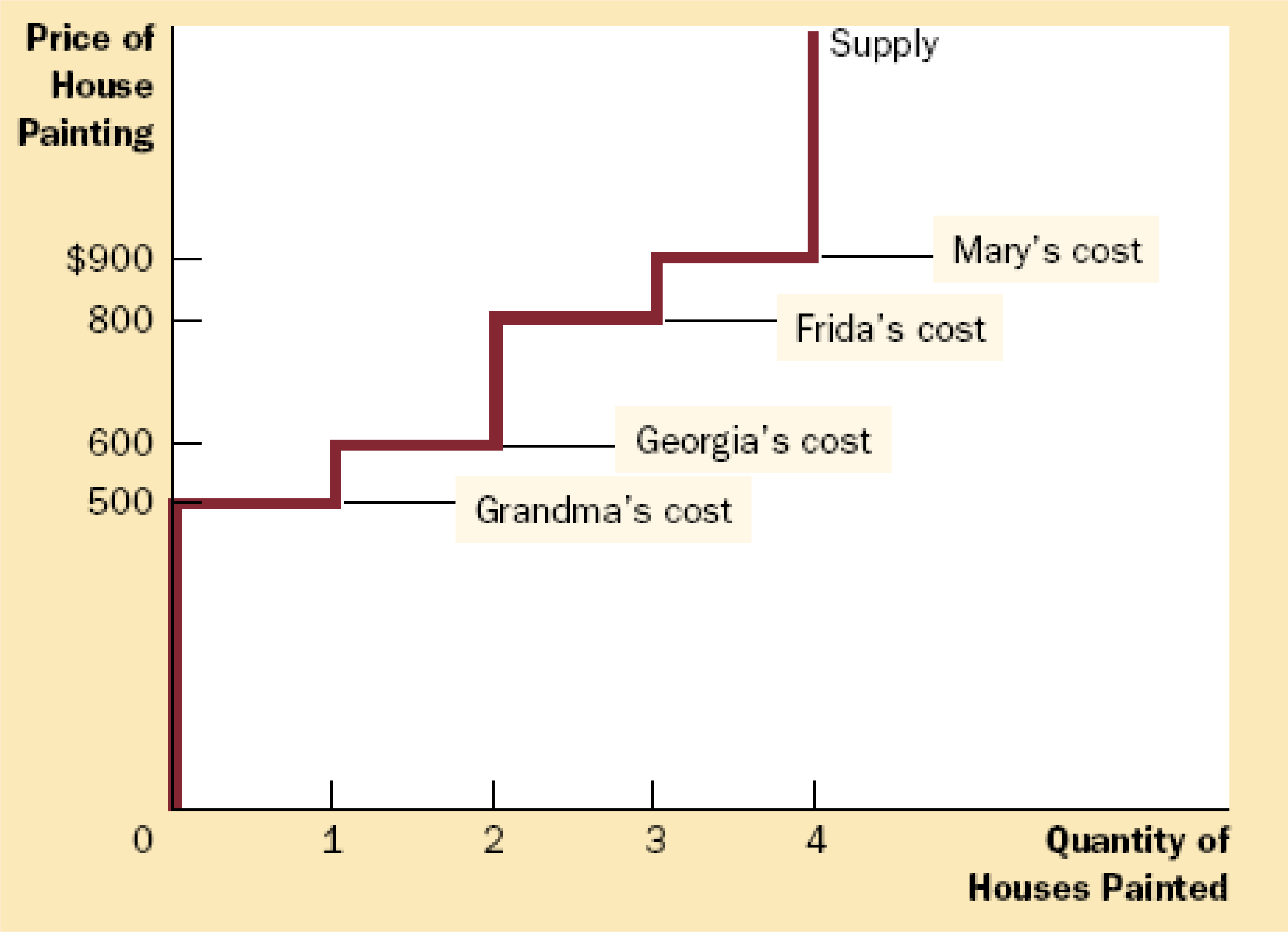
Producer Surplus

Quantity supplied:

