Applications on Demand, Supply, and Government Policies
Part I

EE211

- The meaning of **price controls** and **quantity controls**, two kinds of government interventions in markets
- How price and quantity controls create problems and can make a market inefficient
- What **deadweight** loss is?

Why Governments Control Prices

• The market price moves to the level at which the quantity supplied equals the quantity demanded. BUT this equilibrium price does not necessarily please either buyers or sellers.

•Therefore the government intervenes to regulate prices by imposing price controls which are legal restrictions on how high or low a market price may go.

•Price ceiling is the maximum price sellers are allowed to charge for a good or service.

•Price floor is the minimum price buyers are required to pay for a good or service.

Government Policies That Alter the Private Market Outcome

- Price controls
  - **Price ceiling**: a legal maximum on the price of a good or service *Example: rent control*
  - **Price floor**: a legal minimum on the price of a good or service *Example: minimum wage*
- Taxes
  - The government can make buyers or sellers pay a specific amount on each unit.

Price Ceilings

- Price ceilings are typically imposed during crises- wars, harvest failures, natural disasters- because these events often lead to sudden price increases that hurt many people but produce big gains for a lucky few.
- Examples:
  - U.S. Government imposed ceilings on aluminum and steel during World War II
  - Rent Control in New York

Rent controls: A Case Study of Price Ceilings

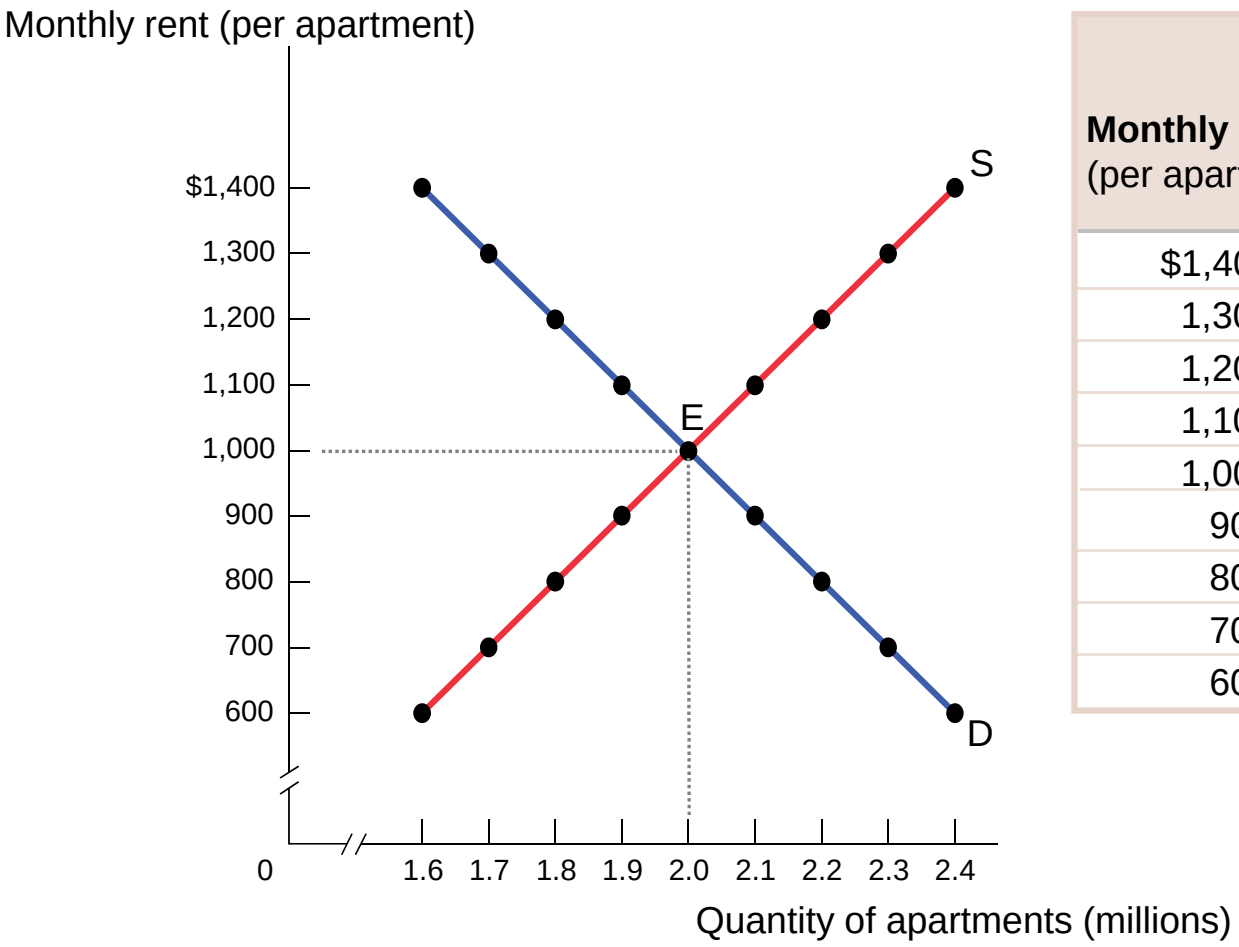
The Predicted Effects of Rent Controls

Binding rent controls are a specific form of price ceiling. We can use the previous diagram to predict the effects:

- a housing shortage
- alternative allocation schemes in black markets
- illegal schemes like “entrance fees”

Example

The Market for Apartments in the Absence of Government Controls



Monthly rent (per apartment)	**Quantity of apartments** (millions)	
	Quantity demanded	Quantity supplied
$1,400	1.6	2.4
1,300	1.7	2.3
1,200	1.8	2.2
1,100	1.9	2.1
1,000	2.0	2.0
900	2.1	1.9
800	2.2	1.8
700	2.3	1.7
600	2.4	1.6

The Effects of a Price Ceiling

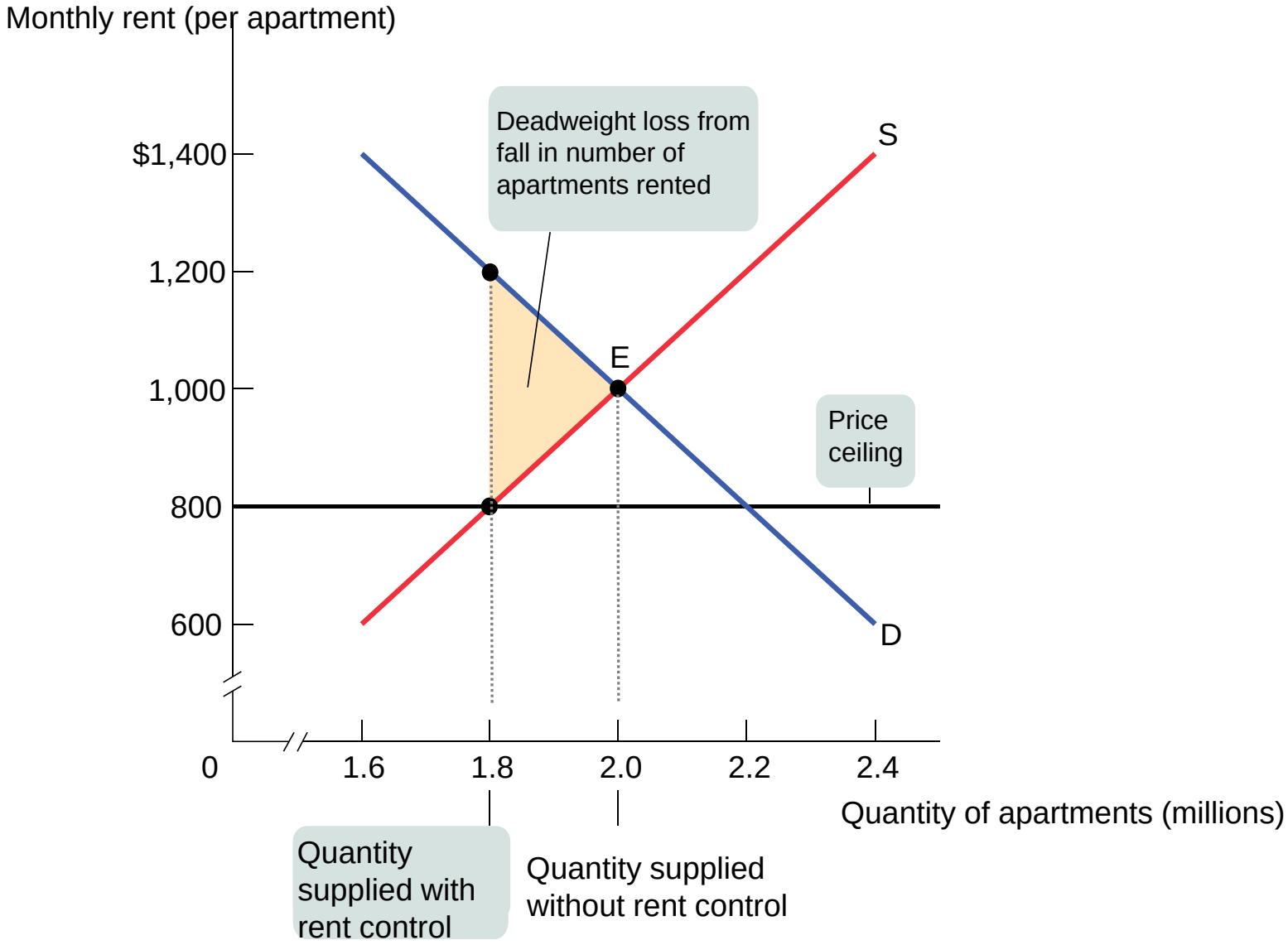
How a Price Ceiling Causes Inefficiency

- Inefficiently Low Quantity
- Inefficient Allocation to Customers
- Wasted Resources
- Inefficiently Low Quality
- Black Markets

