CH 5 – Market Outcomes and Tax Incidence

ECON 1B

CSUS

Big Questions

1. What are consumer surplus and producer surplus?

2. When is a market efficient?

3. Why do taxes create deadweight loss in otherwise efficient markets?

Consumer and Producer Surplus

- Welfare economics
  - The study of how the allocation of resources affects economic well-being
- Recall that markets create value.
  - Economic welfare is composed of two measures of market value:
    - Consumer surplus
    - Producer surplus

Consumer Surplus—2

TABLE 5.1

Willingness to Pay for a New Economics Textbook

Buyer	Willingness to pay
Beanie	$200
Mitch	150
Frank	100

- Who buys the book if the price is $140?

Consumer Surplus—3

- **Consumer surplus** is the difference between *willingness to pay* for a good and the *price actually paid* to get the good.

TABLE 5.1

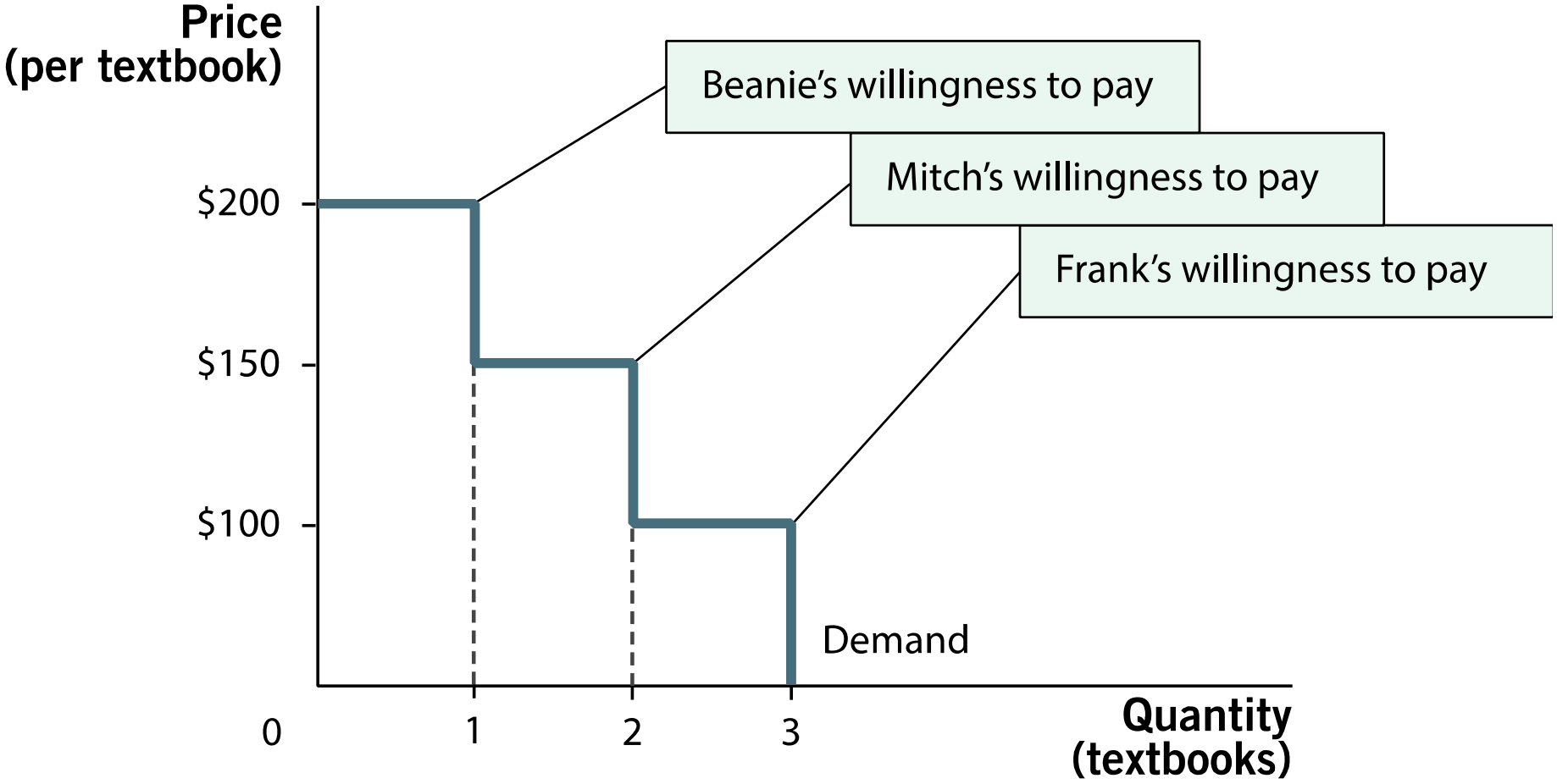
Willingness to Pay for a New Economics Textbook