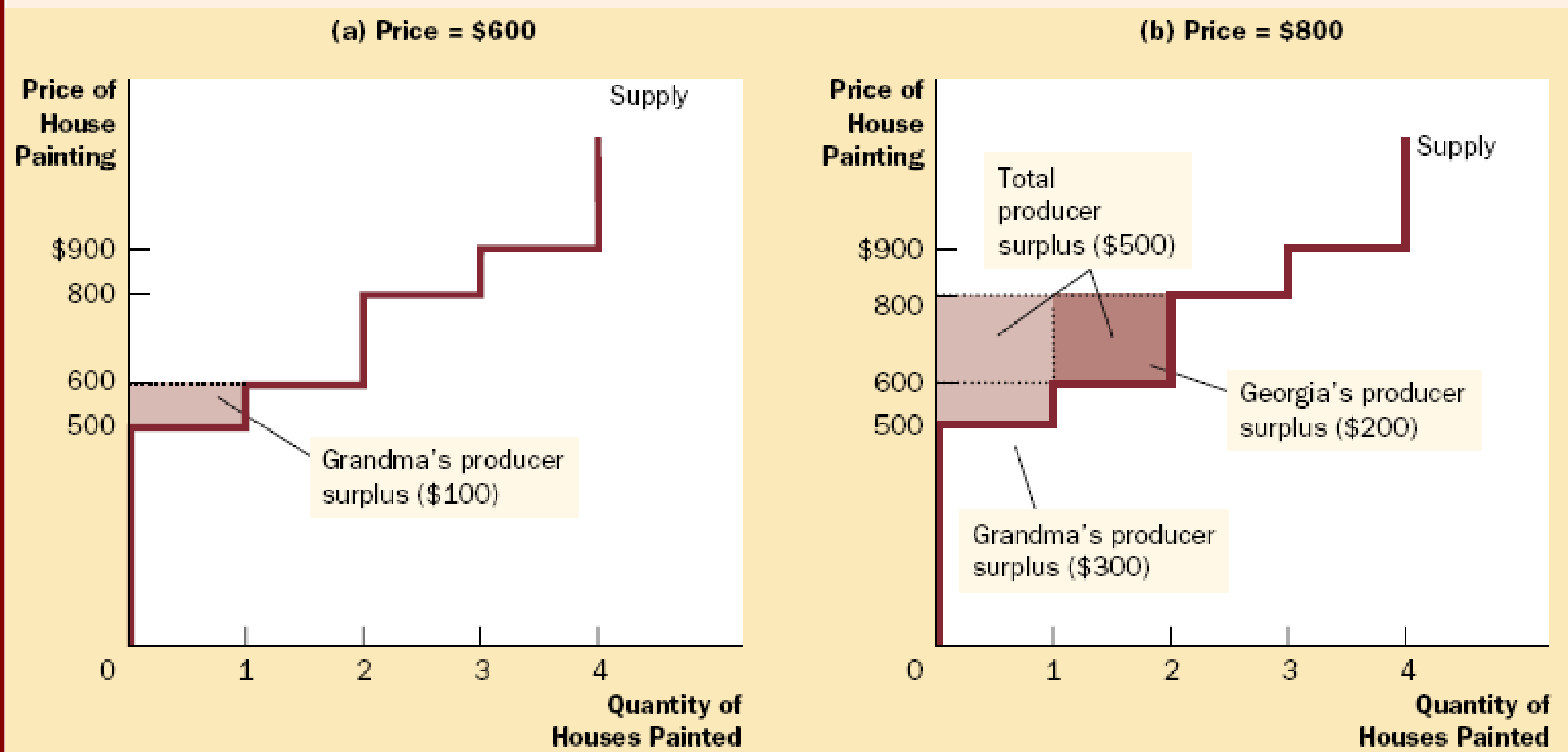
PRICE	SELLERS	QUANTITY SUPPLIED
\$900 or more	Mary, Frida, Georgia, Grandma	4
\$800 to \$900	Frida, Georgia, Grandma	3
\$600 to \$800	Georgia, Grandma	2
\$500 to \$600	Grandma	1
Less than \$500	None	0

Producer Surplus

Supply curve:

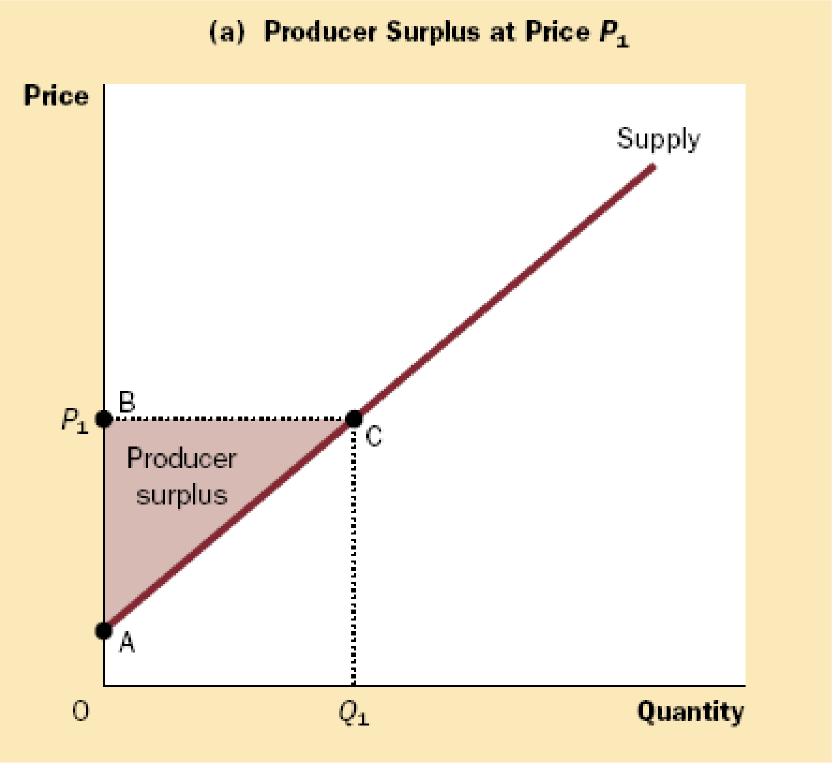


Producer Surplus



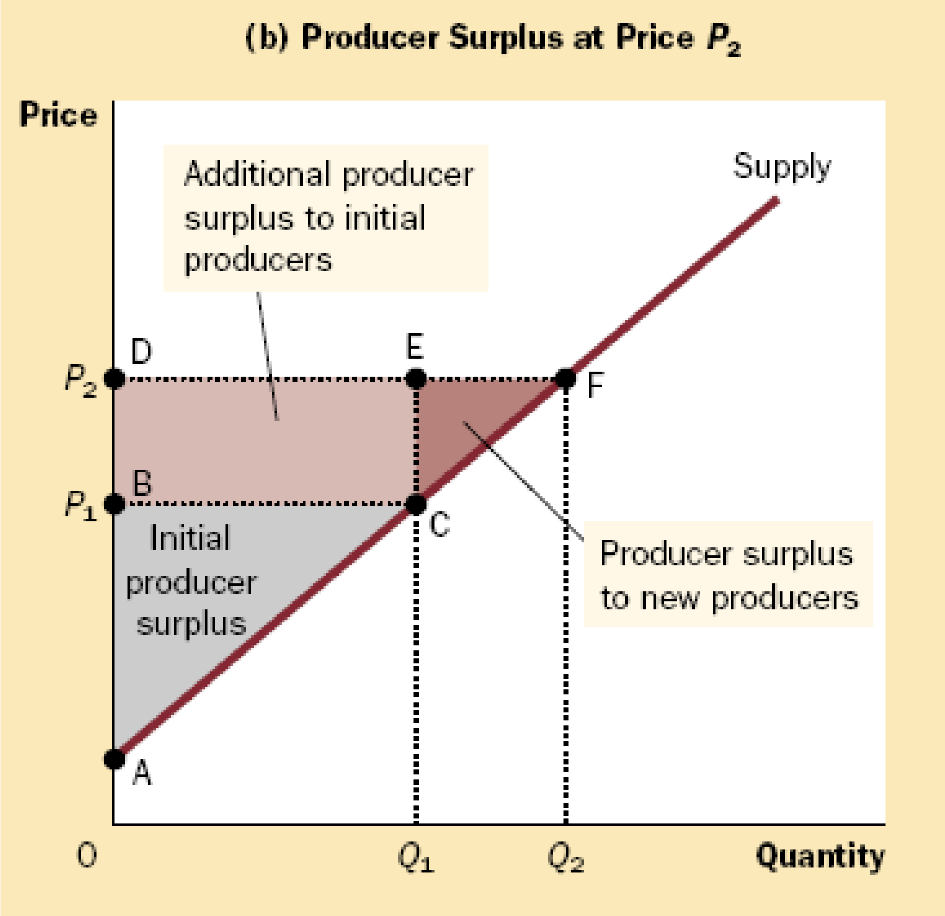
Producer Surplus

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



Producer Surplus

Effect of increase in price:



Market Efficiency

Consumer surplus and producer surplus may be used to address the following question:

- Is the allocation of resources determined by free markets in any way desirable?

- CS = Value to buyers – Amount paid by buyers
- PS = Amount received by sellers – Cost to sellers
- TS = Consumer surplus + Producer surplus
- TS = Value to buyers – Cost to sellers

