Econ 200
Module 2
Lecture 6

UNIVERSITY *of* WASHINGTON

Outline

- Changes in Surplus
- Deadweight Loss
- Why intervene?

Readings covered: Ch 5.5-5.8 & Appendix

How Can We Relate Surplus to Efficiency?

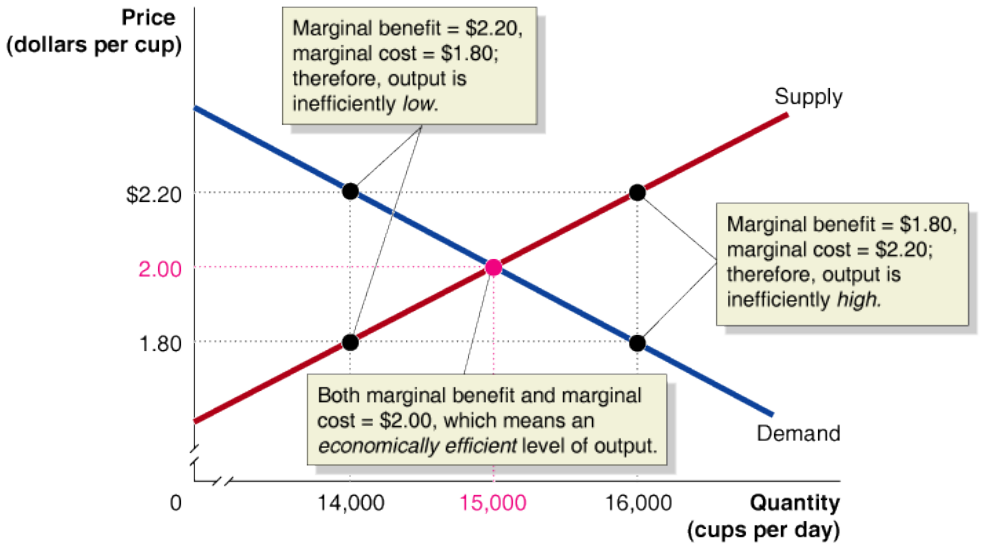
Two ways of defining **Economic Efficiency**:

1. A market is efficient if all trades take place where the ***marginal benefit*** equals or exceeds the ***marginal cost***, and no other trades take place.

2. A market is efficient if it maximizes the sum of consumer and producer surplus (i.e. the total net benefit to consumers and firms), known as the ***economic surplus or total welfare***.

The Efficiency of Competitive Equilibrium

- Demand: **Marginal Benefit** of each cup
- Supply: **Marginal Cost** of each cup
- If Q too low →MB>MC
- If Q too high → MB<MC

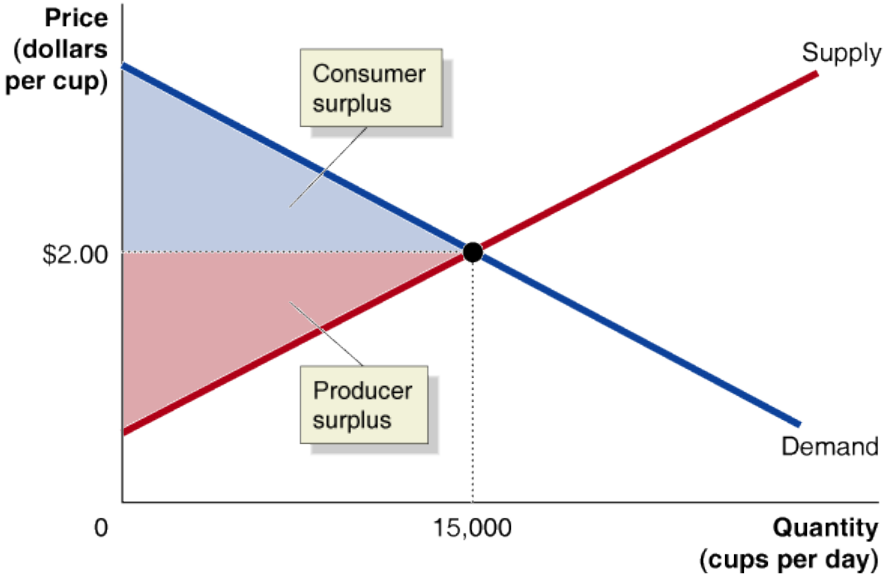


Only at the competitive equilibrium is the last unit valued by consumers and producers equally—economic efficiency.

The Efficiency of Competitive Equilibrium—Surplus

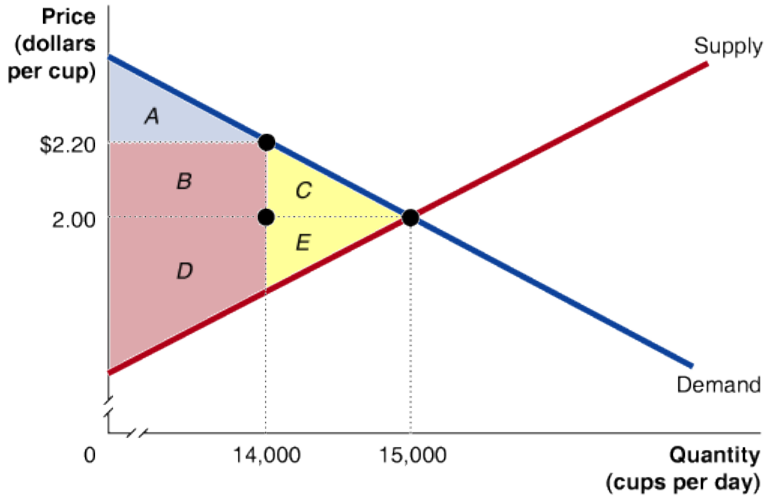
At the competitive equilibrium quantity, the economic surplus (CS + PS) is also maximized!

