Equilibrium

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Market Equilibrium

- Occurs when the buying decisions of households and the selling decisions of producers are equated.

- Determines the equilibrium price and equilibrium quantity bought and sold in the market.

THE MARKET MECHANISM

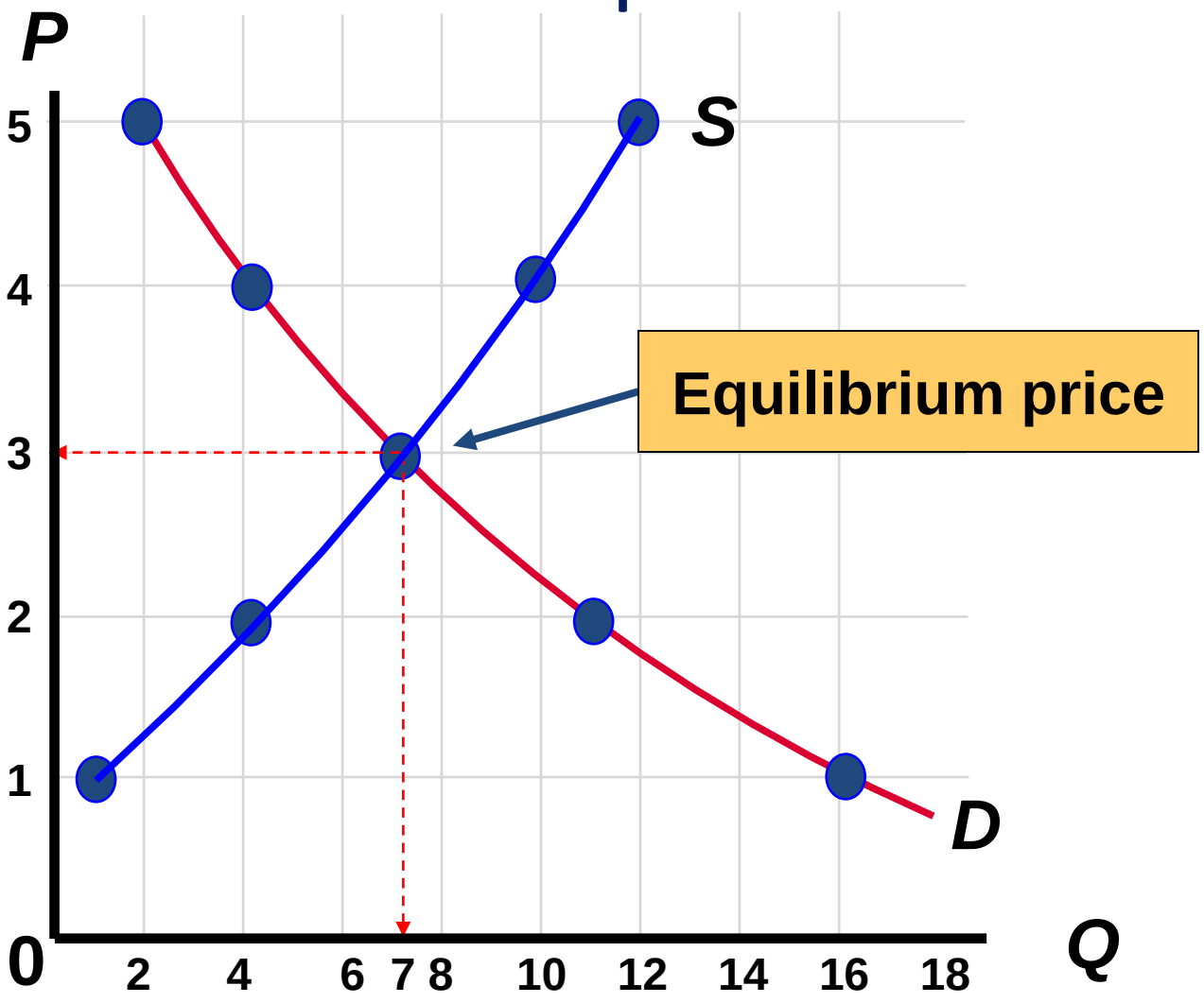
- **Equilibrium (**or **market clearing) price** Price that equates the quantity supplied to the quantity demanded.

- **Market mechanism** Tendency in a free market for price to change until the market clears.

- **Surplus** Situation in which the quantity supplied exceeds the quantity demanded

- **Shortage** Situation in which the quantity demanded exceeds the quantity supplied.

Market Equilibrium



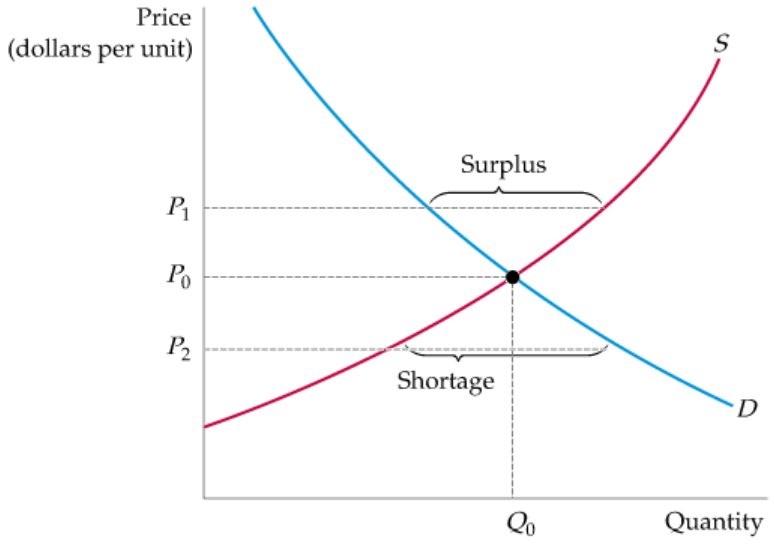
THE MARKET MECHANISM

Supply and Demand

The market clears at price P_0 and quantity Q_0.