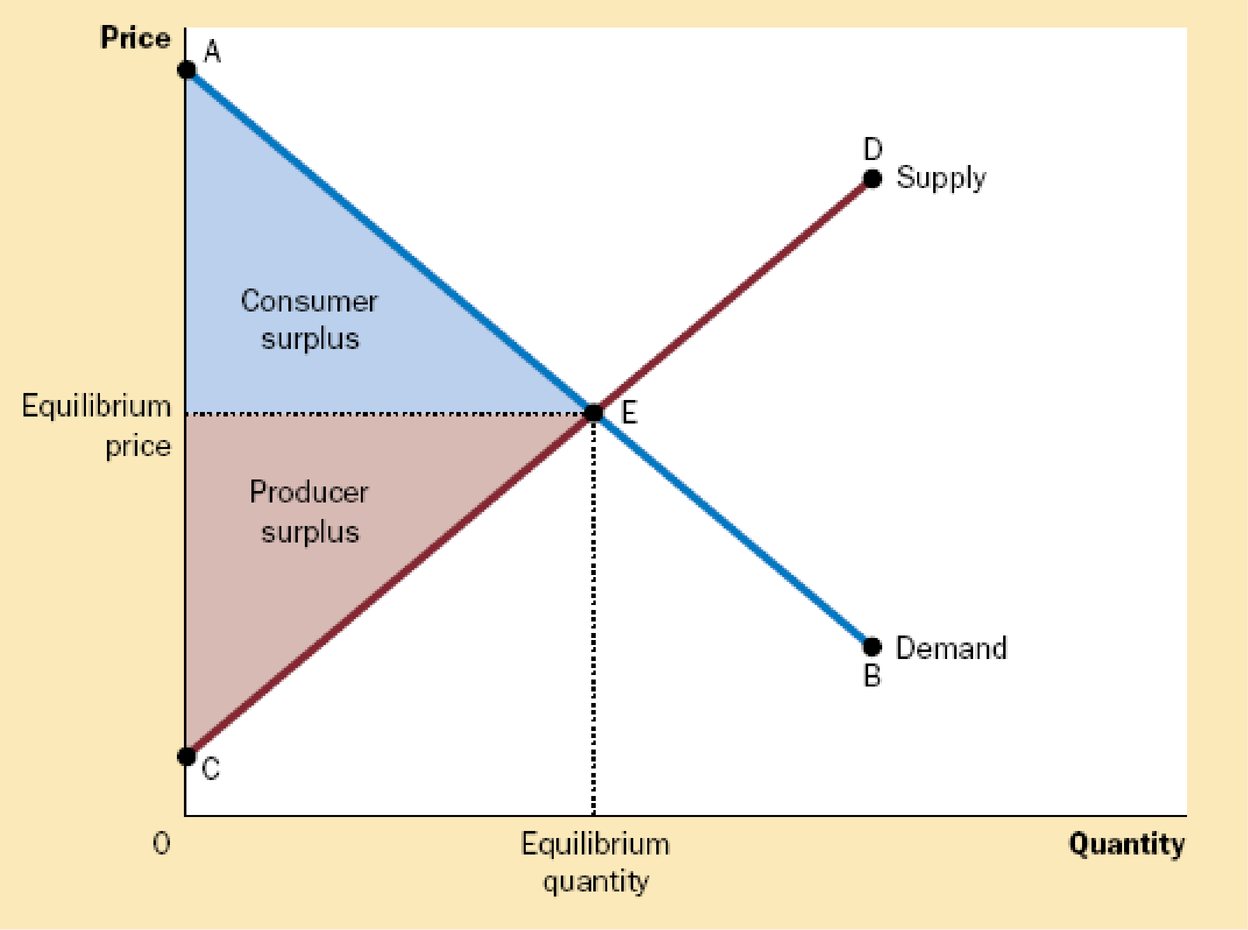
Market Efficiency

- Efficiency is the property of a resource allocation of maximizing the total surplus received by all members of society

- In addition to market efficiency, a social planner might also care about equity – the fairness of the distribution of well-being among the various buyers and sellers

Market Efficiency

Total surplus:

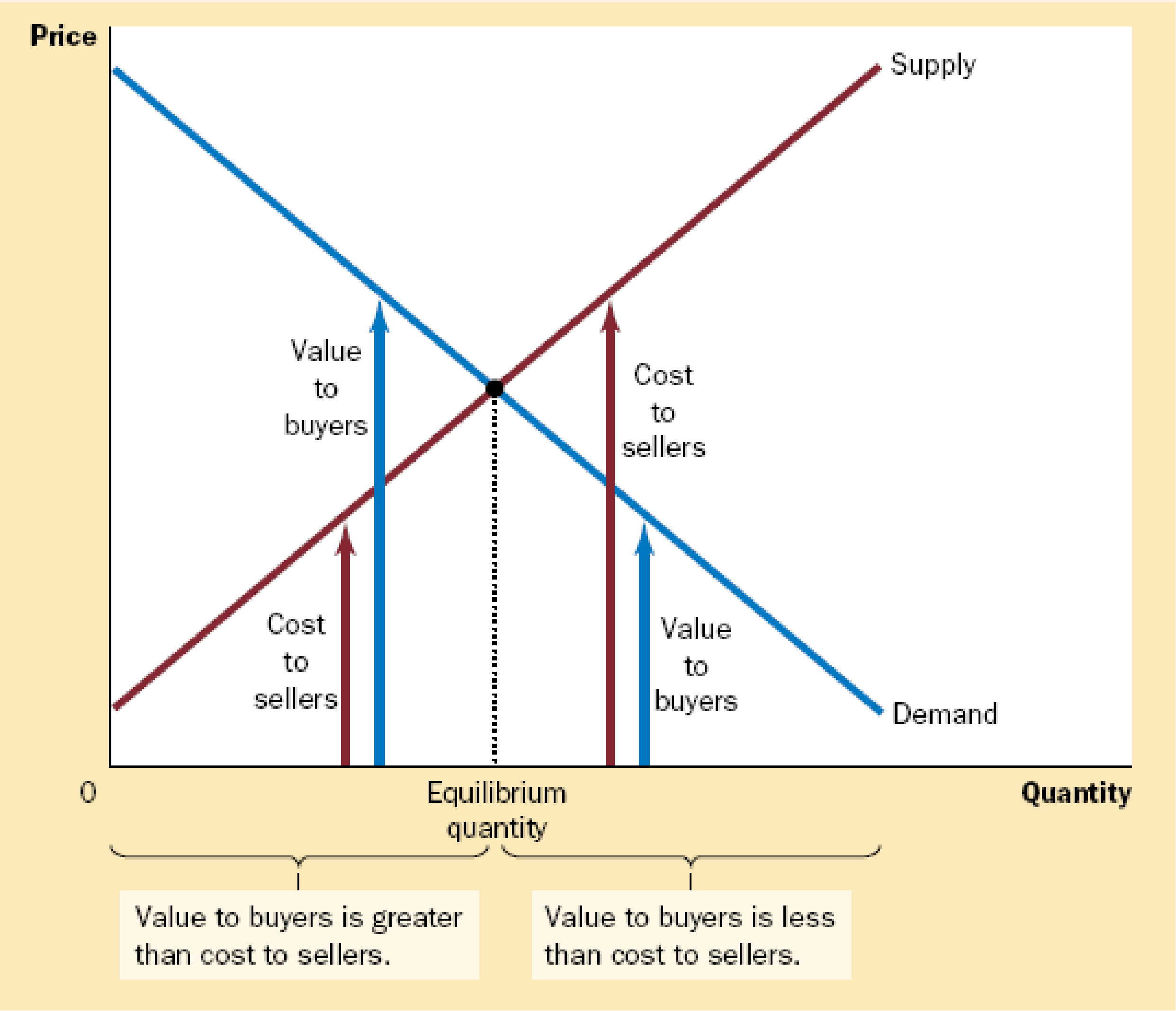


Market Efficiency

Three Insights Concerning Market Outcomes:

- Free markets allocate the supply of goods to the buyers who value them most highly, as measured by their willingness to pay
- Free markets allocate the demand for goods to the sellers who can produce them at least cost
- Free markets produce the quantity of goods that maximizes the sum of consumer and producer surplus

Market Efficiency



Market Efficiency

- Because the equilibrium outcome is an efficient allocation of resources, the social planner can leave the market outcome as he/she finds it - laissez faire

Market Power

- If a market system is not perfectly competitive, market power may result
- Market power is the ability to influence prices
- Market power can cause markets to be inefficient because it keeps price and quantity from the equilibrium of supply and demand

Market Efficiency

Externalities:

- created when a market outcome affects individuals other than buyers and sellers in that market
- cause welfare in a market to depend on more than just the value to the buyers and cost to the sellers
- when buyers and sellers do not take externalities into account when deciding how much to consume and produce, the e equilibrium in the market can be inefficient

Application

The cost of taxation:

- Welfare economics is the study of how the allocation of resources affects economic well-being
    - Buyers and sellers receive benefits from taking part in the market
    - The equilibrium in a market maximizes the total welfare of buyers and sellers

How do taxes affect the economic well-being of market participants?

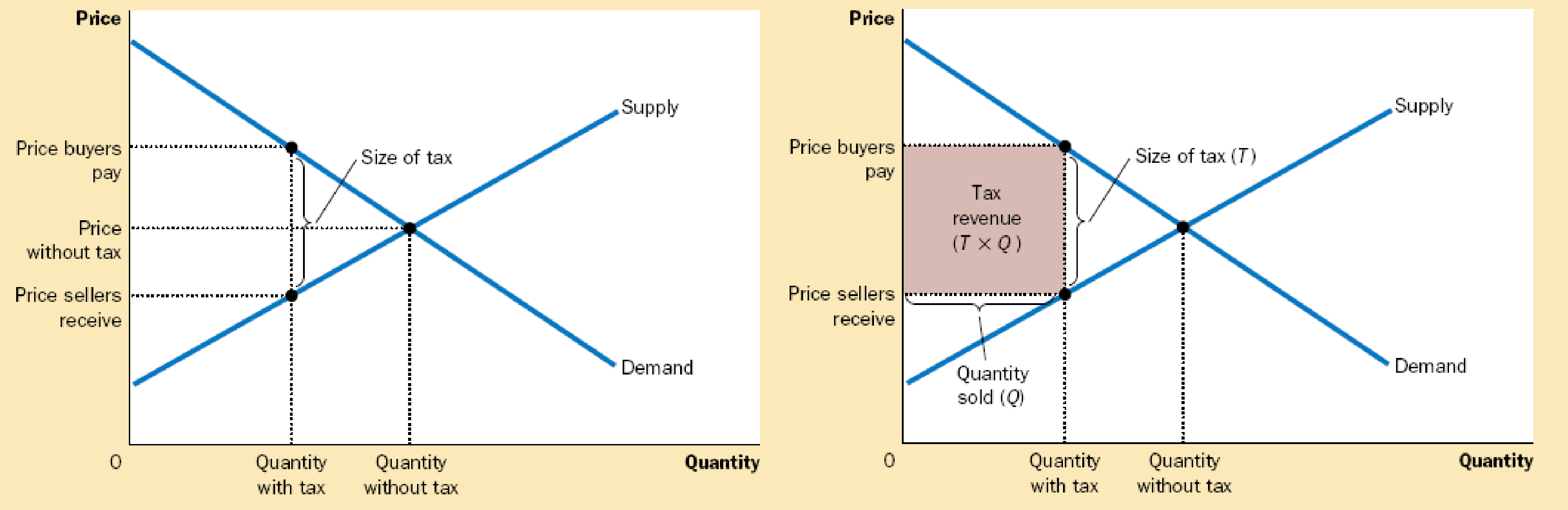
Application

The cost of taxation:

- A tax places a *wedge* between the price buyers pay and the price sellers receive
- Because of this tax wedge, the quantity sold falls below the level that would be sold without a tax
- The size of the market for that good shrinks