Our two concepts of economic efficiency result in the same level of output.



Economic Surplus if the Market is Not in Equilibrium

	At Competitive Equilibrium	At a Price of $2.20
Consumer Surplus	$A + B + C$	A
Producer Surplus	$D + E$	$B + D$
Deadweight Loss	None	$C + E$



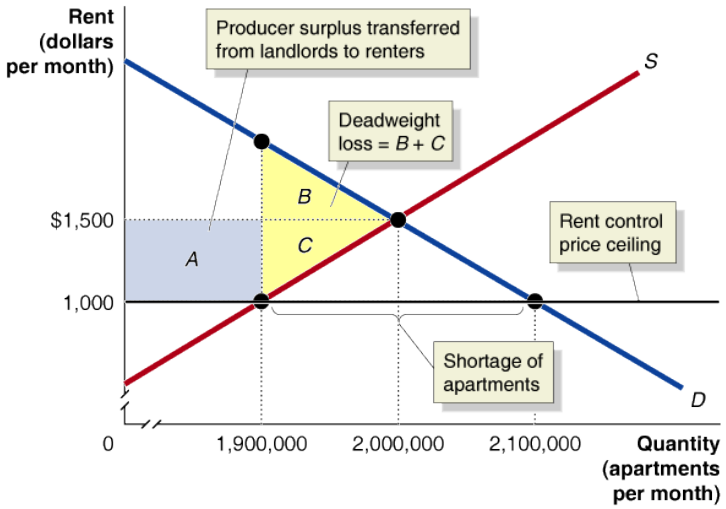
Deadweight Loss (DWL): The amount of inefficiency in a market.

In competitive equilibrium, deadweight loss is zero.

What about Rent Control?

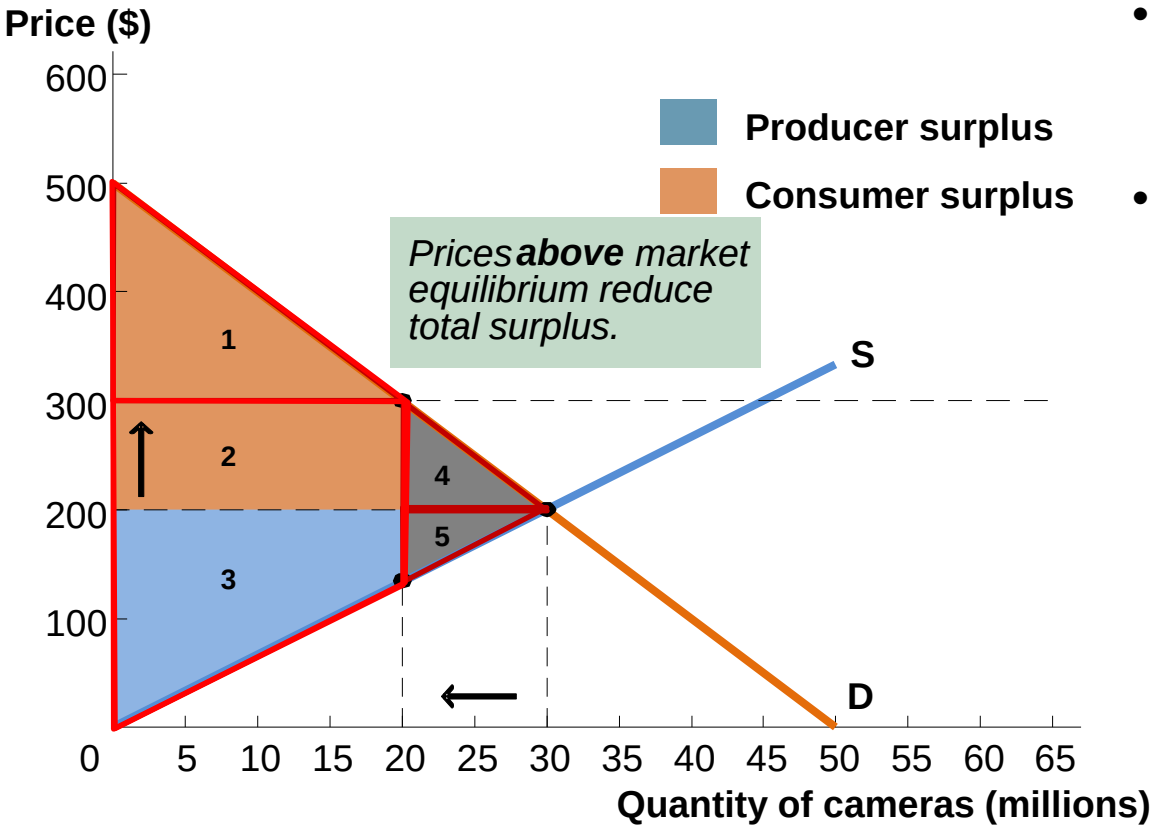
- Producer surplus equal to the area of the blue rectangle *A* is transferred from landlords to renters.