Inefficiently Low Quantity

- Dead weight loss is the loss in total surplus that occurs whenever and action or a policy reduces the quantity transacted below the efficient market equilibrium quantity

A Price Ceiling Causes Inefficiently Low Quantity



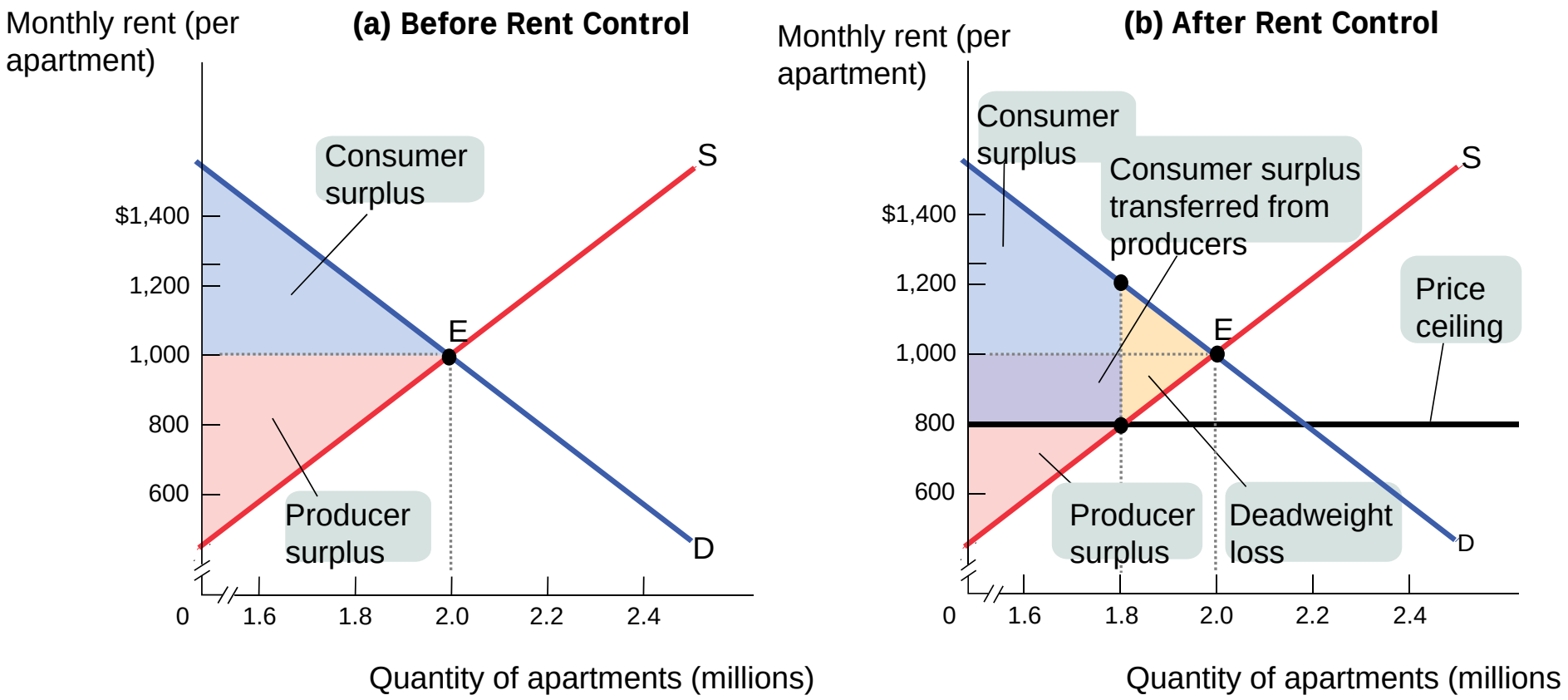
Who Gains and Who Loses?

Existing tenants in rent-controlled apartments win.

Landlords lose.

Potential future tenants also suffer.

Winners and Losers from Rent Control



Inefficient Allocation to Customers

- People who want the good badly and are willing to pay a high price don't get it, and those who care relatively little about the good and are only willing to pay a low price do get it.

Wasted Resources

- People expend money, effort, and time to cope with the shortages caused by the price ceiling

Inefficiently Low Quality

- Sellers offer low-quality goods at a lower price even though buyers would rather have higher quality and are willing to pay a higher price for it

Rent Control, Mumbai Style

Black Markets

A **black market** is a market in which goods or services are bought and sold illegally-either because it is illegal to sell them at all or because the prices charged are legally prohibited by a price ceiling.