At the higher price P_1, a surplus develops, so price falls.

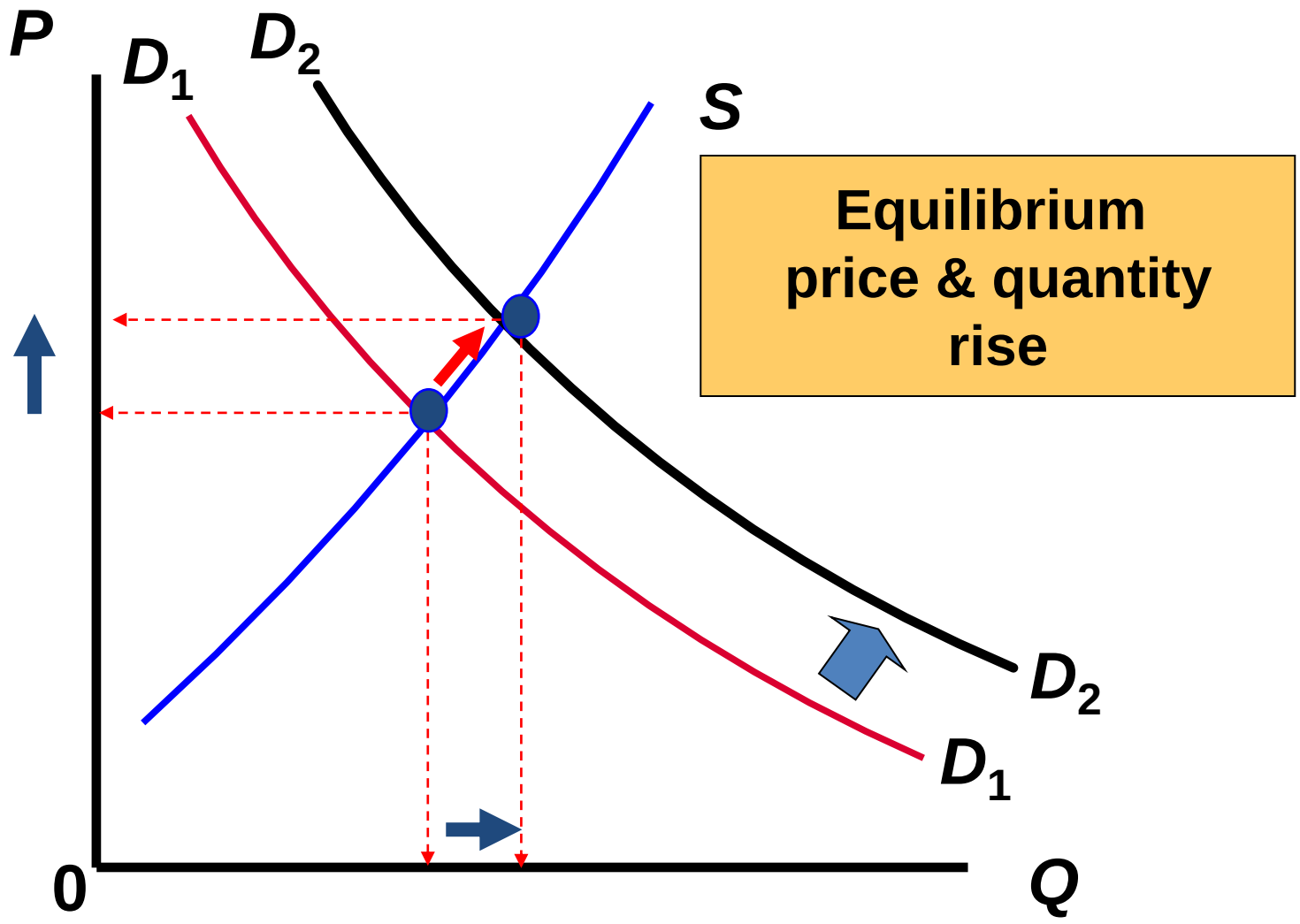
At the lower price P_2, there is a shortage, so price is bid up.