- There is a deadweight loss equal to the areas of yellow triangles *B* and *C*.



Market Equilibrium and Efficiency

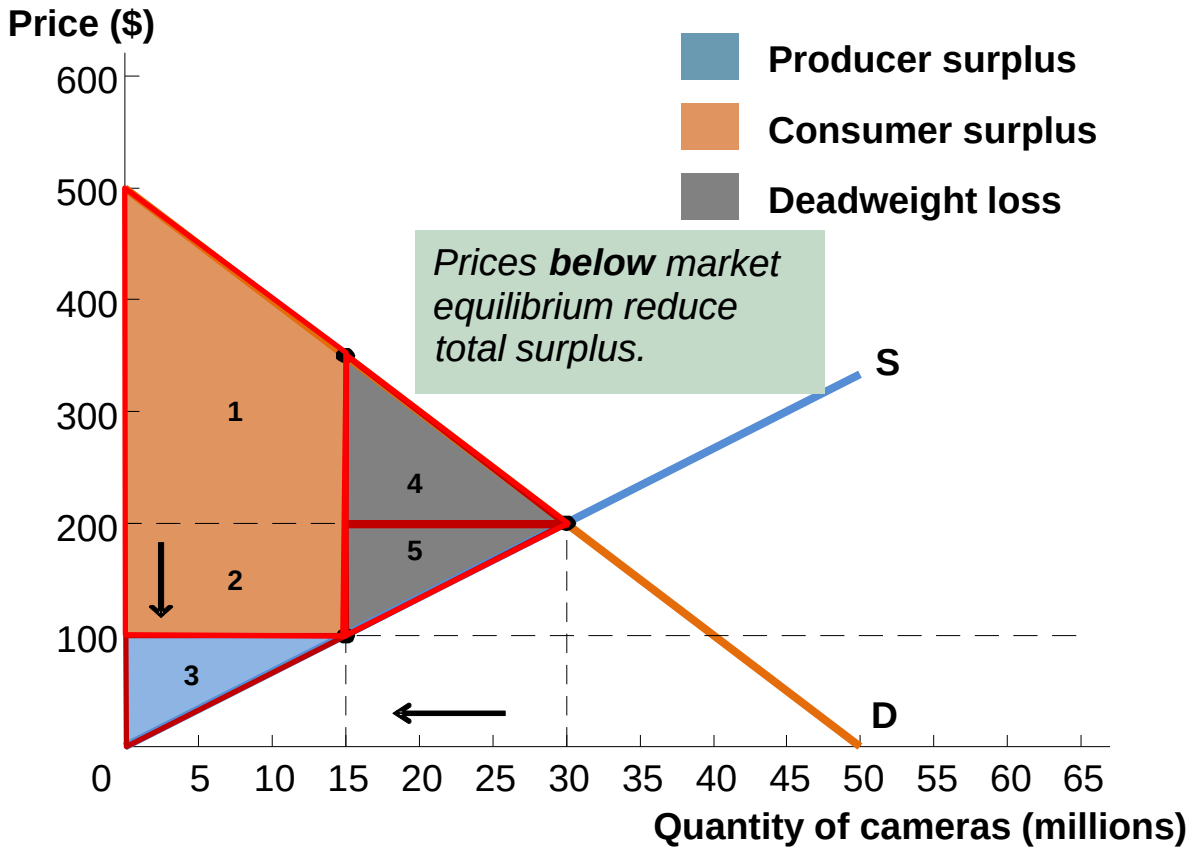
The market equilibrium is the point that maximizes total well-being (total surplus) of all participants in the market.



- Suppose the price increases from the equilibrium price of $200 to $300.
- Reduction in cameras sold by 10 million.
  - Reduces consumer surplus.
  - Reduces producer surplus.

Market Equilibrium and Efficiency

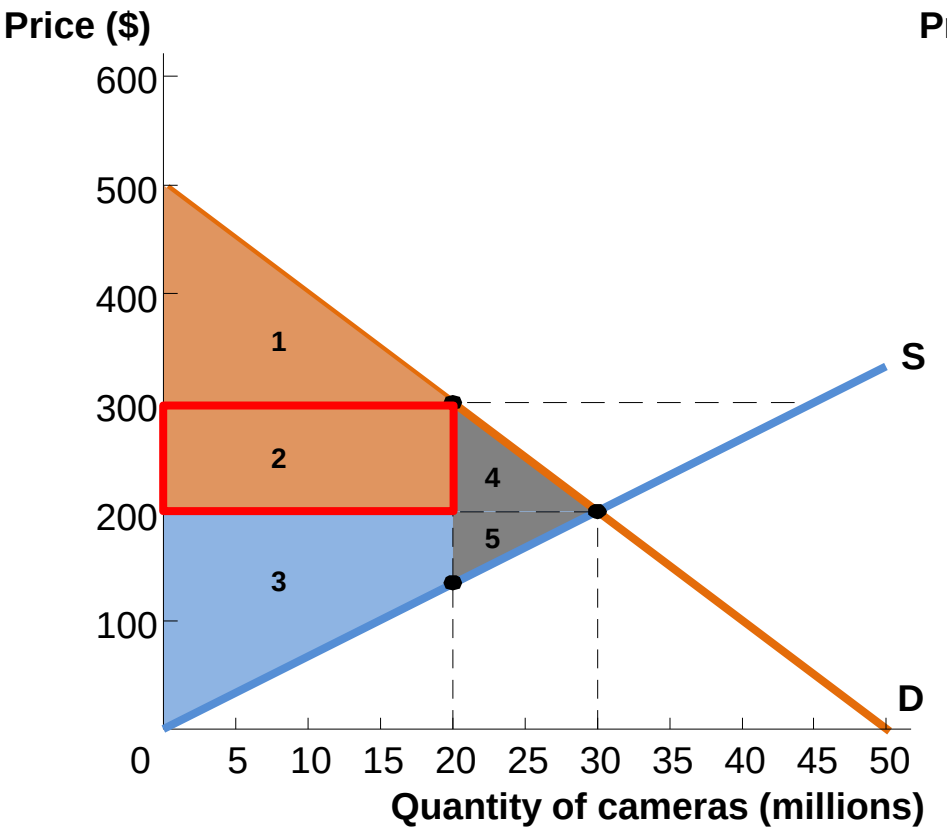
Lowering the price from the market equilibrium price decreases total surplus.