Buyer	Willingness to pay
Beanie	$200
Mitch	150
Frank	100

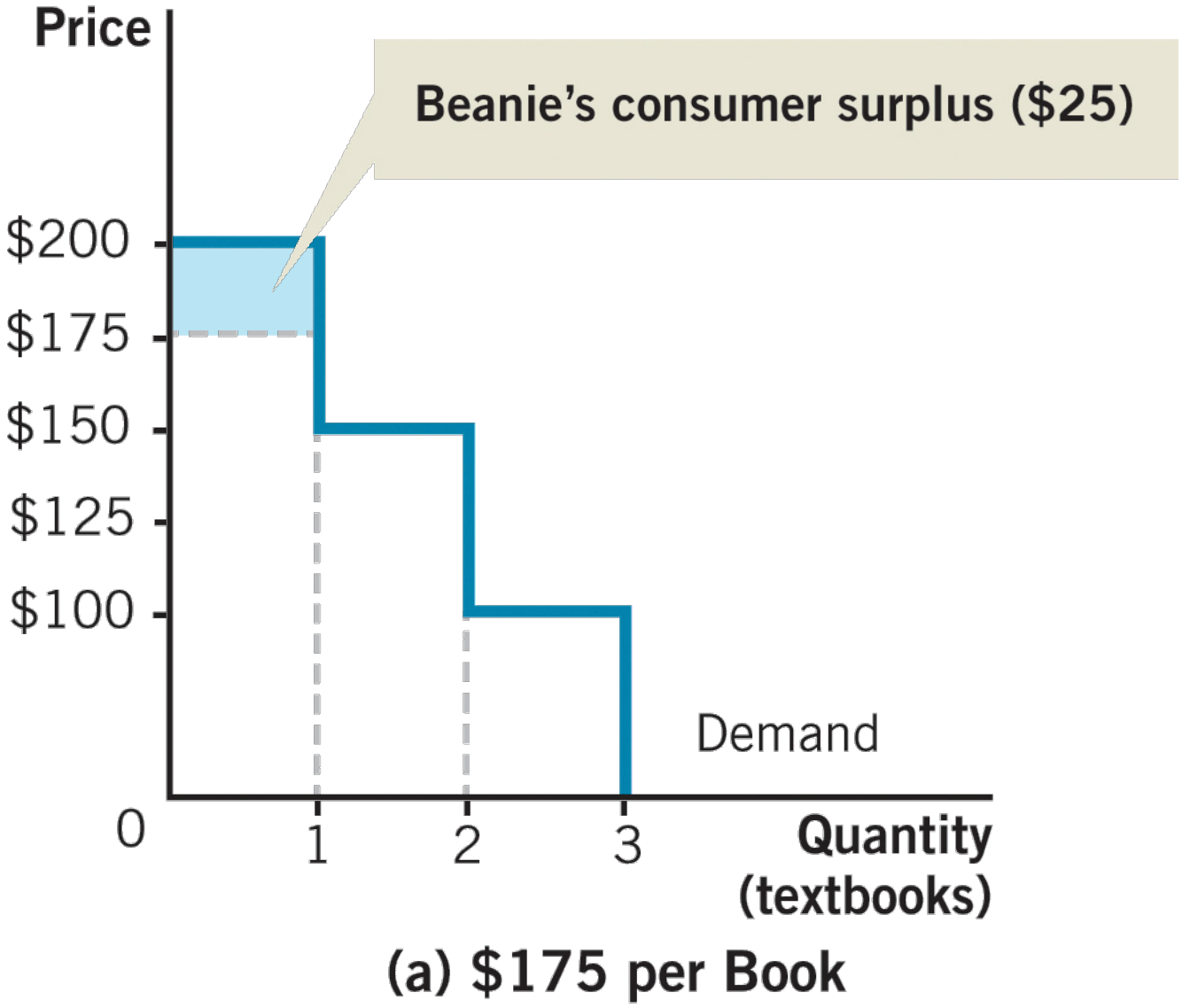
CS = $200 - $140 = $60

CS = $150 - $140 = $10

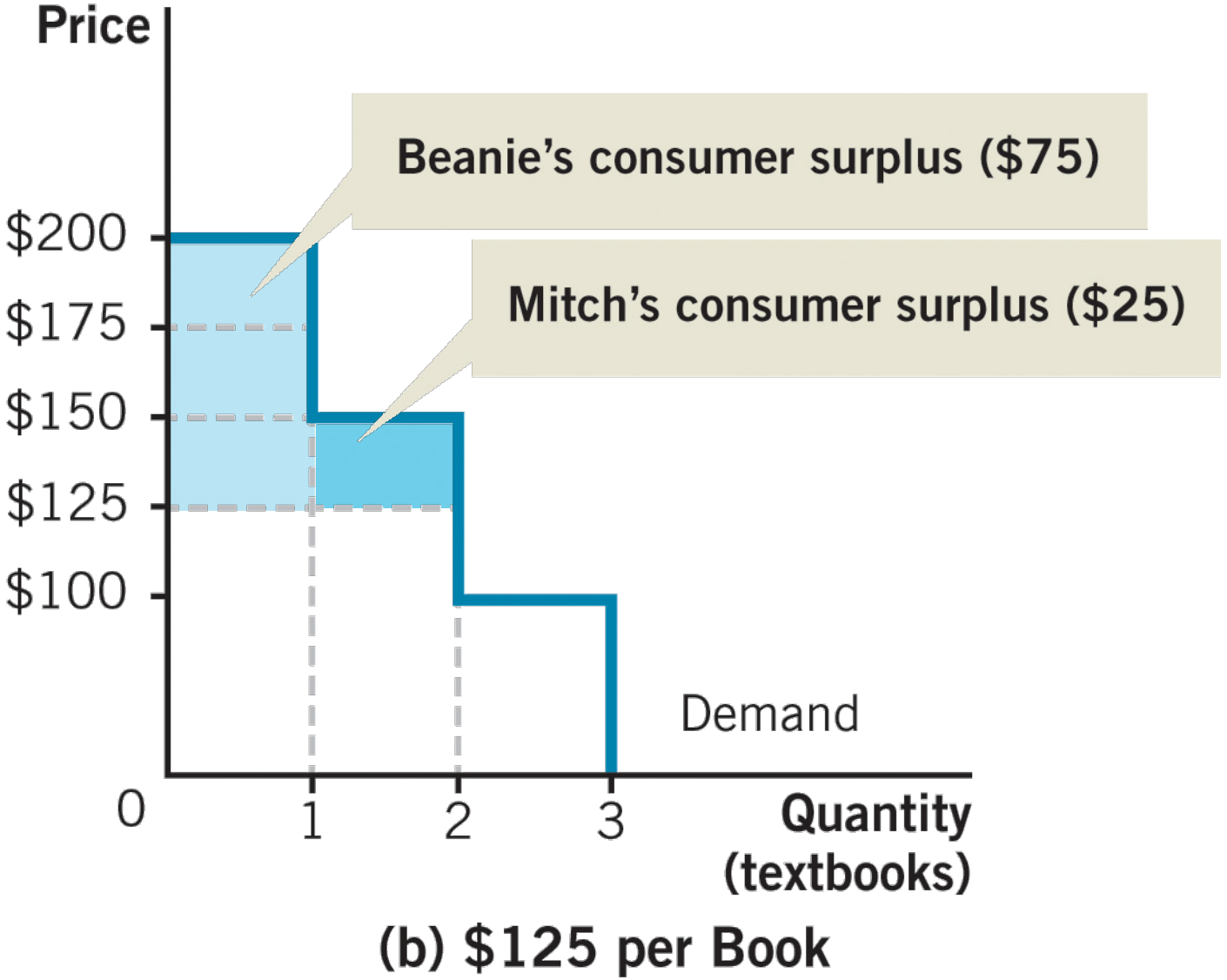
Using Demand to Illustrate Consumer Surplus



Consumer Surplus, Graphically—1



Consumer Surplus, Graphically—2



(b) $125 per Book

Producer Surplus

Seller	Willingness to sell tutoring services
Beanie	$30 / hour
Mitch	$20 / hour
Frank	$10 / hour