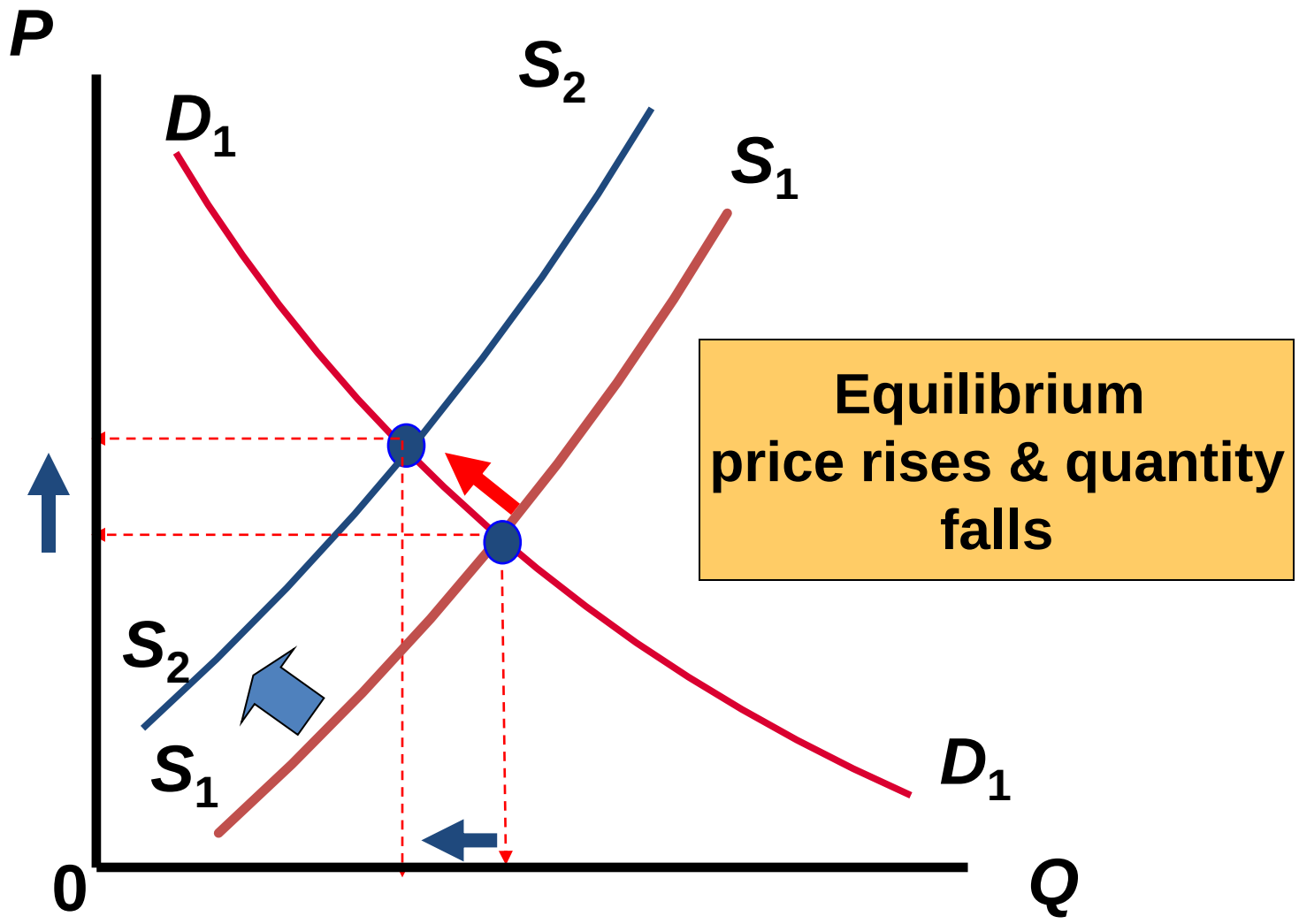
Shocking the Equilibrium

The equilibrium changes only if a shock occurs that shifts the demand curve or the supply curve. These curves shift if one of the variables we were holding constant changes.