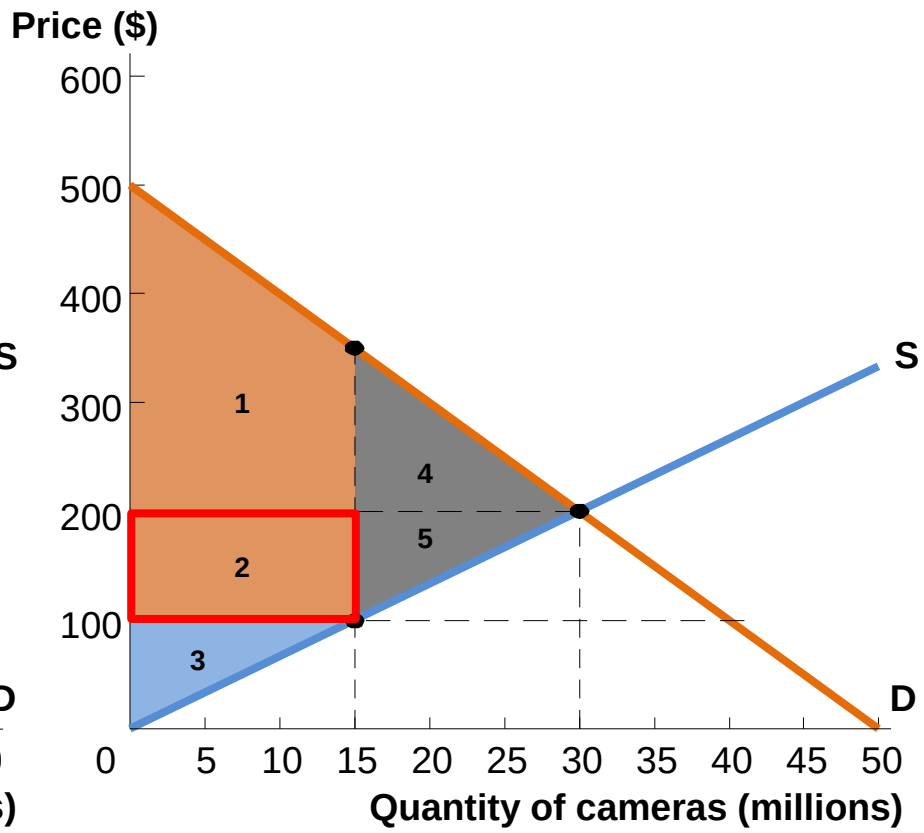


- Suppose the price decreases from the equilibrium price of $200 to $100.
- Reduction in cameras sold by 15 million.
  - Reduces consumer and producer surplus.
  - Dead weight loss is areas 4 and 5.