Why are there price ceilings?

- A persistent shortage of the good
- Inefficiency arising from this persistent shortage in the form of inefficiently low quantity (deadweight loss), inefficient allocation of the good to consumers, resources wasted in searching for the good, and the inefficiently low quality of the good offered for sale
- The emergence of illegal, black market activity

Case: Rent control in New York

- Price ceilings hurt most residents but give a small minority of renters much cheaper housing than they would get in an unregulated market (those who benefit from the controls are typically better organized and more influential than those who are harmed by them).

- When price ceilings have been in effect for a long time, buyers may not have a realistic idea of what would happen without them.

Policy Alternatives

Housing shortages can be reduced if the government (at taxpayers' expense) either subsidizes housing production or produces public housing directly.

The government may also provide lower-income households with income assistance.

Price Floors

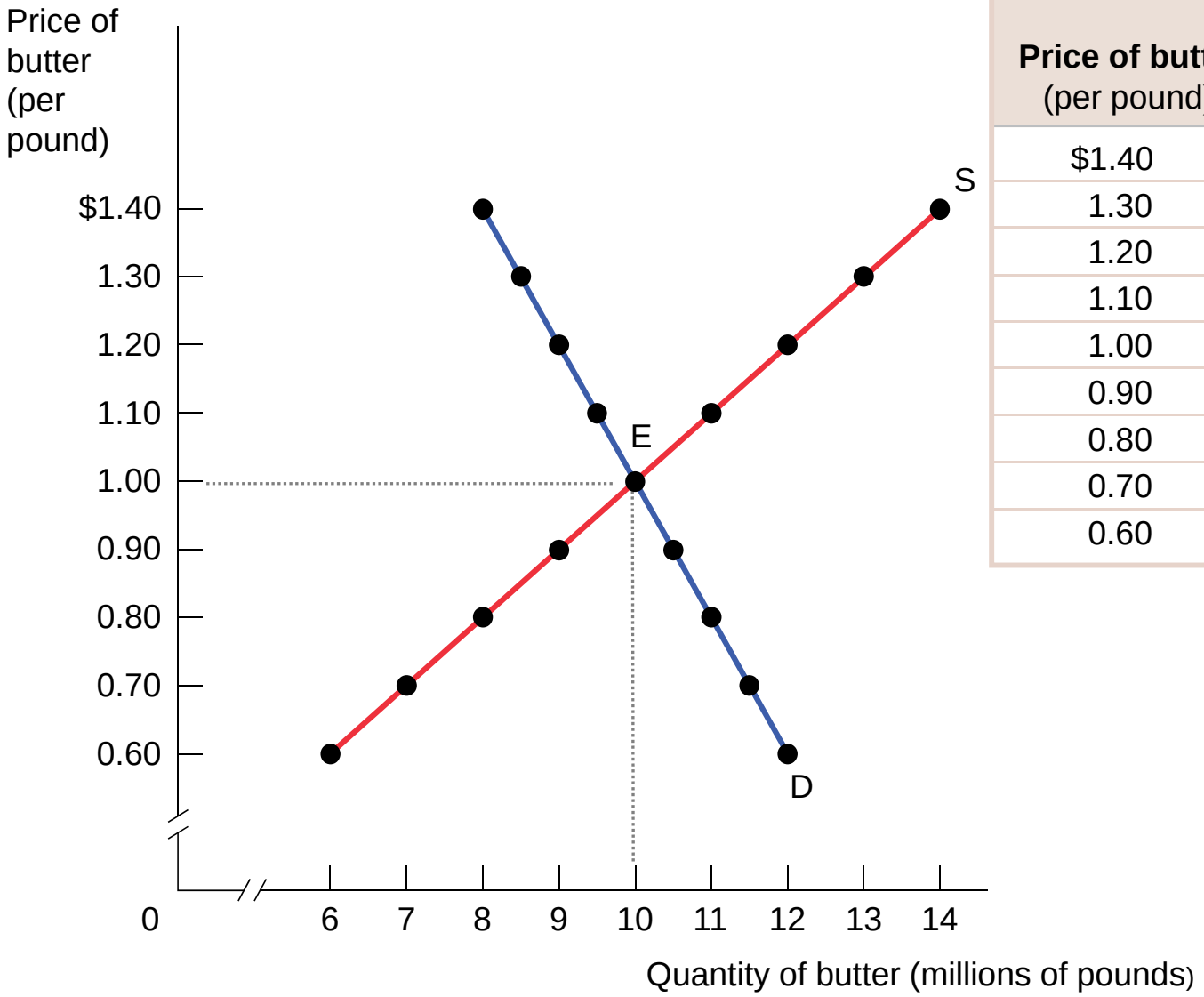
- Sometimes governments intervene to push market prices up instead of down

- The **minimum wage** is a legal floor on the wage rate, which is the market price of labor.