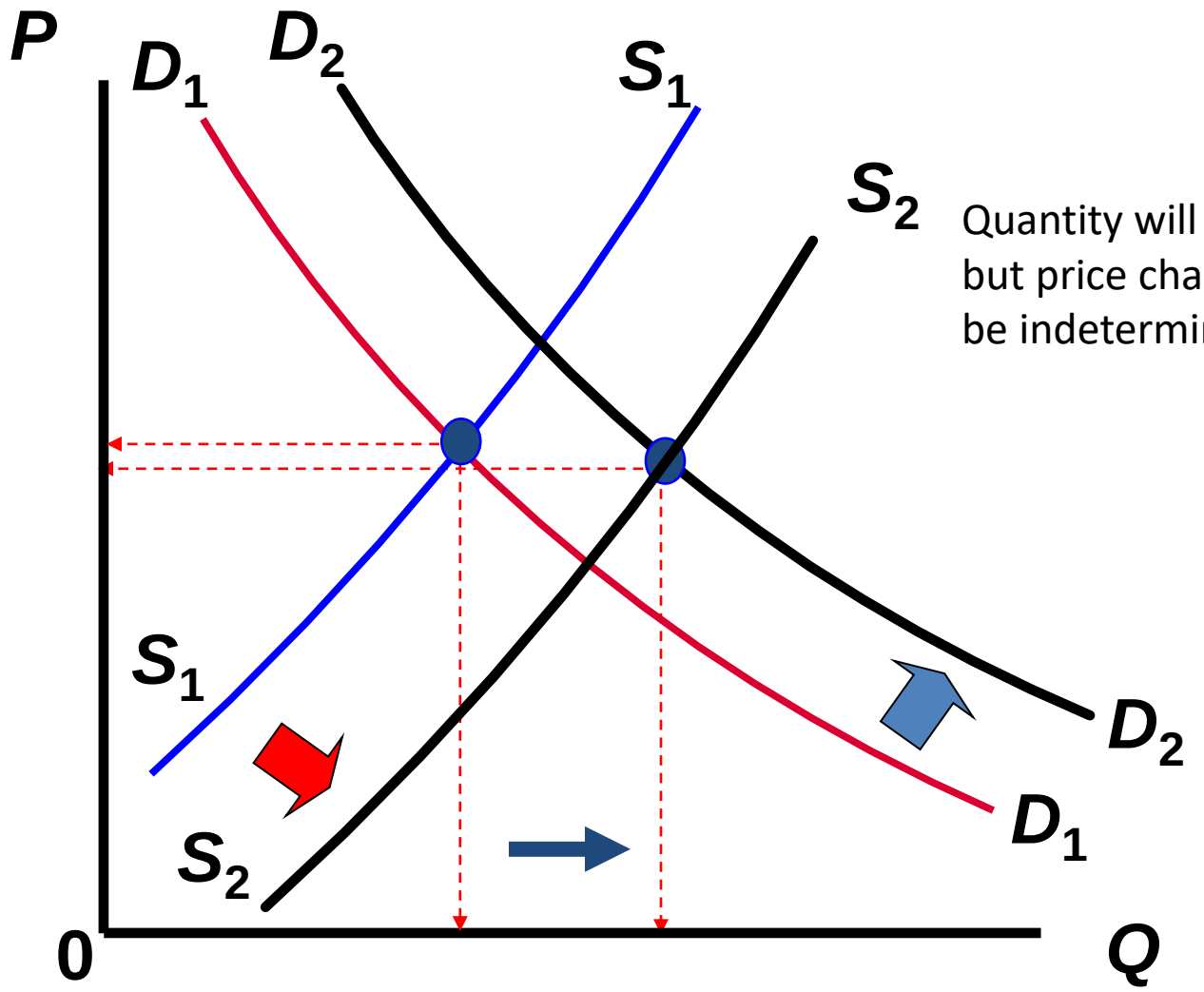
Increase in Demand



Decrease in Supply



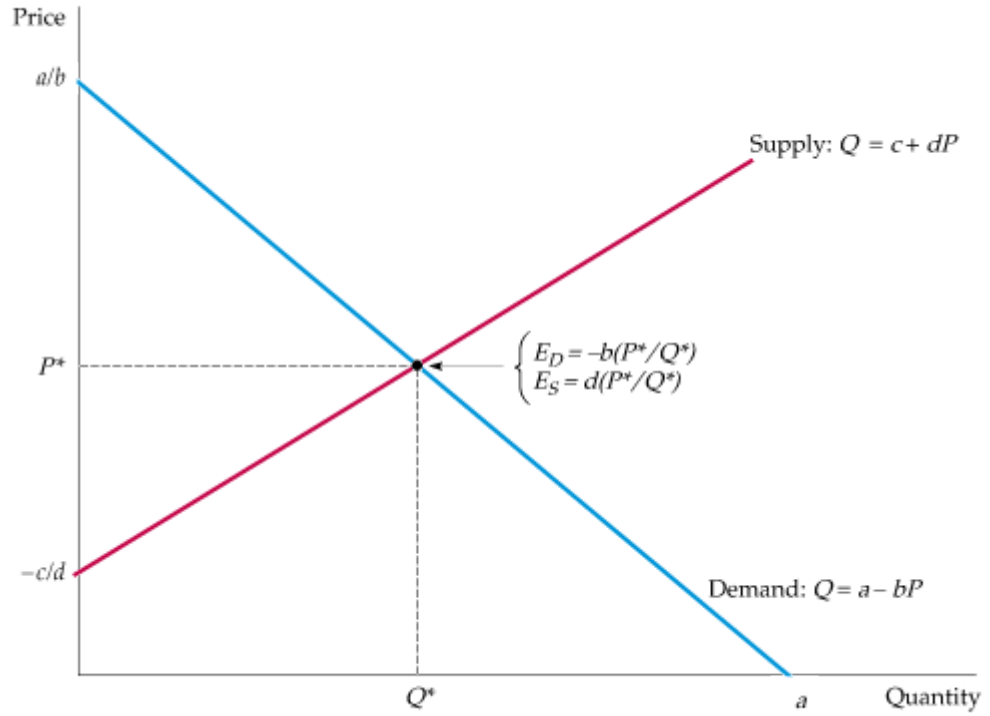
Both Demand & Supply Increase



Understanding and Predicting the Effects of Changing Market Conditions

FITTING LINEAR SUPPLY AND DEMAND CURVES TO DATA

Given data for the equilibrium price and quantity P^* and Q^* and estimates of the elasticities of demand and supply E_D and E_S, we can calculate the parameters c and d for the supply curve and a and b for the demand curve.