Changing the Distribution of Total Surplus

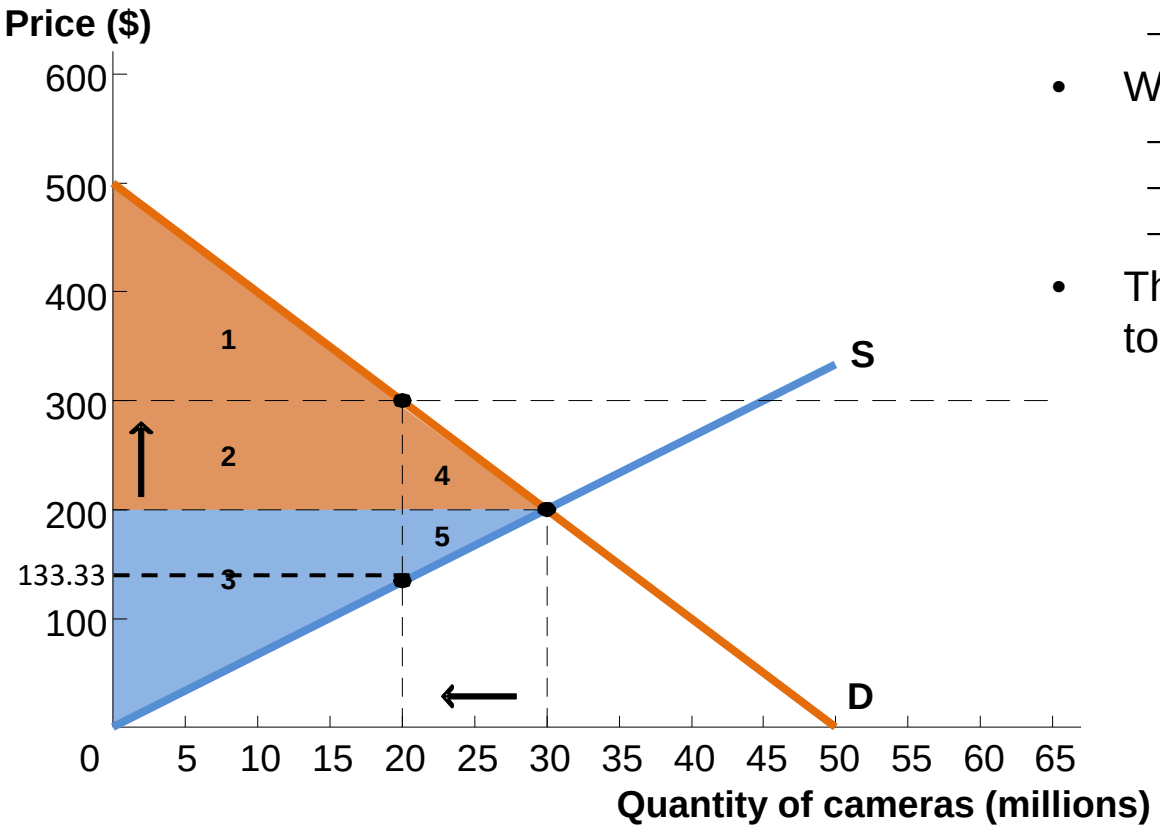
When an artificial price is imposed on a market, surplus is transferred between consumers and producers.





Calculating Change in Total Surplus

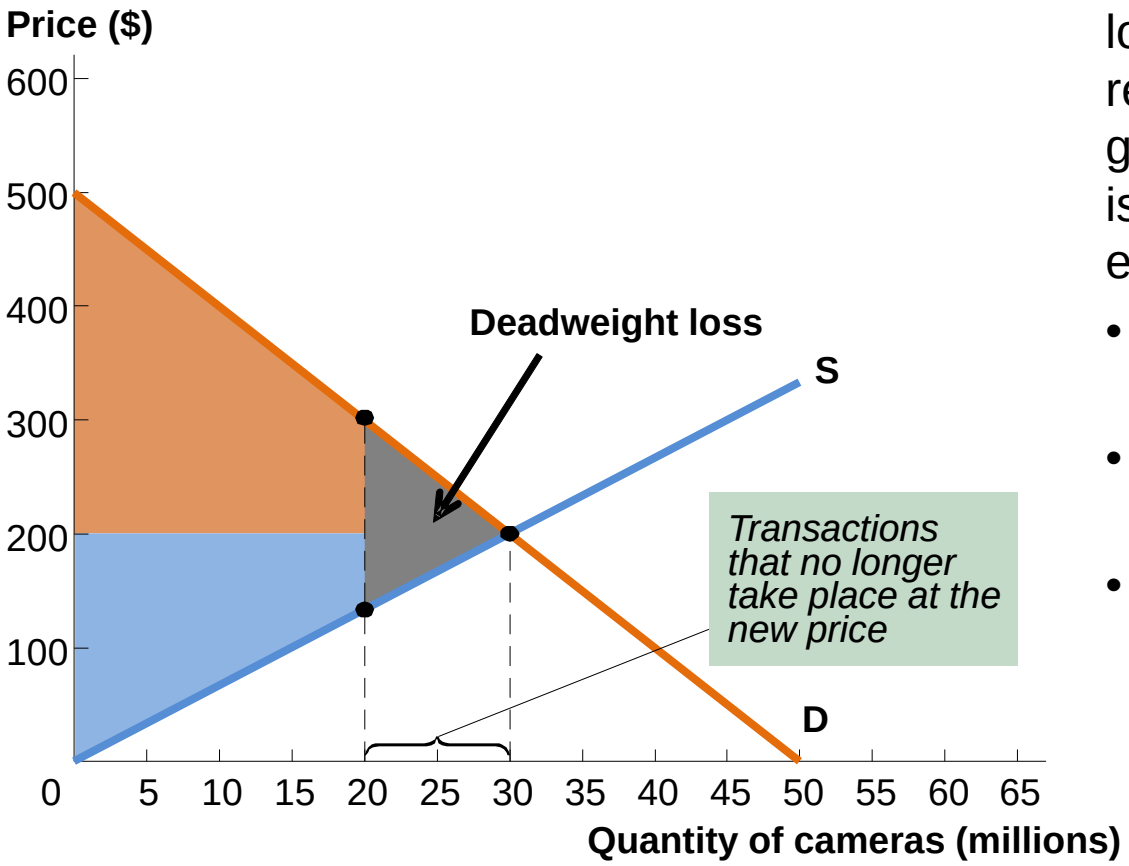
Use the following graph to calculate the *difference* in total surplus if the price increases from $200 to $300.



- When price is $200
  - CS = $4.5 B and PS = $3B
  - Total surplus = $7.5B
- When price is $300
  - CS = ½ × 20M × ($500 - $300) = $2B
  - PS = ($300-$133)x20m+ ½ ($133)x20m
  - Total surplus = $2B + $4.67B = $6.67B
- The change in total surplus is equal to $6.67B - $7.5B = -$0.83B

Deadweight Loss

When an artificial price is imposed on a market, a deadweight loss occurs.