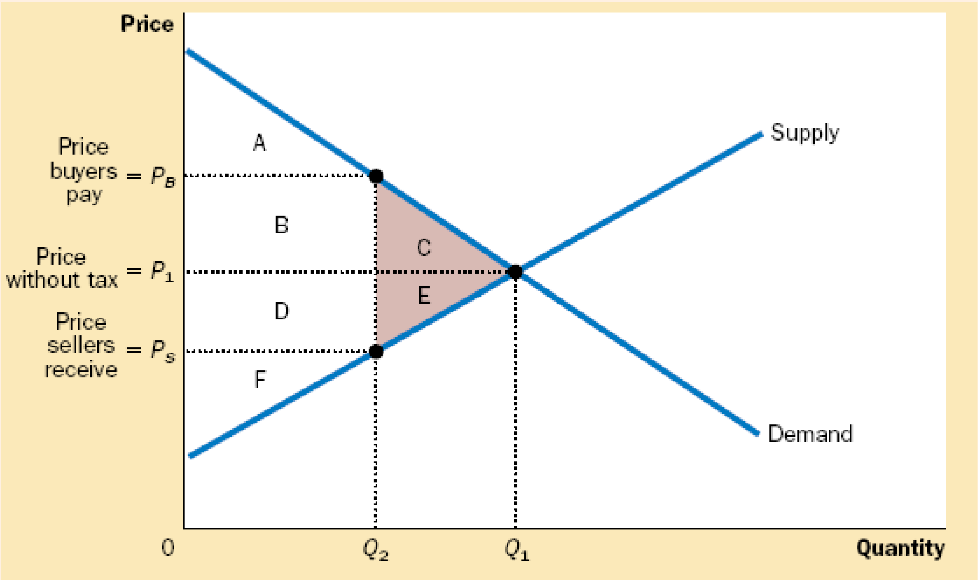
Application

The cost of taxation:



Application

The cost of taxation:



	Without Tax	With Tax	Change
Consumer Surplus	A + B + C	A	−(B + C)
Producer Surplus	D + E + F	F	−(D + E)
Tax Revenue	None	B + D	+(B + D)
Total Surplus	A + B + C + D + E + F	A + B + D + F	−(C + E)

The area C + E shows the fall in total surplus and is the deadweight loss of the tax.

Application

The cost of taxation:

Changes in Welfare:
A deadweight loss is the fall in total surplus that results from a market distortion, such as a tax

Taxes cause deadweight losses because they prevent buyers and sellers from realizing some of the gains from trade