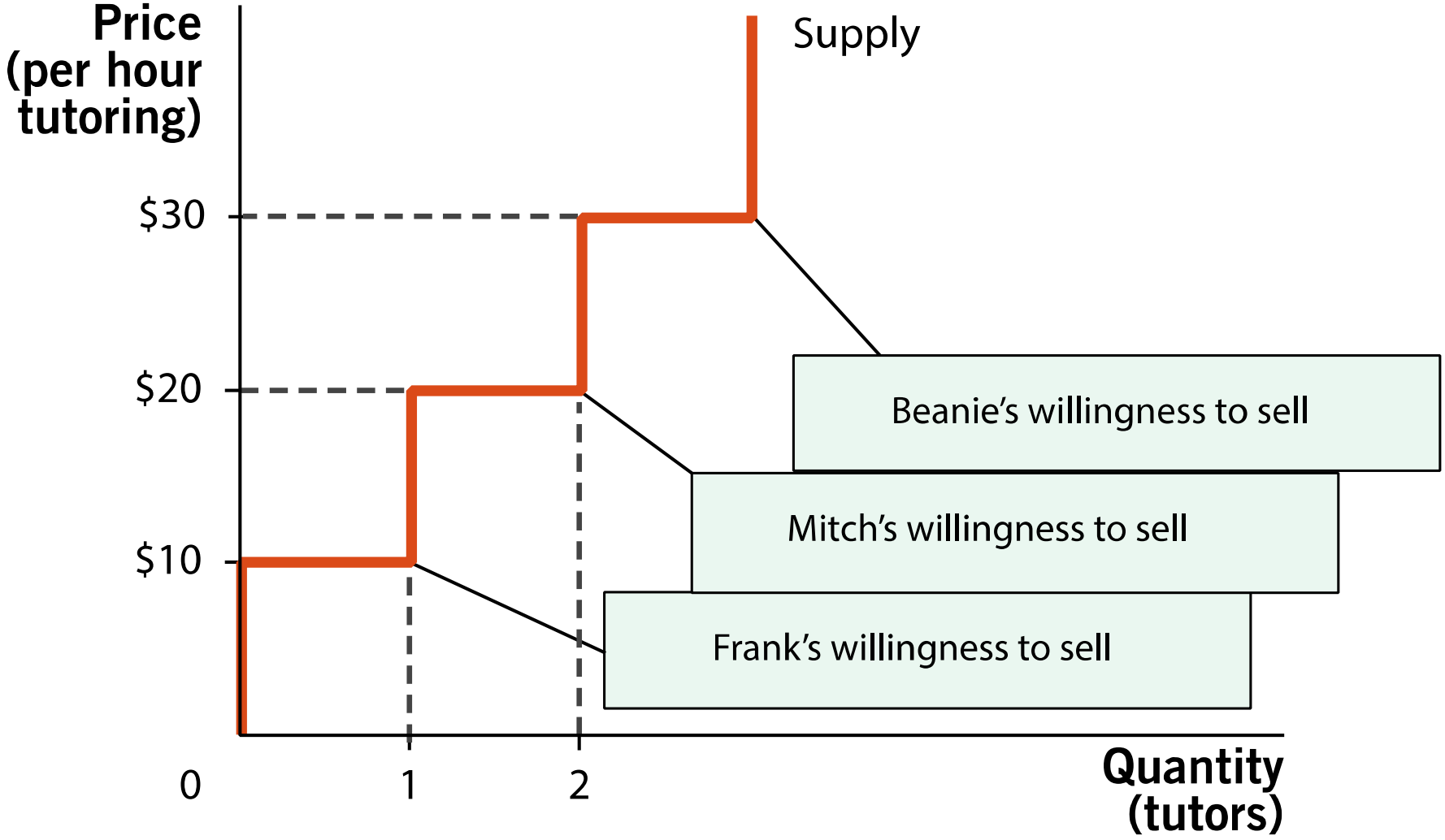
- Willingness to sell determined by:
  - Direct costs
  - Opportunity costs
- Question:
  - If the market price of tutoring is $25, which sellers will choose to tutor?

Producer Surplus

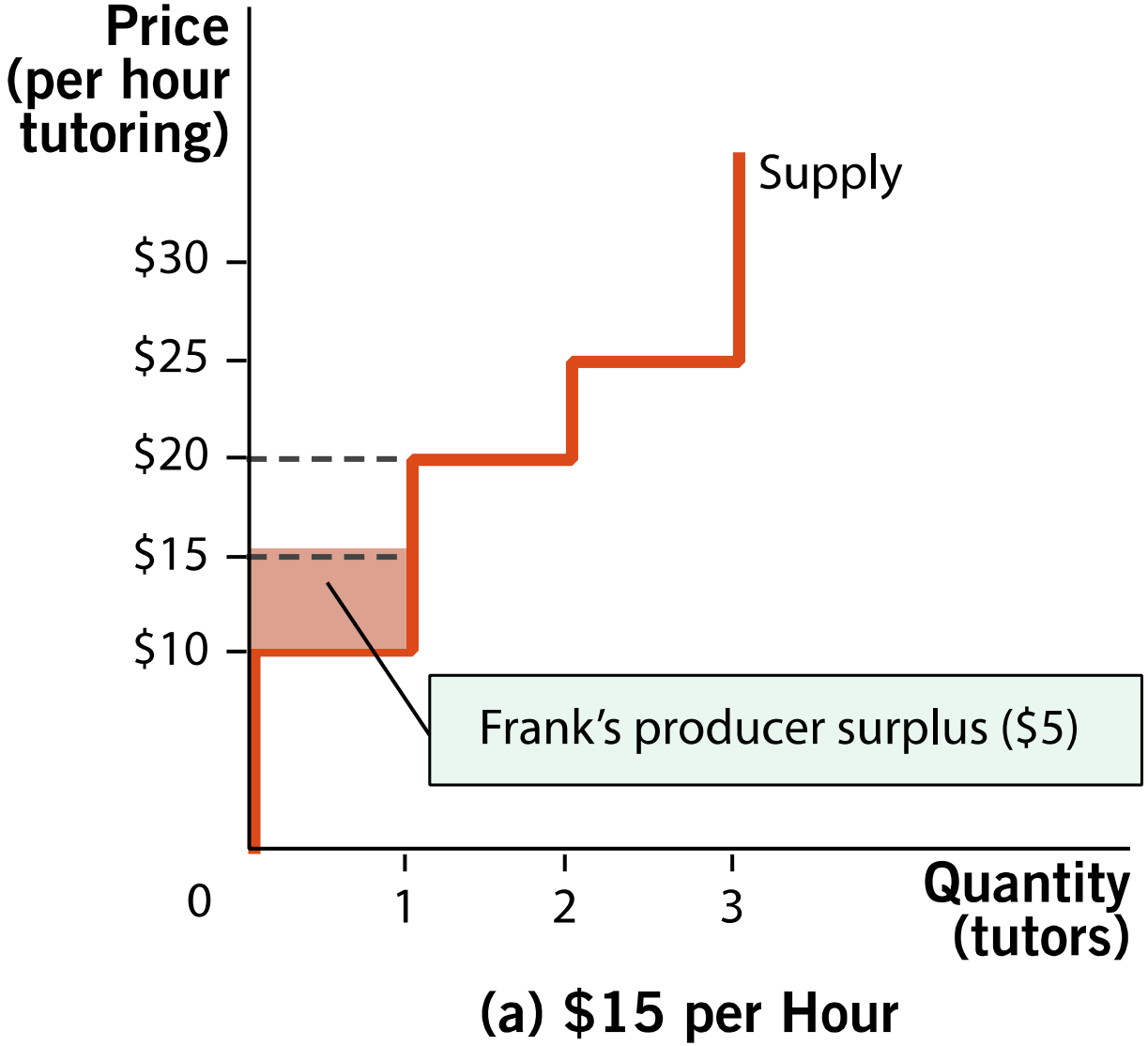
Seller	Willingness to sell tutoring services
Beanie	$30 / hour
Mitch	$20 / hour
Frank	$10 / hour