The *deadweight loss* is the loss of total surplus that results when the quantity of a good that is bought and sold is below the market equilibrium quantity.

- Reduction in cameras sold by 10 million.
- Reduces consumer and producer surplus.
- Deadweight loss is the gray triangle.

Why Intervene?

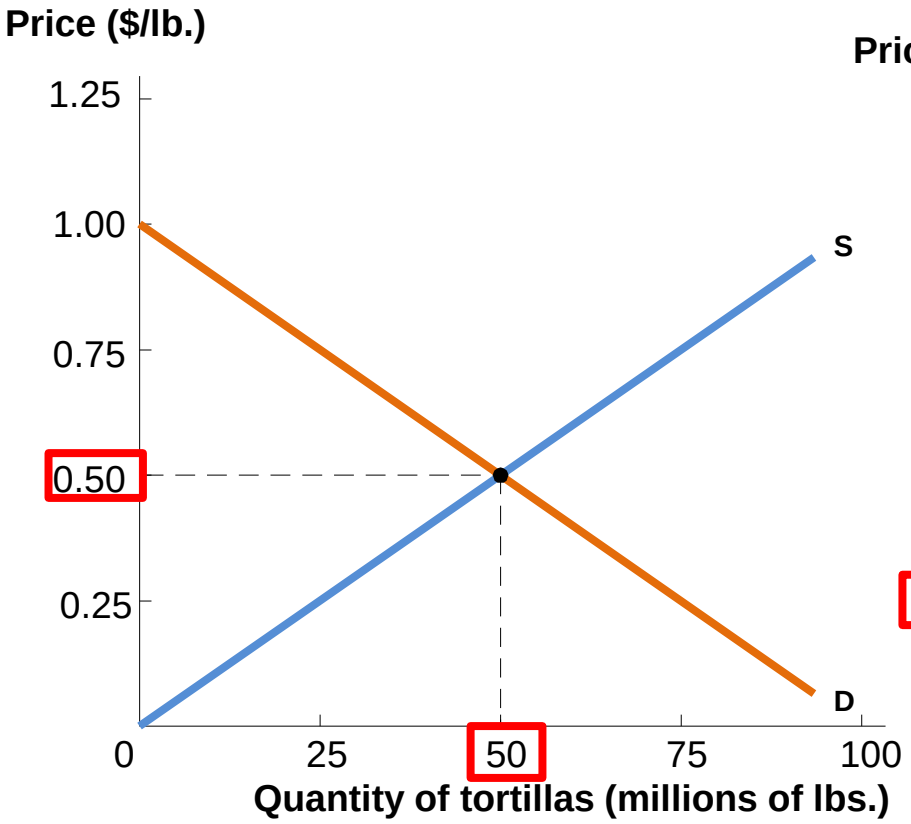
- There are three reasons why a government may step in and intervene in a market:
  - Correcting *market failures* or *missing markets*.
  - Changing the distribution of benefits.
  - Encouraging or discouraging consumption of certain goods.

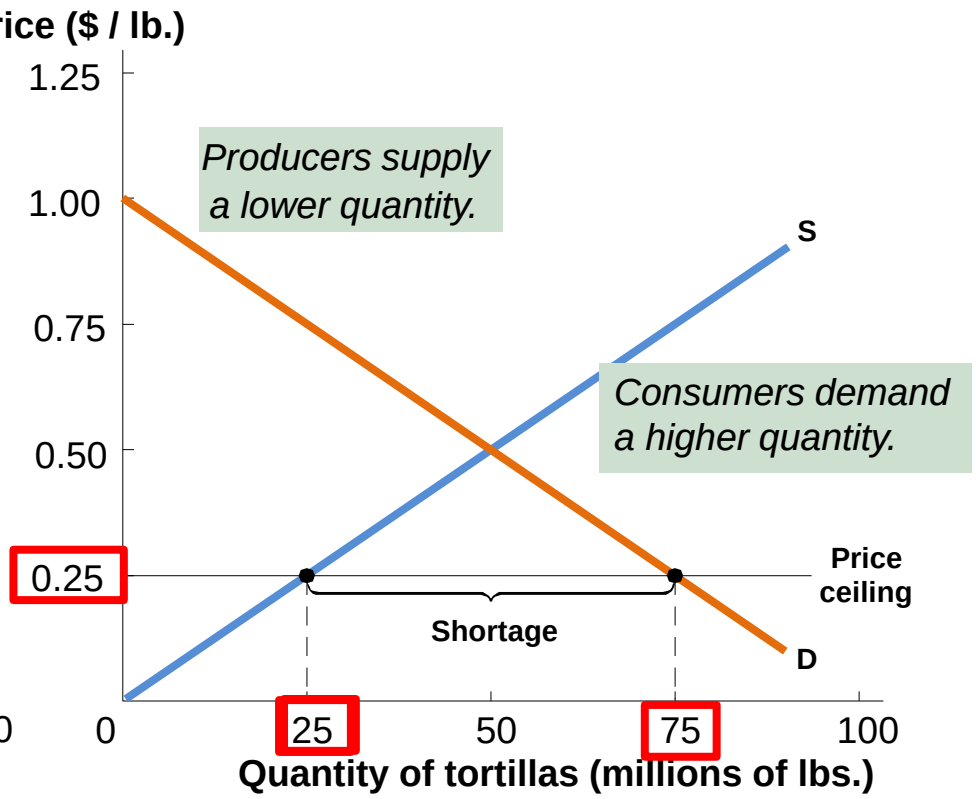
Price Controls

- Price controls can be divided into categories:
  - Price ceiling: A maximum legal price at which a good can be sold.
    - Typically placed on essential goods and services such as food, gasoline, and electricity.
  - Price floor: A minimum legal price at which a good can be sold.
    - Typically placed on agricultural goods that are risky to produce.