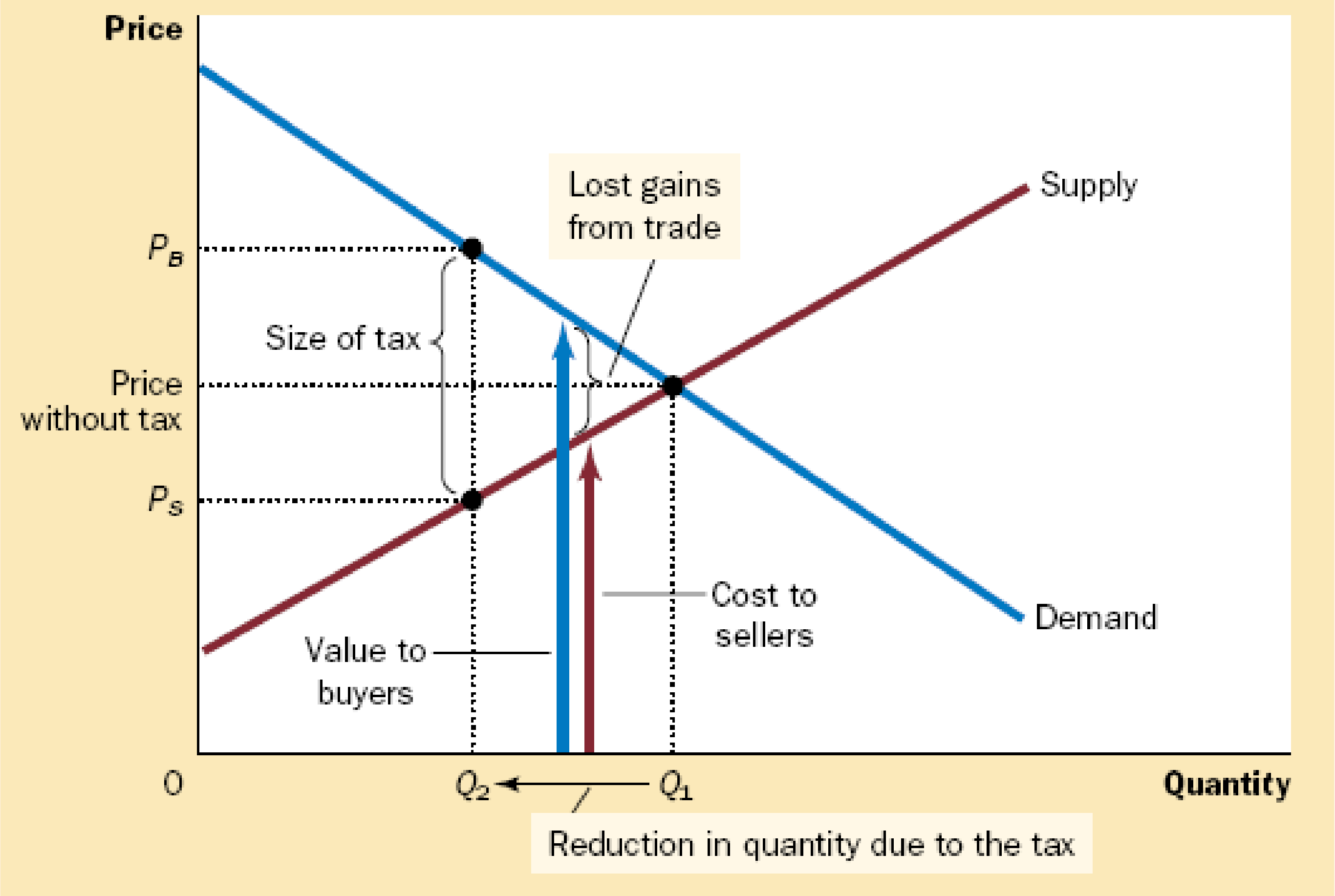
Application

The change in total welfare includes:

- The change in consumer surplus
- The change in producer surplus
- The change in tax revenue
- The losses to buyers and sellers exceed the revenue raised by the government
- This fall in total surplus is called the deadweight loss

Application

Lost gains from trade:



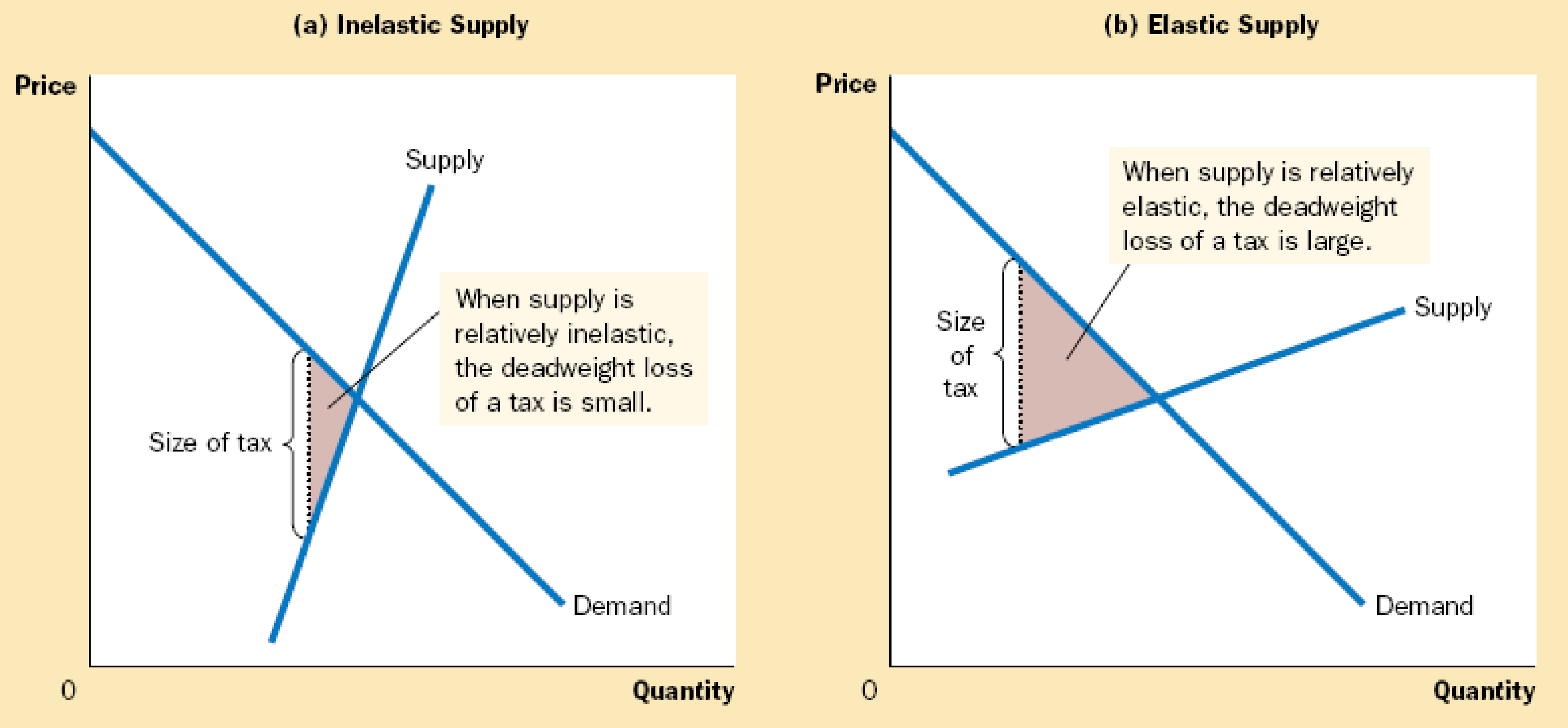
Application

What determines whether the deadweight loss from a tax is large or small?