- Producer surplus
  - Difference between *willingness to sell* a good and the *price actually received* for that good
- At price = $25
  - Mitch and Frank decide to tutor.
    - Frank gets $15 worth of **producer surplus** per hour.
    - Mitch gets $5 worth of **producer surplus** per hour.
  - Why doesn't Beanie tutor?

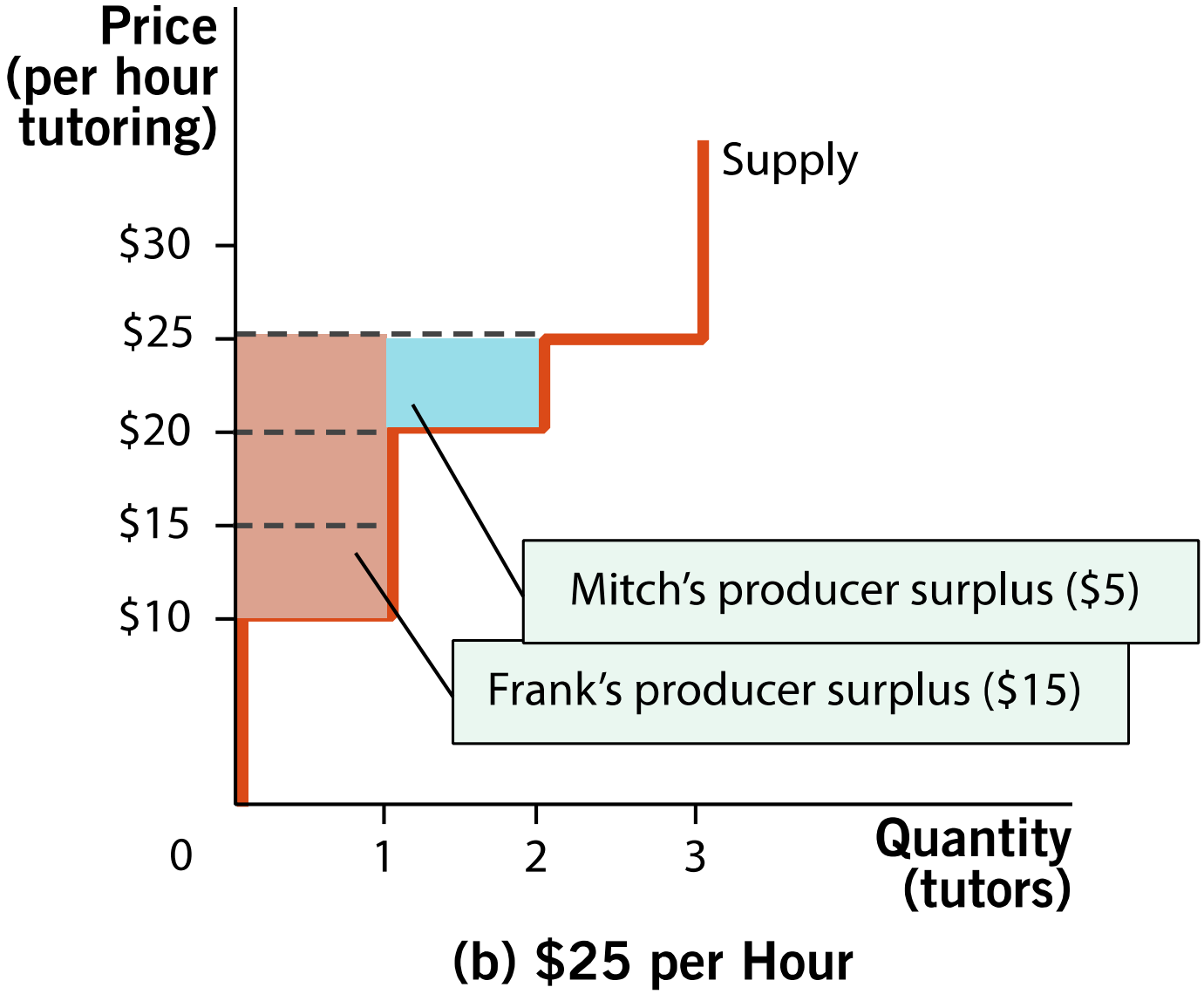
Using Supply to Illustrate Producer Surplus



Producer Surplus, Graphically



Producer Surplus, Graphically



Consumer and Producer Surplus

- Consumer surplus graphically:
  - Consumer surplus is the area below the demand curve and above the price, for all units purchased.
- Important concept:
  - You can only get consumer surplus on units that you actually buy!
  - CS is NOT the entire area under the demand curve.

Consumer and Producer Surplus

- Producer surplus graphically:
  - Producer surplus is the area above the supply curve and below the price, for all units sold.
- Important concept:
  - The firm can only get producer surplus on units that it actually sells!
  - PS is NOT the entire area above the supply curve.