- Just like price ceilings, price floors are intended to help some people but generate predictable and undesirable side effects.

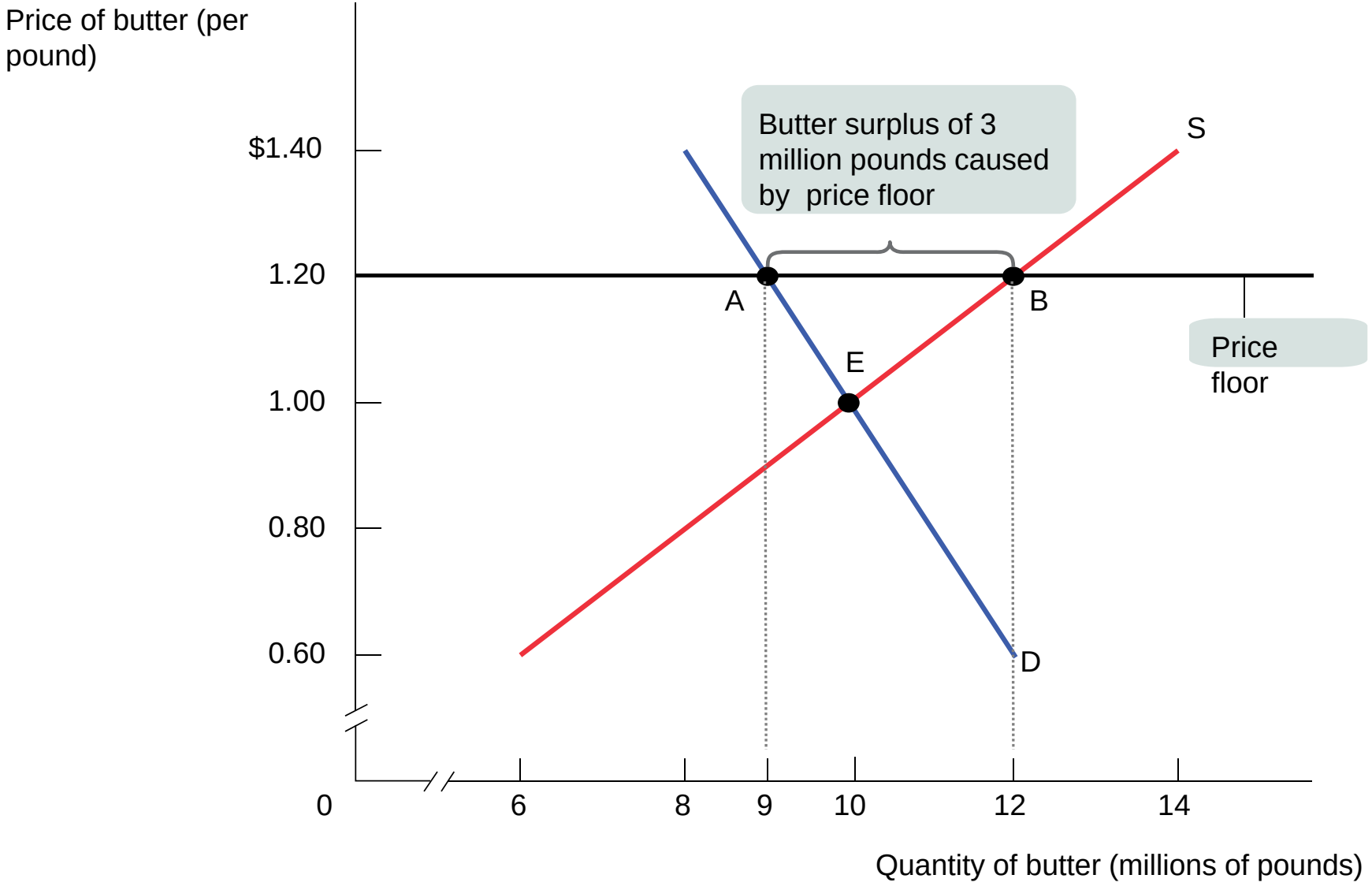
Example

The Market for Butter in the Absence of Government Controls



Price of butter (per pound)	Quantity of butter (millions of pounds)	
	Quantity demanded	Quantity supplied
$1.40	8.0	14.0
1.30	8.5	13.0
1.20	9.0	12.0
1.10	9.5	11.0
1.00	10.0	10.0
0.90	10.5	9.0
0.80	11.0	8.0
0.70	11.5	7.0
0.60	12.0	6.0