- The magnitude of the deadweight loss depends on how much the quantity supplied and quantity demanded respond to changes in the price
- That, in turn, depends on the price elasticities of supply and demand

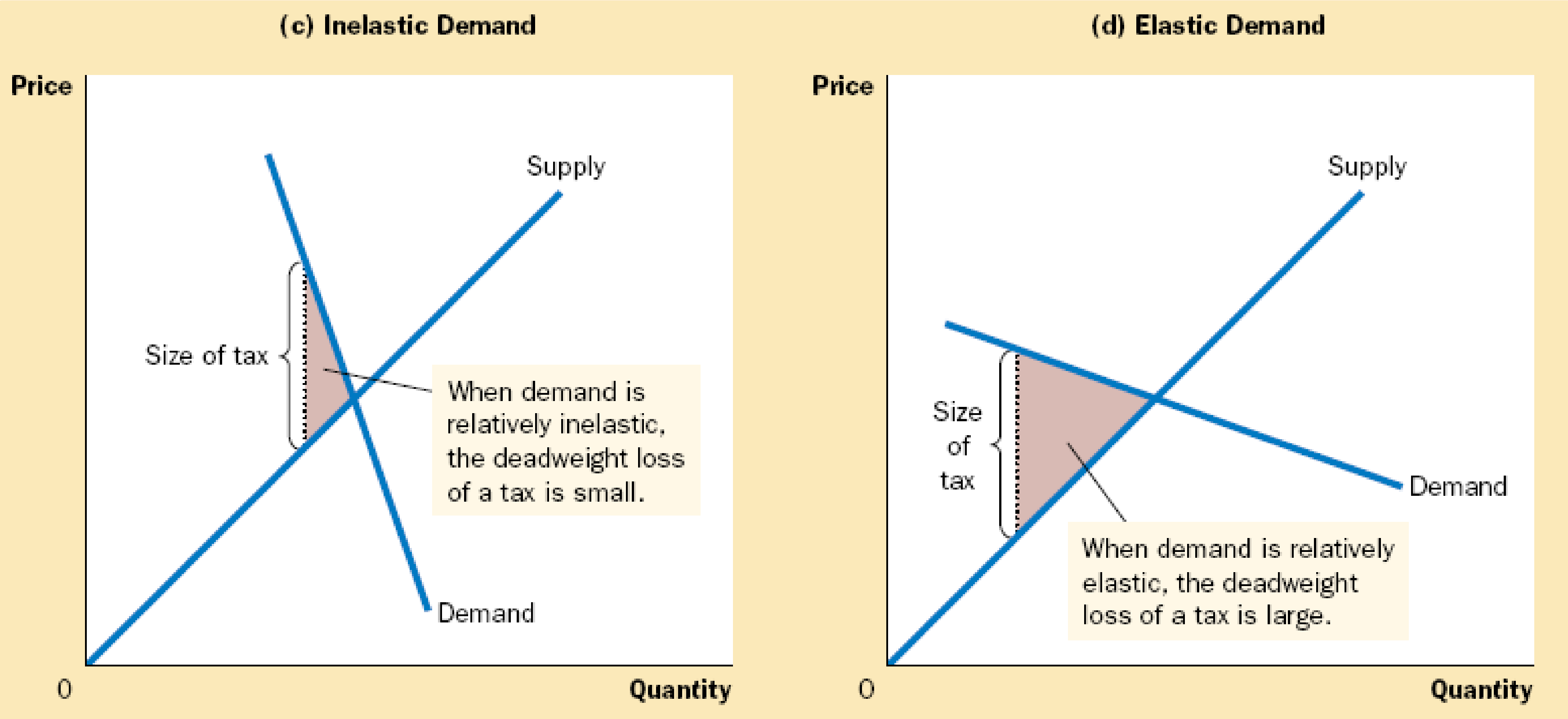
Application

Deadweight loss - elasticities



Application

Deadweight loss - elasticities



Application

Deadweight loss – elasticities

The greater the elasticities of demand and supply:

- the larger will be the decline in equilibrium quantity and
- the greater the deadweight loss of a tax

Application

Effects of price floor and price ceiling:

- price floor
  - consumer surplus decreases
  - effect on producer surplus is ambiguous
- price ceiling
  - effect on consumer surplus is ambiguous
  - producer surplus decreases
- it can be seen from graphs

Summary I

- Consumer surplus equals buyers' willingness to pay for a good minus the amount they actually pay for it

- Consumer surplus measures the benefit buyers get from participating in a market

- Consumer surplus can be computed by finding the area below the demand curve and above the price

Summary II

- Producer surplus equals the amount sellers receive for their goods minus their costs of production

- Producer surplus measures the benefit sellers get from participating in a market

- Producer surplus can be computed by finding the area below the price and above the supply curve

Summary III

- An allocation of resources that maximizes the sum of consumer and producer surplus is said to be efficient
- The equilibrium of demand and supply is efficient
- This is as if the invisible hand of the marketplace leads buyers and sellers to allocate resources efficiently
- Markets do not allocate resources efficiently in the presence of market failures