Practice What You Know—1

- The height of the demand curve at any quantity can be thought of as the

  A. willingness to buy.

  B. willingness to sell.

  C. consumer surplus.

  D. producer surplus.

Practice What You Know—2

- The difference between the price the good was sold at and the minimum price the firm would have accepted for the good is called

  A. willingness to sell.

  B. product markup.

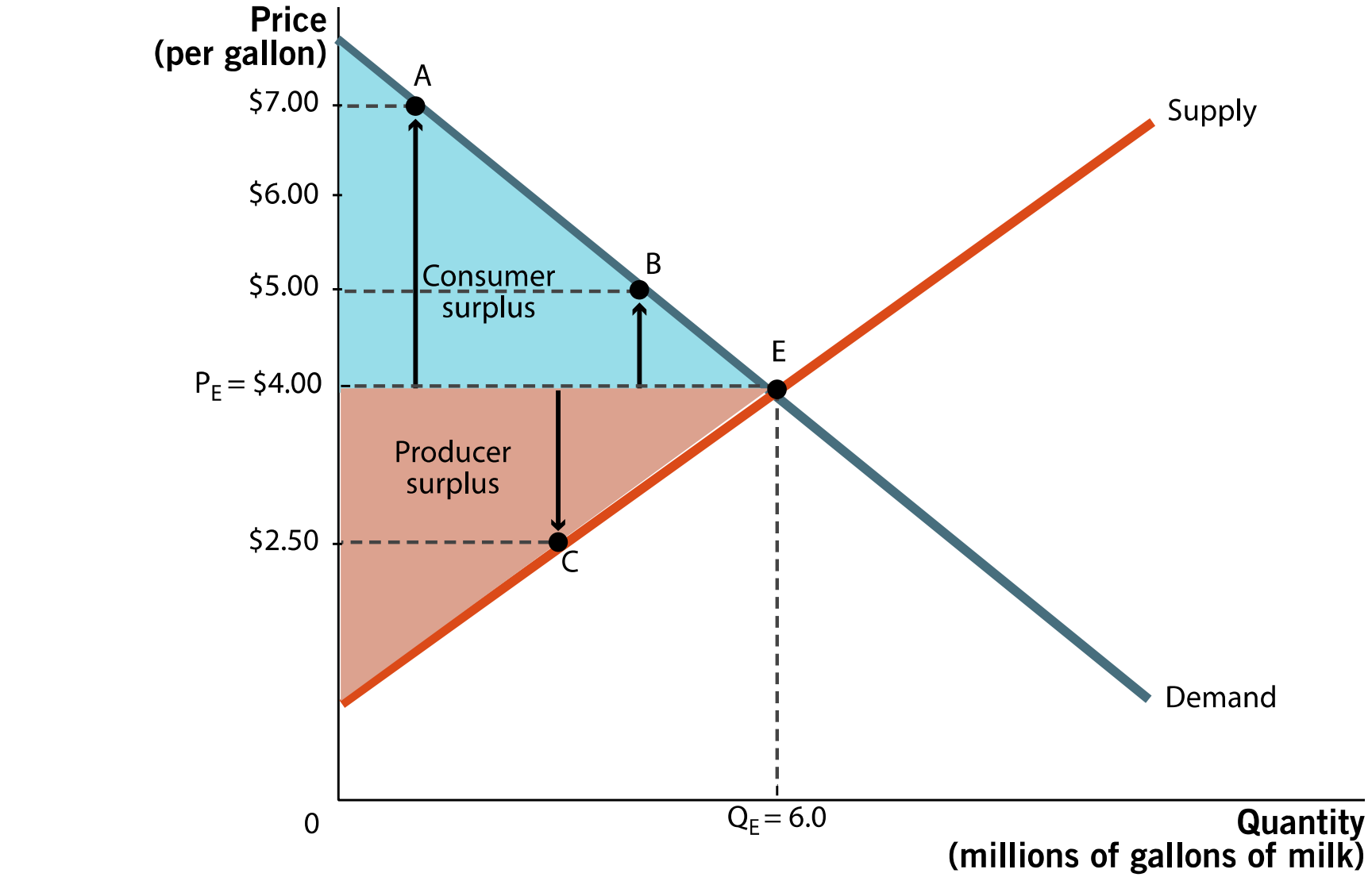
  C. producer surplus.

  D. price-cost margin.

Market Efficiency

- Total surplus (or social welfare) measures the overall welfare of the society.
  - Total surplus = CS + PS
- In free markets with voluntary trade:
  - Consumers buy until their willingness to pay is equal to the market price.
  - Suppliers sell until their willingness to sell is equal to the market price.
- Efficiency
  - Occurs when total surplus is maximized in a market