Price Ceilings

•Suppose the Mexican government imposes a price ceiling on tortillas. What effect does this have on the market?





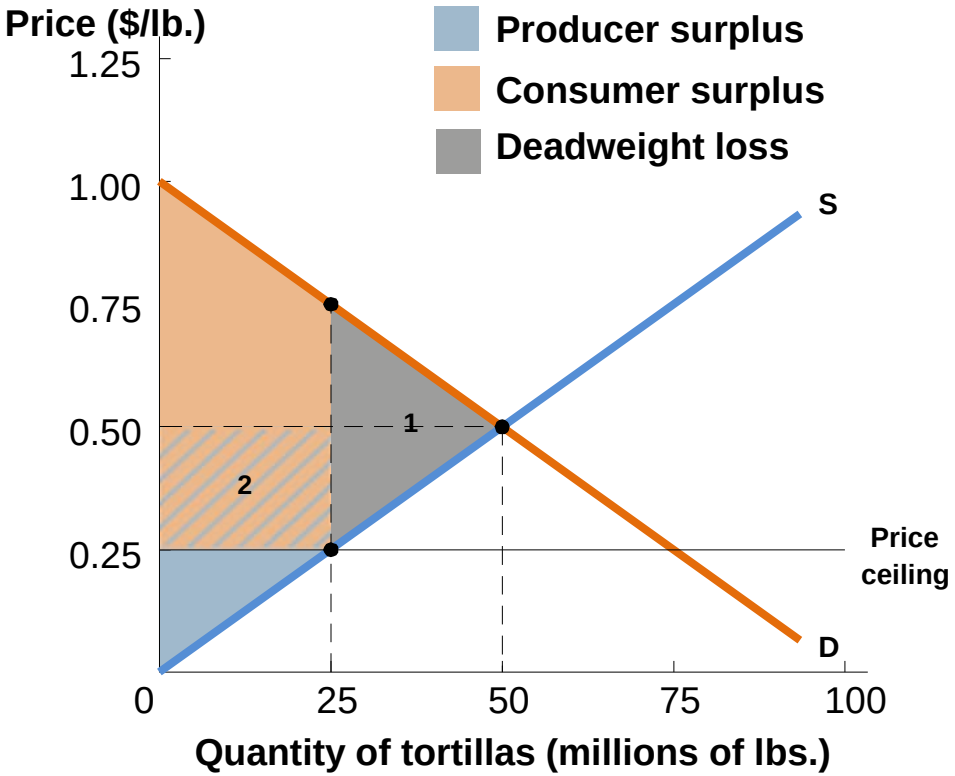
Price Ceilings

- Did the price ceiling meet the goal of providing low-priced tortillas to consumers?
  - Yes. Consumers were able to buy some tortillas at the low price of $0.25 a pound.
  - No. Consumers wanted to buy three times as many tortillas as producers were willing to supply.

- How did the price ceiling affect welfare?

Welfare Effects of a Price Ceiling

- Reduction in tortillas sold by 25 million.
- Deadweight loss occurs.
- Transfer of surplus from producers to consumers.



Welfare Effects of a Price Ceiling

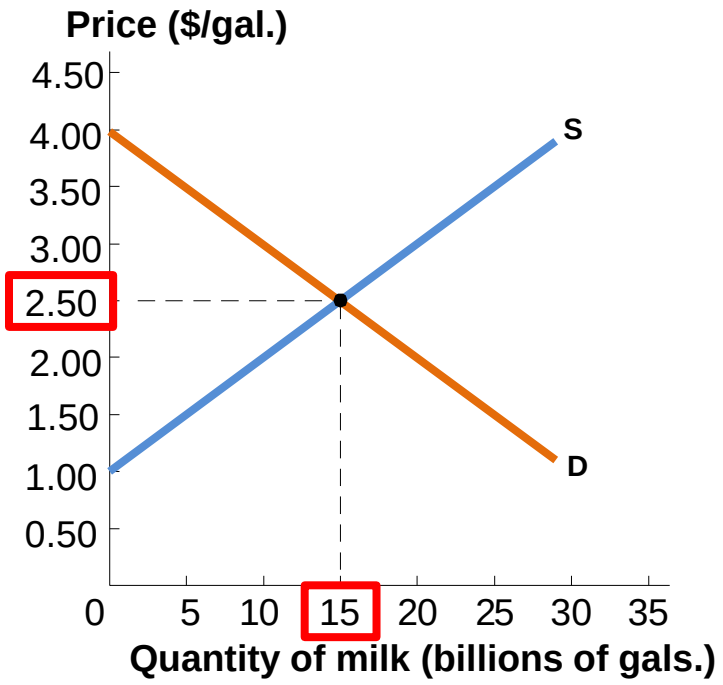
- Are price ceilings worth the decrease in total surplus?