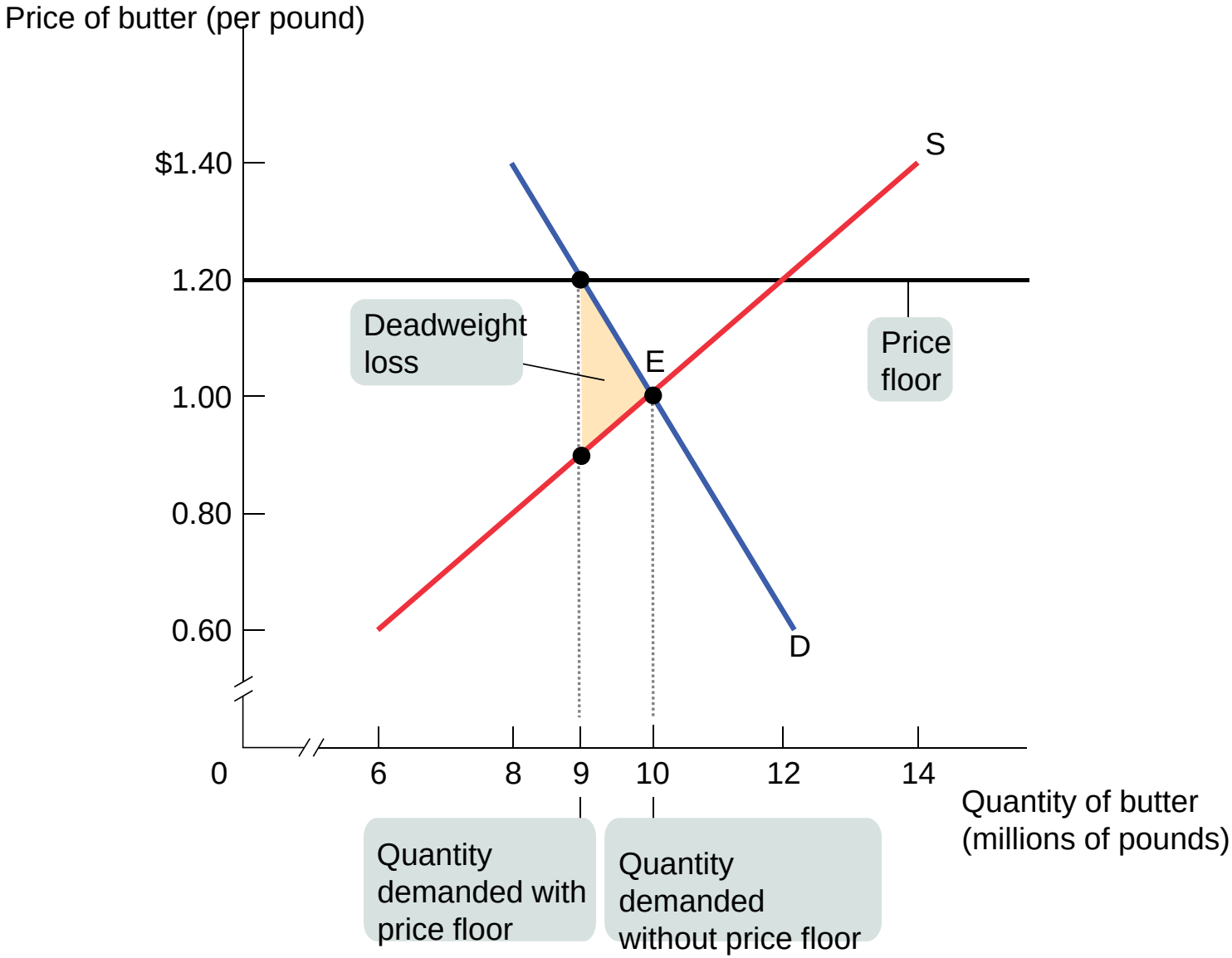
The Effects of a Price Floor



How a Price Floor Causes Inefficiency

- The persistent surplus that results from a price floor creates missed opportunities- inefficiencies- that resemble those created by the shortage that results from a price ceiling. These include:
  - Dead weight loss from inefficiently low quantity
  - Inefficient allocation of sales among sellers
  - Wasted resources
  - Inefficiently high quality
  - Temptation to break the law by selling below the legal price

A Price Floor Causes Inefficiently Low Quantity



Inefficient allocation of sales among sellers

- Those who would be willing to sell the good at the lowest price are not always those who actually manage to sell it.

Waste Resources

- Government purchases of the unwanted surpluses of agricultural products caused by price floors
- The surplus production is sometimes destroyed and must be thrown away

Inefficiently high quality

- Sellers offer high-quality goods at a high price, even though buyers would prefer a lower quality at a lower price.

Why are there price floors?