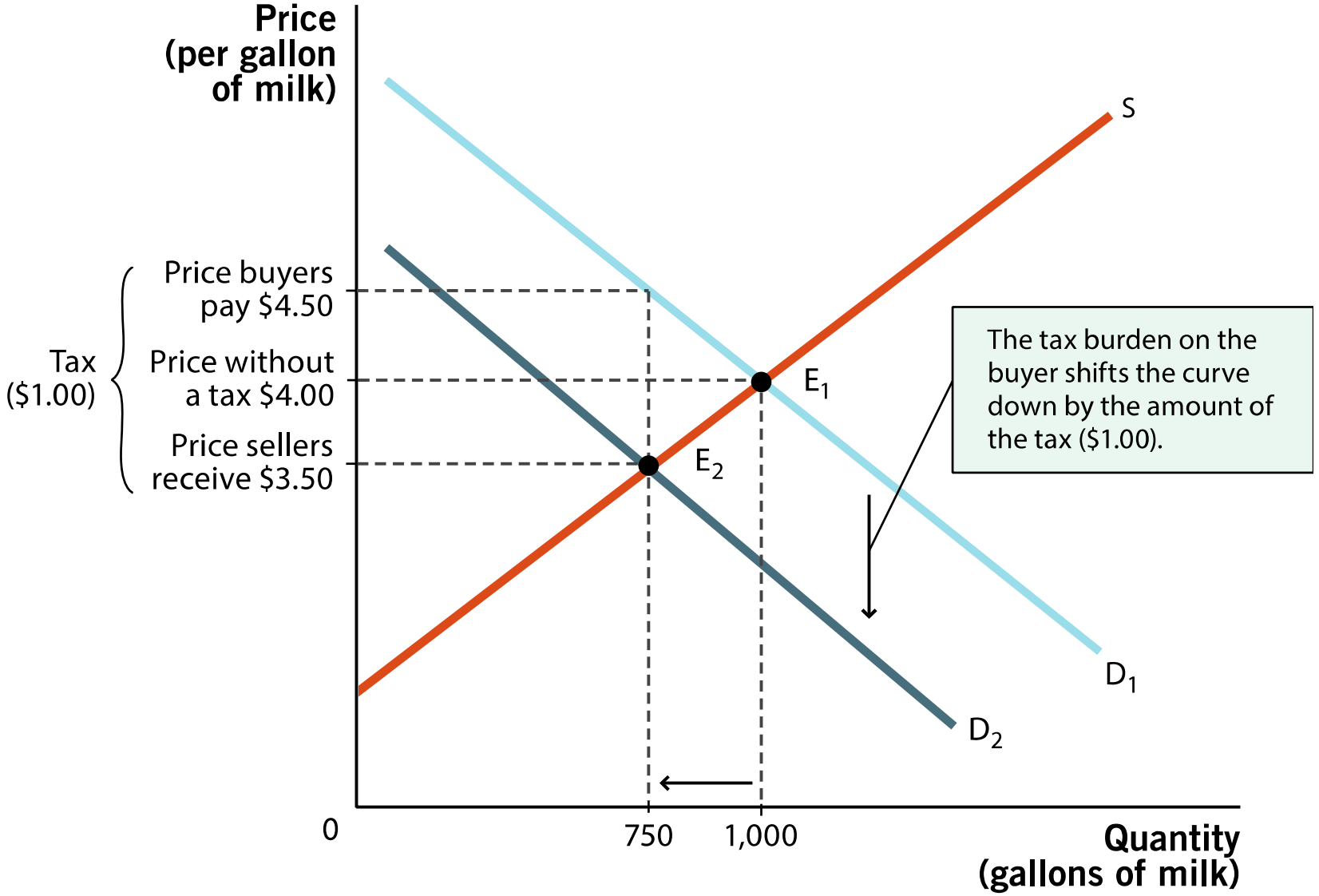
CS and PS for a Gallon of Milk



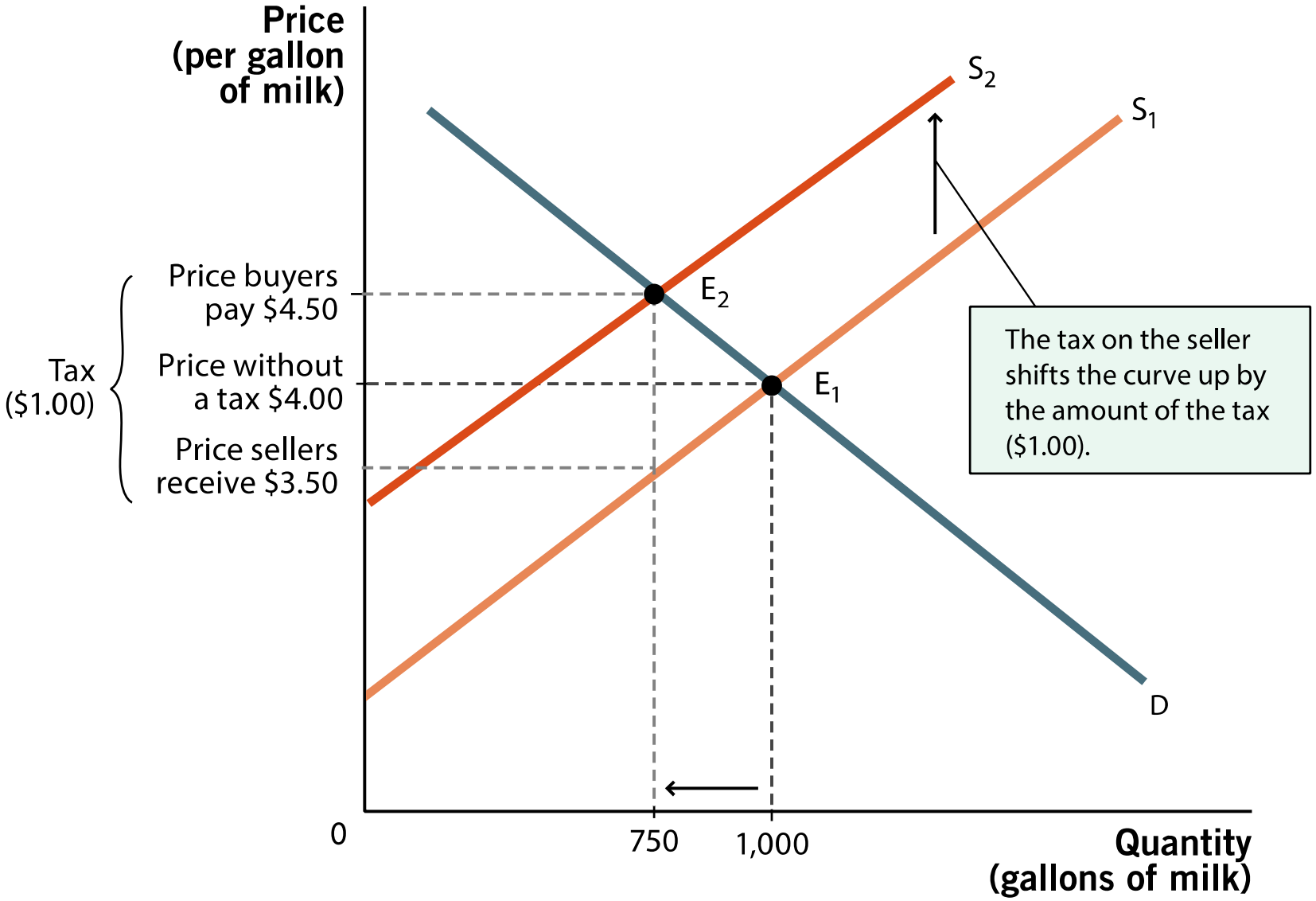
Taxation, Welfare, and Deadweight Loss

- Types of taxes
  - Income, property, corporate, sales, excise, estate
- Why do we pay taxes?
  - Pay for public goods, police, roads, schools, etc.
- Excise tax
  - A tax on a specific good; alcohol, tobacco, gasoline, for example
- Tax incidence
  - Refers to the party (consumers or producers) who bears the tax burden

Tax on Buyers



Tax on Sellers



End Result

- If a tax is levied on a business:
  - The firm will attempt to raise prices to pass some of the burden to consumers.
- If a tax is levied on consumers:
  - Some of the burden is passed to producers since the market price falls.
- Incidence
  - Whether the tax is levied on the producer or consumer, the end incidence result is the same!

Deadweight Loss

- On the previous graphs, the tax had a price and quantity effect.
  - Prices increased.
  - Quantity traded decreased.
- Deadweight loss:
  - A cost to society in the form of less economic welfare resulting from the tax.
  - Caused by the decrease in the amount of trade that is occurring.