Deriving demand and supply functions from elasticity values

$$Demand: Q = a - bP \quad \textbf{(1)}$$

$$Supply: Q = c + dP \quad \textbf{(2)}$$

- ***Step 1:***

$$E = (P/Q)(\Delta Q/\Delta P)$$

$$Demand: E_D = -b(P^*/Q^*) \quad \textbf{(3)}$$

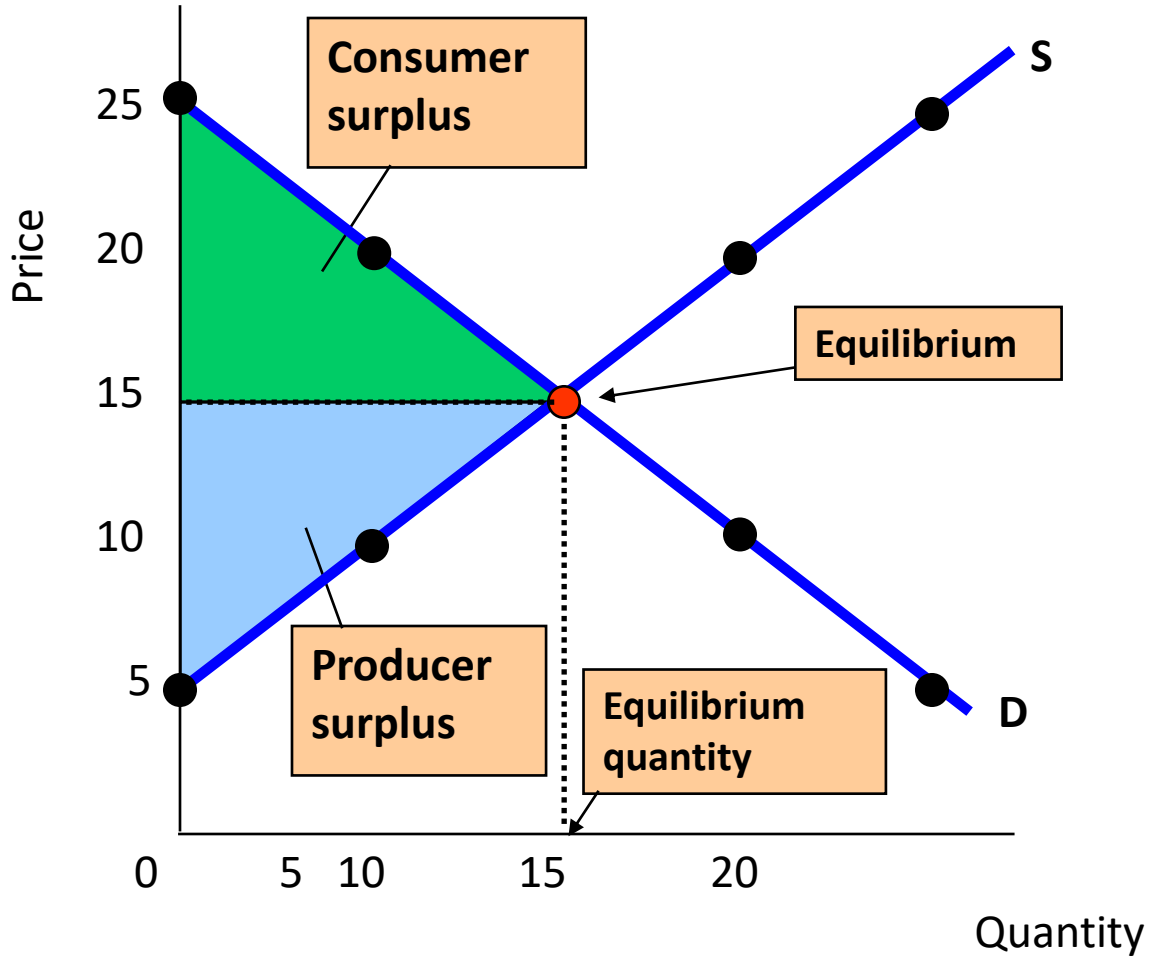
$$Supply: E_S = d(P^*/Q^*) \quad \textbf{(4)}$$