- A persistent surplus of the good
- Inefficiency arising from the persistent surplus in the form of inefficiently low quantity (deadweight loss), inefficient allocation of sales among sellers, wasted resources, and an inefficiently high level of quality offered by suppliers
- The temptation to engage in illegal activity, particularly bribery and corruption of government officials

Evaluating Price Controls

- Markets are usually a good way to organize economic activity.
- Prices are the signals that guide the allocation of society's resources. This allocation is altered when policymakers restrict prices.
- Price controls often intended to help the poor, but often hurt more than help.

Controlling Quantities

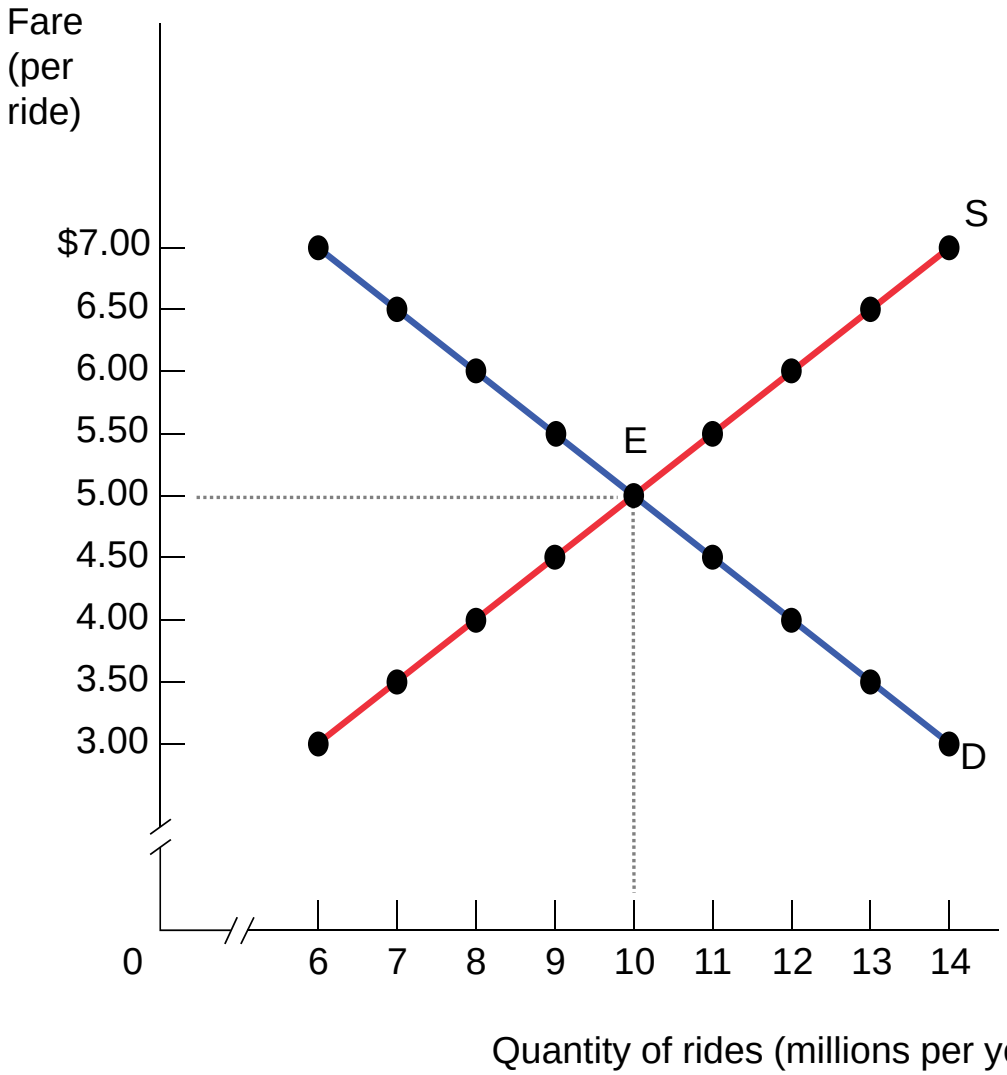
- A **quantity control**, or **quota** is an upper limit on the quantity of some good that can be bought or sold . The total amount of the good that can be legally transacted is the **quota limit**. An example is the taxi medallion system in New York.

- A **license** gives its owner the right to supply a good.

- The **demand price** of a given quantity is the price at which consumers will demand that quantity.