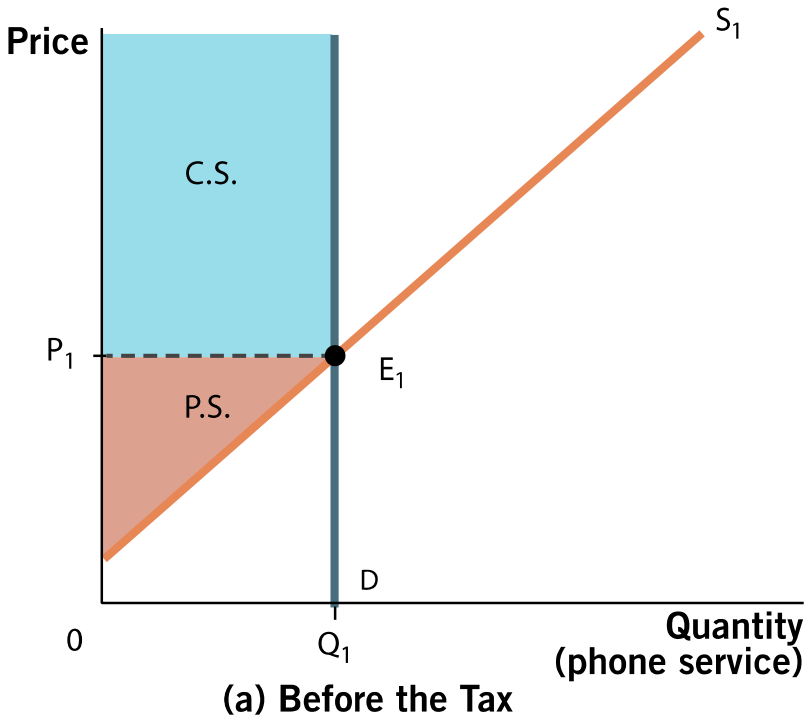
Tax and Deadweight Loss with Inelastic Demand

- Tax incidence is the same no matter who the tax is levied on.
  - Elasticity of demand and supply can change tax incidence, though.
- Why would the government want to tax a good with very inelastic demand?
  - No substitutes (ensures steady tax revenue)
  - Amount of purchases will not change much (or not change at all if perfectly inelastic demand)
    - This means little or no deadweight loss!

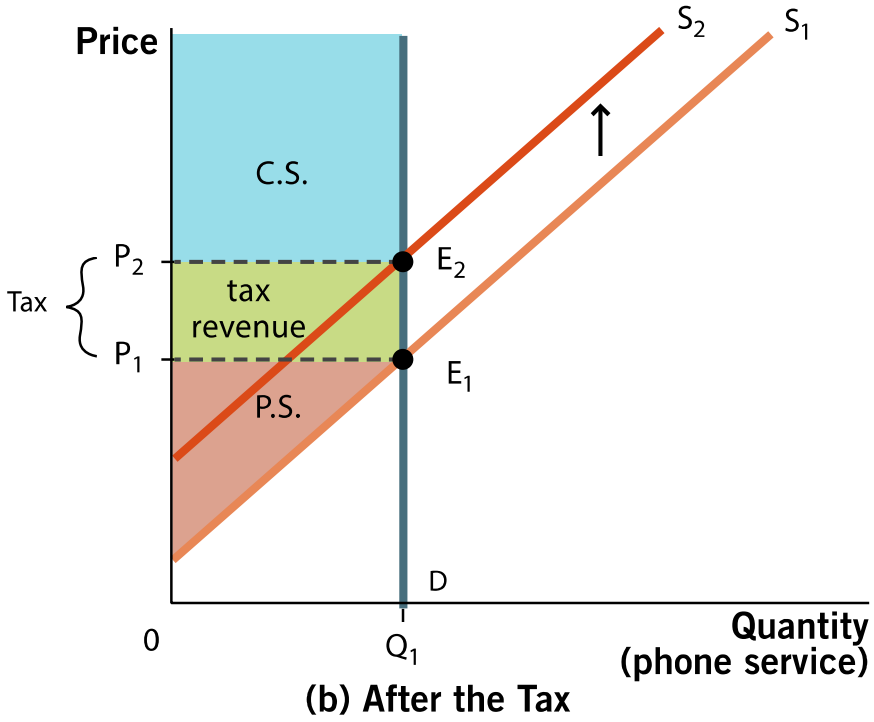
Tax, Deadweight Loss, and Elasticity—1

- How does tax incidence and DWL change depend on the elasticity of demand?
  - When demand is inelastic (elastic), Q_D is relatively unresponsive (responsive) to a change in price.
  - The more inelastic demand is, the greater the burden on consumers and the smaller the DWL.