- ***Step 2:***

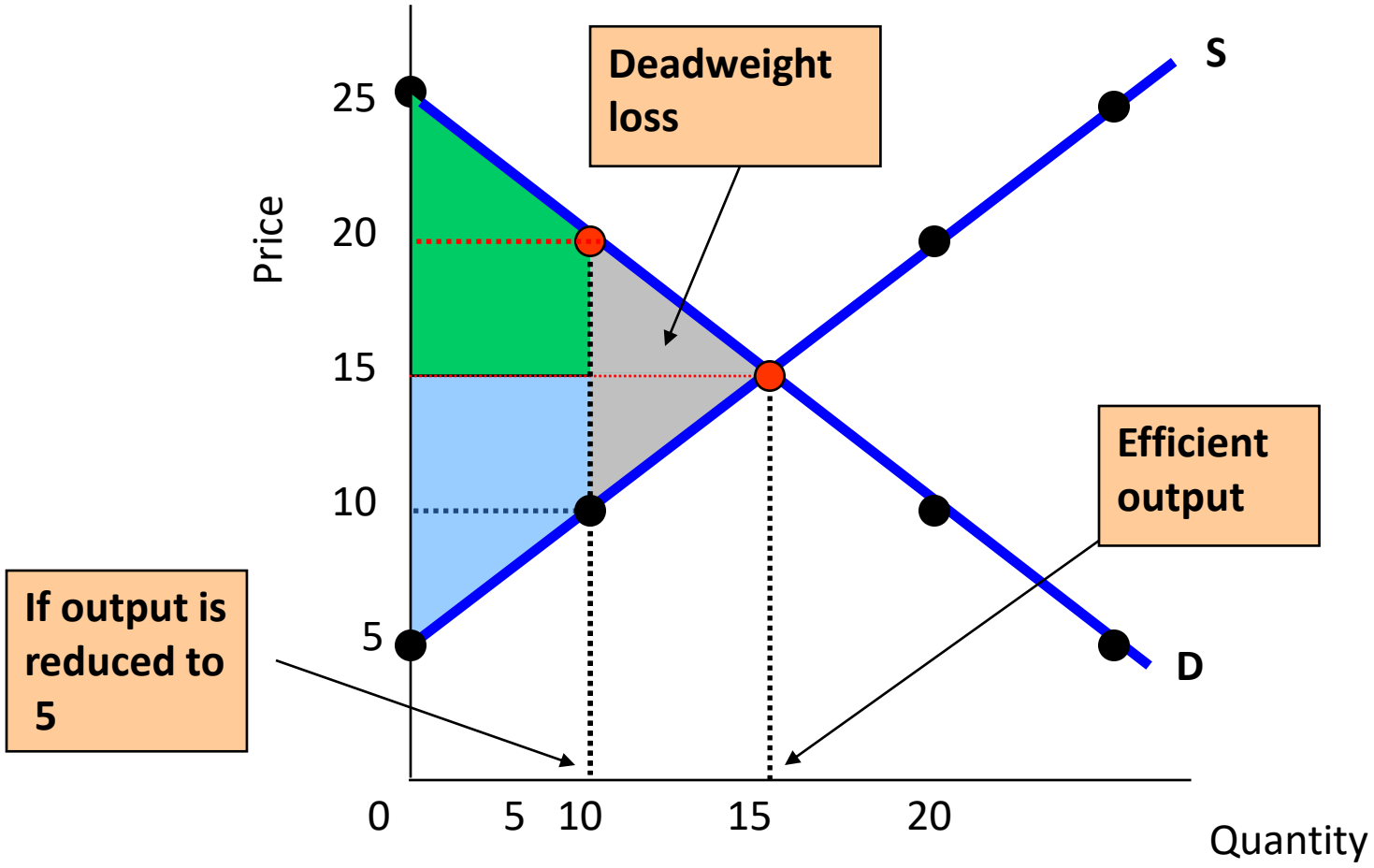
$$a = Q^* + bP^*$$

$$Q = a - bP + fI \quad \textbf{(5)}$$

An Efficient Market



Underproduction

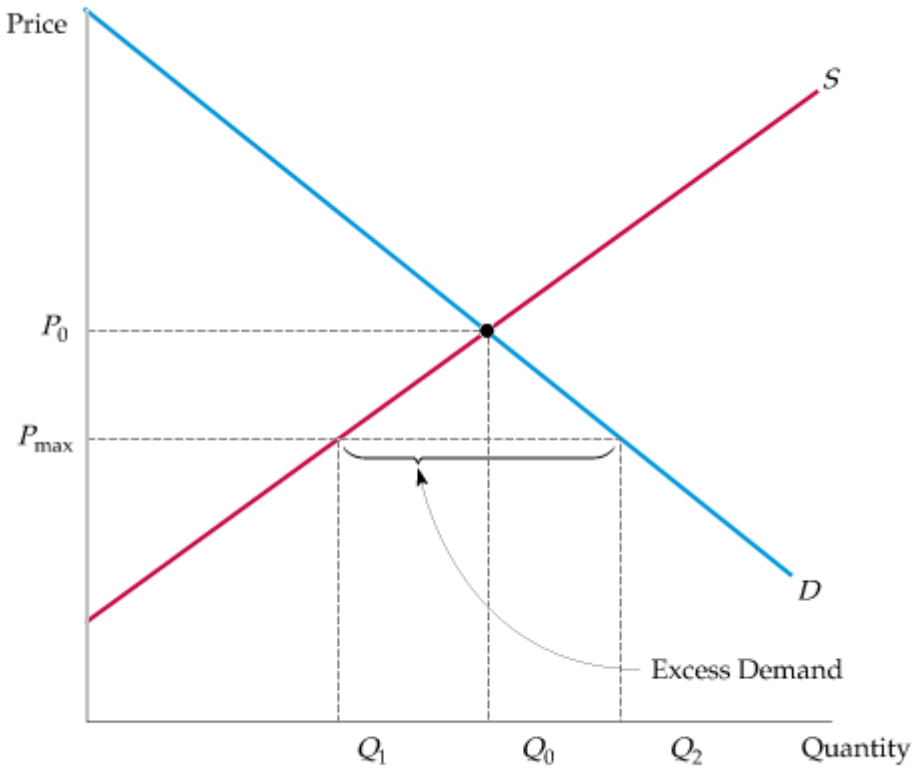


Effects of Government Intervention—Price Controls

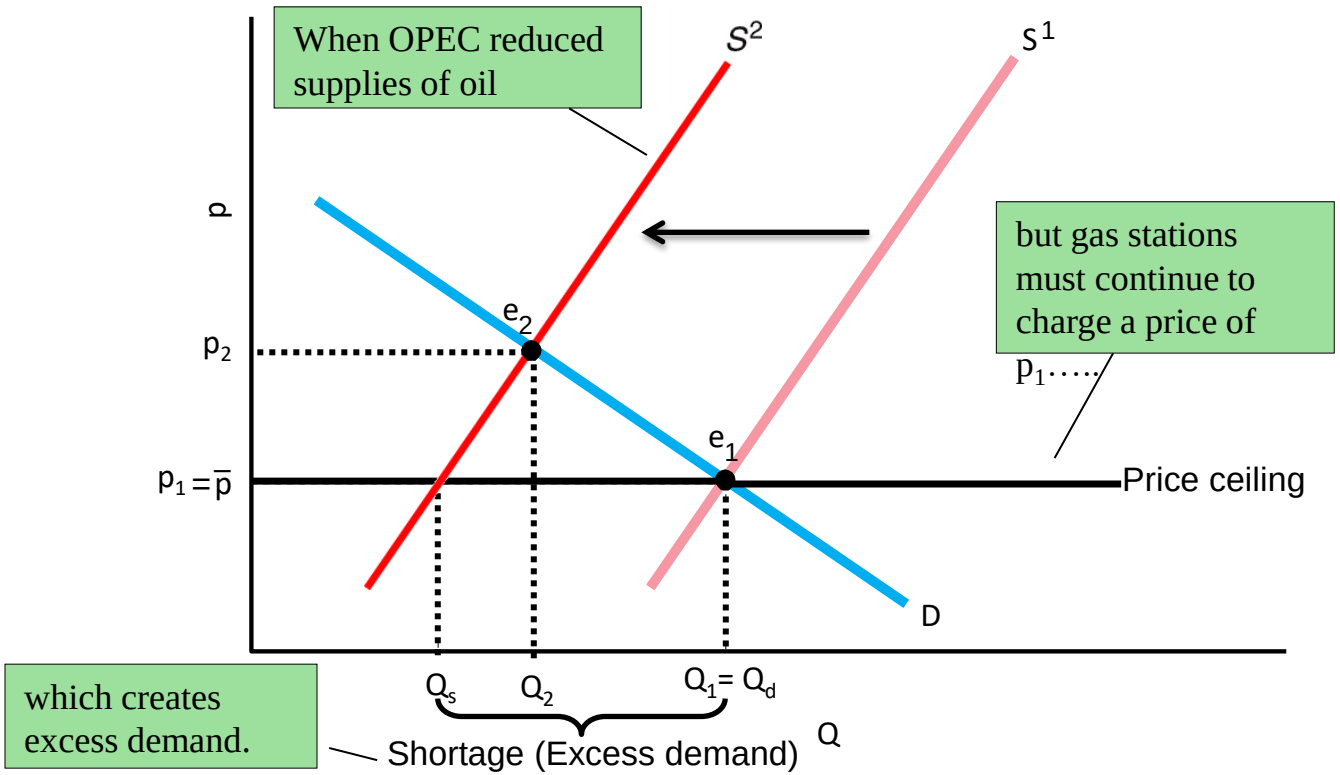