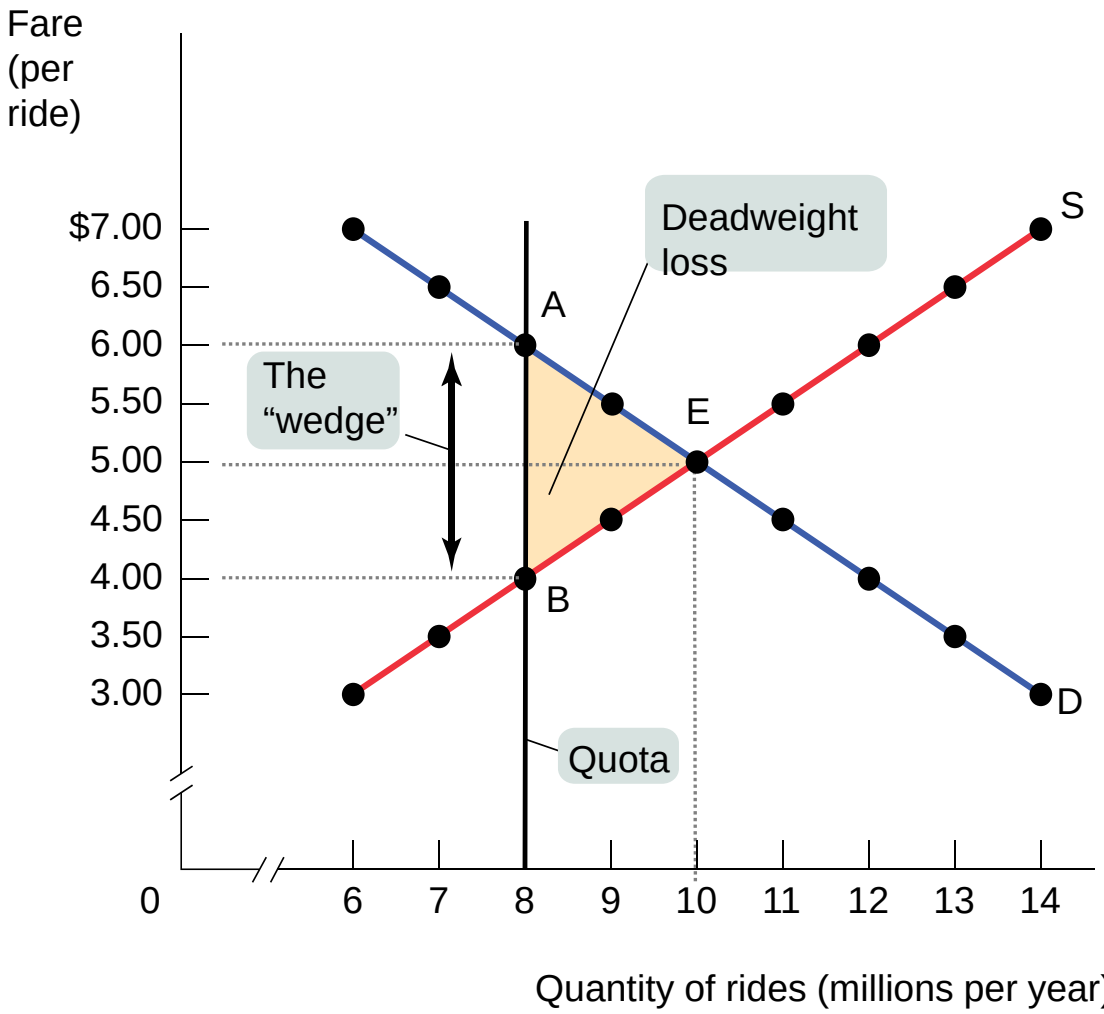
- The **supply price** of a given quantity is the price at which producers will supply that quantity.

The Market for Taxi Rides in the Absence of Government Controls



Fare (per ride)	**Quantity of rides** (millions per year)	
	Quantity demanded	Quantity supplied
$7.00	6	14
6.50	7	13
6.00	8	12
5.50	9	11
5.00	10	10
4.50	11	9
4.00	12	8
3.50	13	7
3.00	14	6

Effect of a Quota on the Market for Taxi Rides



Fare (per ride)	**Quantity of rides** (millions per year)	
	Quantity demanded	Quantity supplied
$7.00	6	14
6.50	7	13
6.00	8	12
5.50	9	11
5.00	10	10
4.50	11	9
4.00	12	8
3.50	13	7
3.00	14	6

Two sets of transactions:

- The transactions in taxi rides and the price at which these will occur ($4)
- The transactions in medallions and the price at which these will occur ($6)

The Anatomy of Quantity Controls

- A quantity control, or quota, drives a **wedge** between the demand price and the supply price of a good; that is, the price paid by buyers ends up being higher than that received by sellers.

- The difference between the demand and supply price at the quota limit is the **quota rent**, the earnings that accrue to the license-holder from ownership of the right to sell the good. It is equal to the market price of the license when the licenses are traded.

What if medallion's owner doesn't rent out his medallion?

- The medallion has opportunity cost of $2 – That is the $2 quota rent is now the rental income he forgoes by driving his own taxi

Sources:

- Krugman, P. and Robin Wells (2008)