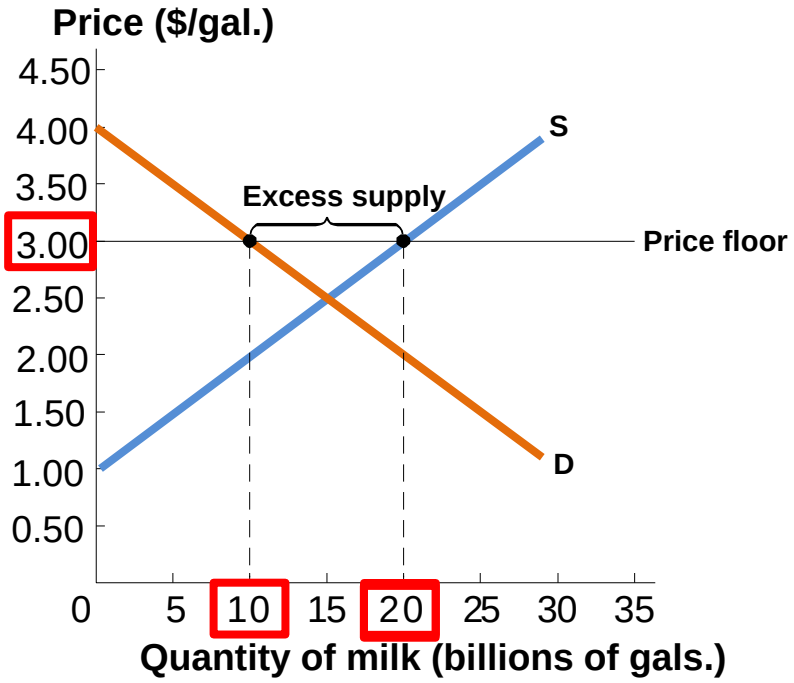
- Because a price ceiling causes a shortage, goods must be rationed. But how?
  - Rationed equally.
  - First-come, first-served basis.
  - Rationed to those who are given preference

  - →Shortages cause people to engage in rent-seeking behavior, such as bribing whoever is in charge of allocating scarce supplies.

Price Floors

•Suppose the U.S. government imposes a price floor on milk. What effect does this have on the market?





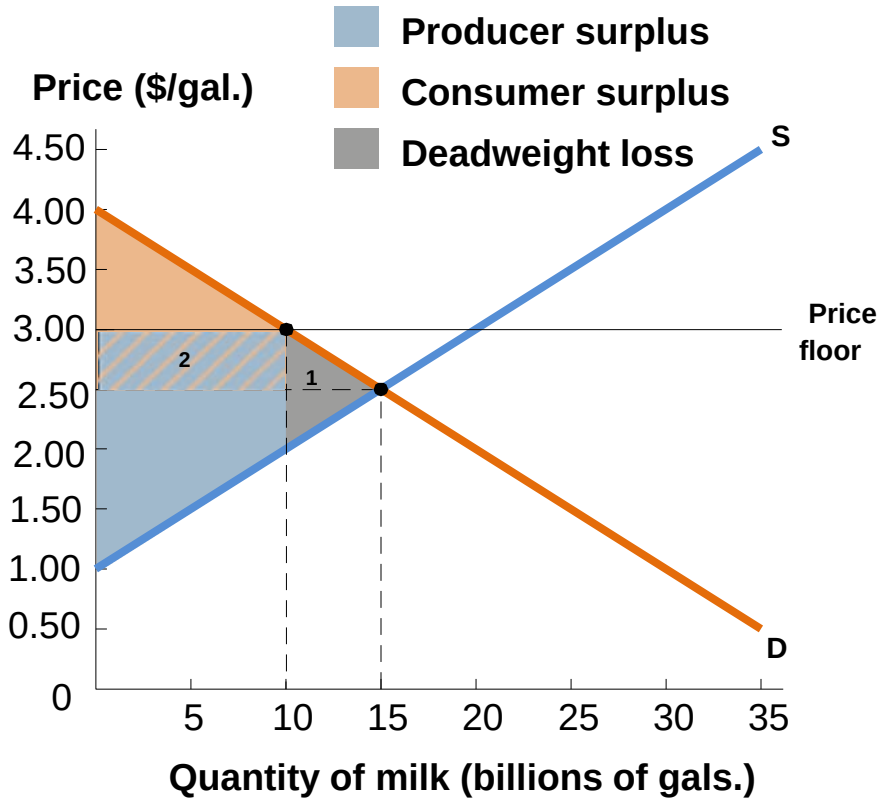
Price Floors

- Did the price floor meet the goal of providing support to producers?
  - Yes. Producers were able to sell some milk at a higher price of $3.00 per gallon.
  - No. Some producers may not be able to sell all of their milk because demand no longer meets supply.

- How did the price floor affect welfare?

Welfare Effects of a Price Floor

- Reduction in milk sold by 5 million gallons.
- Deadweight loss occurs (Area 1).
- Transfer of surplus (Area 2) from consumers to producers.



Welfare Effects of a Price Floor

- Are price floors worth the decrease in total surplus?

- One way to answer is through studying how much excess milk will the government have to buy.
  - The answer is the entire amount of excess supply created by the price floor.
  - In the above case, 10 billion gallons will be purchased at $3 per gallon.
  - The cost to maintain the price floor is then $30 billion.
  - What happens to the excess milk?