EFFECTS OF PRICE CONTROLS

Without price controls, the market clears at the equilibrium price and quantity P_0 and Q_0.

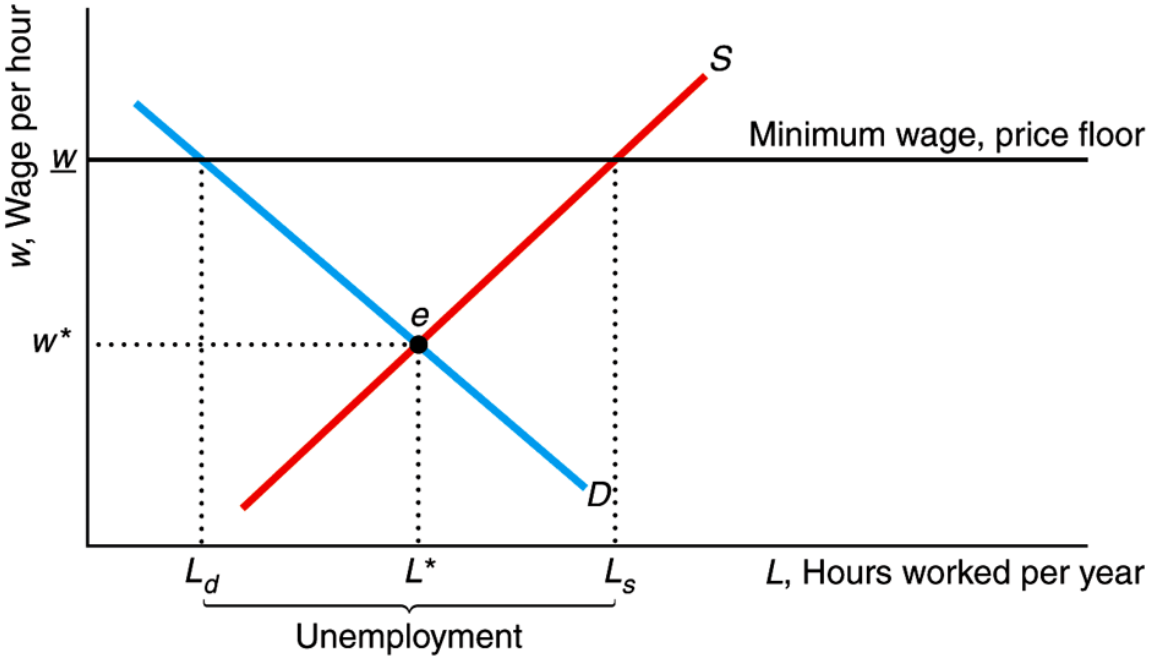
If price is regulated to be no higher than P_{max}, the quantity supplied falls to Q_1, the quantity demanded increases to Q_2, and a shortage develops.