Tax and Deadweight Loss with Perfectly Inelastic Demand

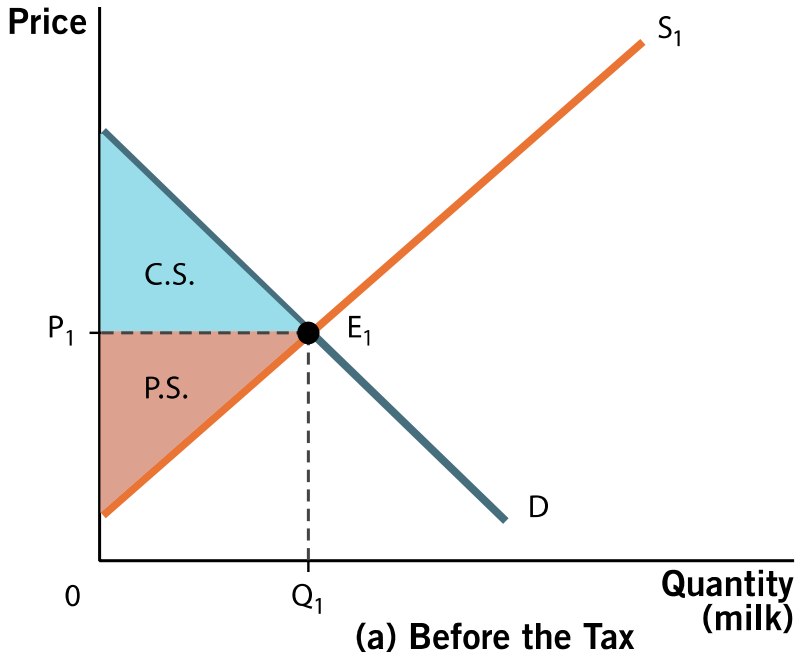


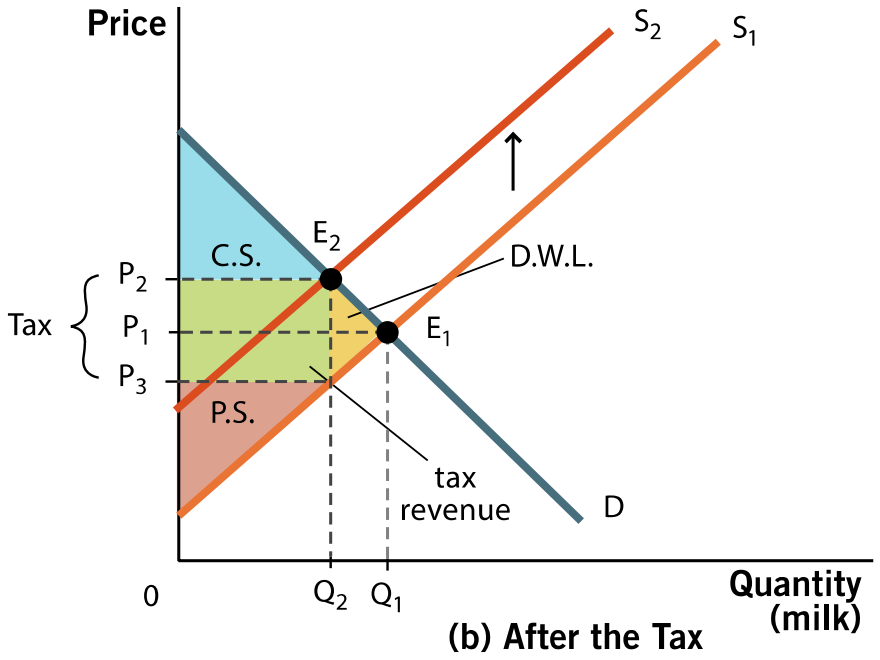
(a) Before the Tax



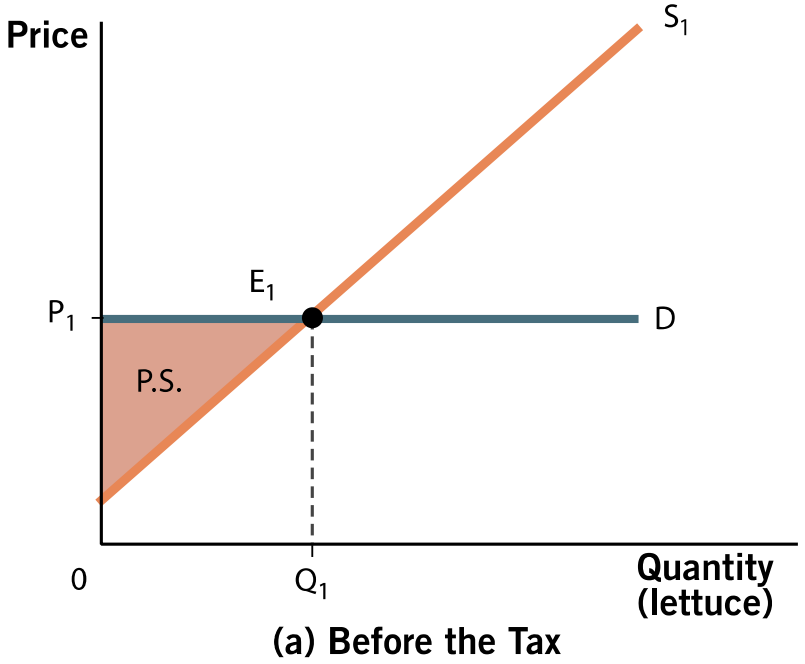
(b) After the Tax

Tax and Deadweight Loss with Somewhat Elastic Demand

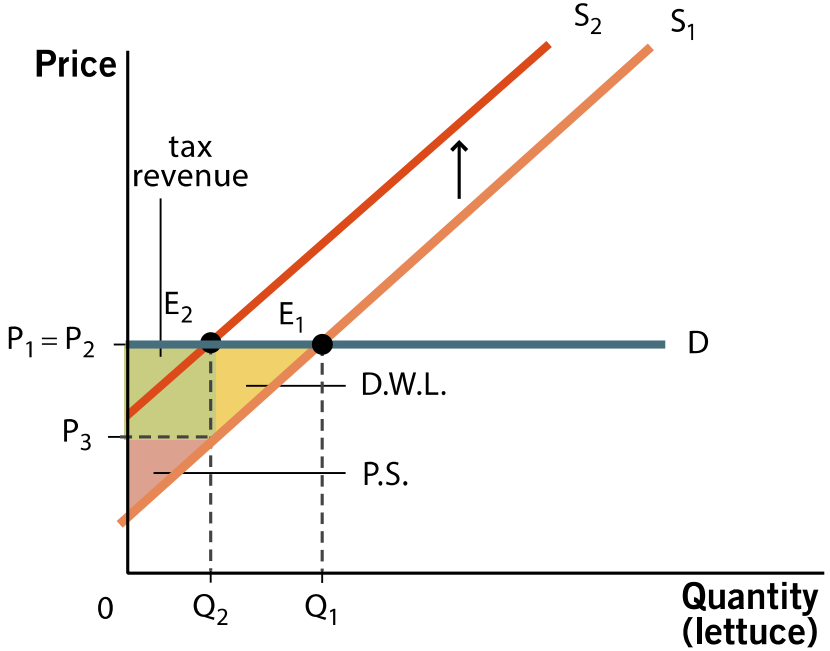




Tax and Deadweight Loss with Perfectly Elastic Demand



(a) Before the Tax



(b) After the Tax

Comparing the Three Cases

- If demand is perfectly inelastic, the burden of the tax falls on consumers but there was no DWL.
- As demand becomes less inelastic (or more elastic) the tax burden starts to fall more on producers but there is a DWL.
- If demand is perfectly elastic, the burden of the tax falls on producers and there is a larger DWL.

Practice What You Know—3

- Deadweight loss can be thought of as surplus that is transferred from producers or consumers and given to

  A. the government.

  B. competitors in other markets.

  C. taxpayers.

  D. nobody.

Practice What You Know—4

- If the government wants to create tax revenues without generating any deadweight loss, what type of good should they tax?
  A. a good with a perfectly elastic demand
  B. a good with a relatively elastic demand
  C. a good with a perfectly inelastic demand
  D. a good with a relatively inelastic demand

Conclusion

- Unregulated markets may be beneficial because they generate the largest possible total surplus.
- Taxing specific goods potentially leads to a deadweight loss, which reflects reduced economic activity.
- Society must balance the benefits of government services that taxes pay for with the costs of the inefficiencies created in the market.