Price Ceiling on Gasoline



Minimum wage

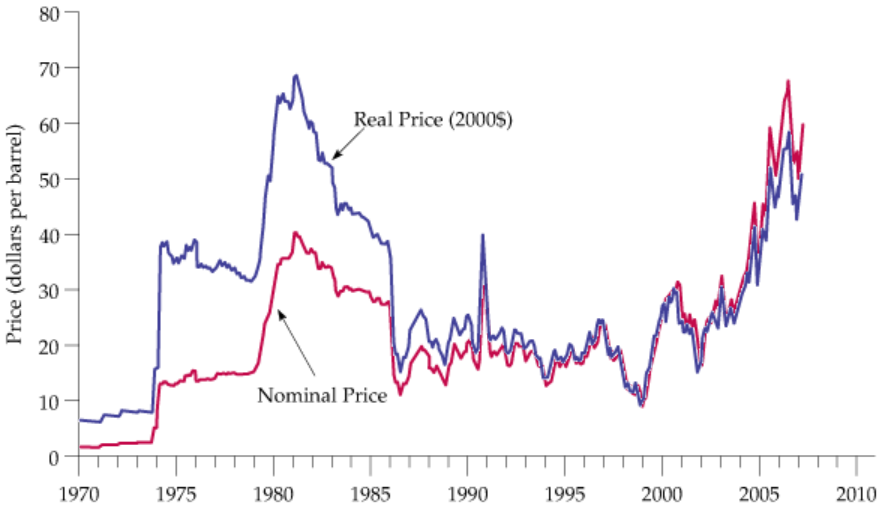


EXAMPLE of Pindyck & Rubinfeld. UNDERSTANDING AND PREDICTING THE EFFECTS OF CHANGING MARKET CONDITIONS (1/3)

Since the early 1970s, the world oil market has been buffeted by the OPEC cartel and by political turmoil in the Persian Gulf.

Price of Crude Oil

The OPEC cartel and political events caused the price of oil to rise sharply at times. It later fell as supply and demand adjusted.



EXAMPLE. (2/3)

Because this example is set in 2005–2007, all prices are measured in 2005 dollars. Here are some rough figures:

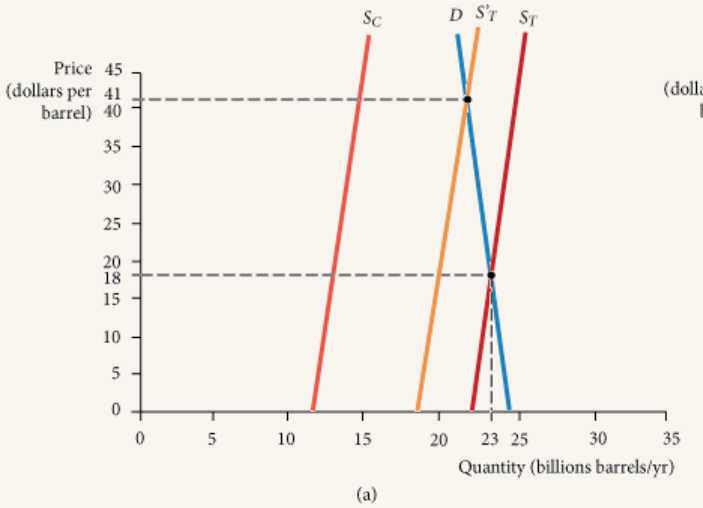
- 2005–7 world price = $50 per barrel
- World demand and total supply = 34 billion barrels per year (bb/yr)
- OPEC supply = 14 bb/yr
- Competitive (non-OPEC) supply = 20 bb/yr

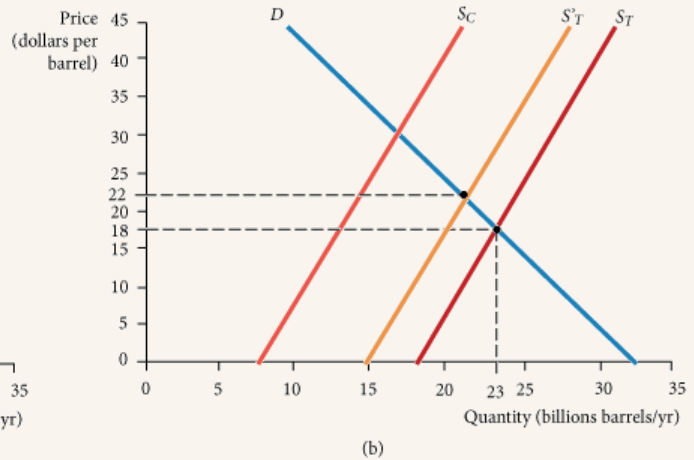
The following table gives price elasticity estimates for oil supply and demand:

	Short Run	Long Run
World demand:	-0.05	-0.40
Competitive supply:	0.10	0.40

EXAMPLE.(3/3)

Impact of Saudi Production Cut





The total supply (S_T) is the sum of competitive (non-OPEC) supply (S_C) and the 14 bb/yr of OPEC supply. Part (a) shows the short-run supply and demand curves.
If Saudi Arabia stops producing, the supply curve will shift to the left by 3 bb/yr. In the short-run, price will increase sharply.

Part (b) shows long-run curves.
In the long run, because demand and competitive supply are much more elastic,
the impact on price will be much smaller.