ECO5002 Introduction to Economics

Lecture 2: How Markets Work

Long Ma

School of Management and Economics
Chinese University of Hong Kong, Shenzhen

July-August, 2024

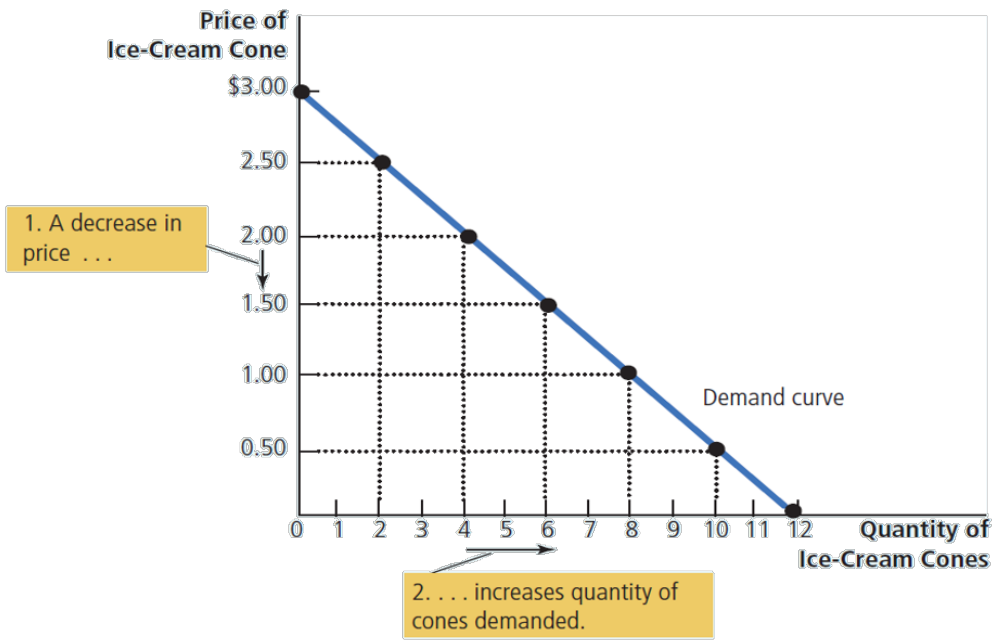
I. Demand and Supply

- A **market** is a group of buyers and sellers of a particular good or service. The buyers as a group determine the demand for the product, and the sellers as a group determine the supply of the product.
- Economists use the term **competitive market** to describe a market in which there are so many buyers and so many sellers that each has a negligible impact on the market price. In other words, in competitive market, agents are price takers.
- In the following, we assume markets are *perfectly competitive*.

I. Demand and Supply

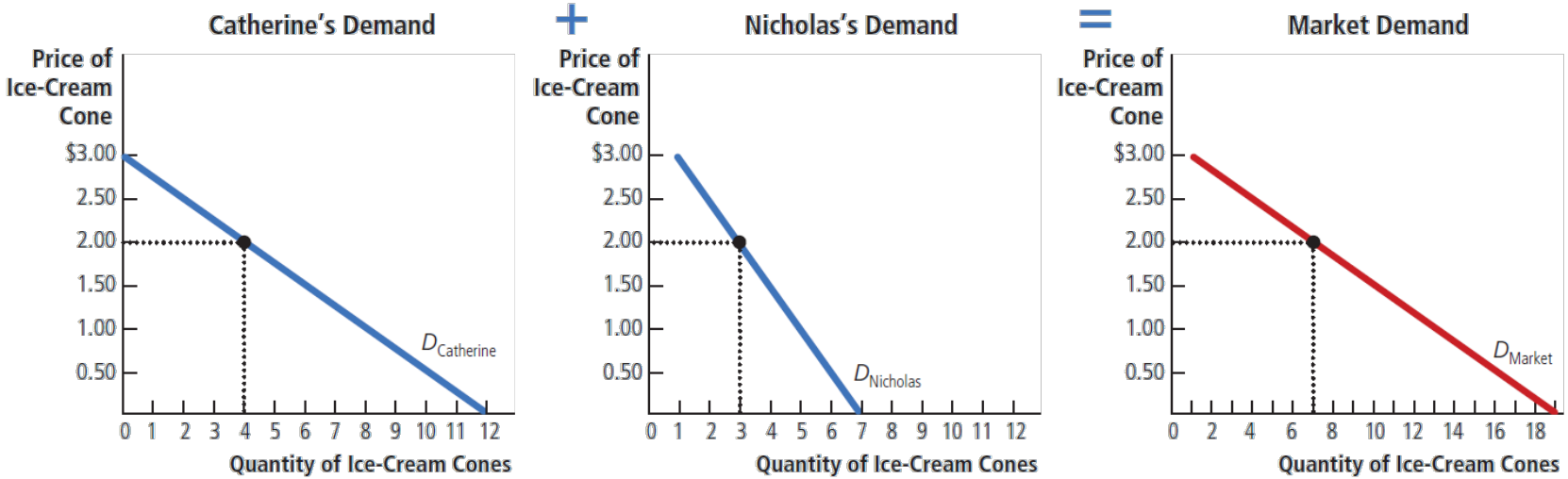
The **quantity demanded** of any good is the amount of the good that buyers are willing and able to purchase.

- Law of demand: other things being equal, the quantity demanded of a good falls when the price of the good rises.
- We call the relationship between the price of a good and the quantity demanded a demand schedule (or a demand curve).



I. Demand and Supply

- From individual demand to market demand: an aggregation.
  - 2 agents: Catherine and Nicholas.
  - $D_{\text{Market}}(P) = D_{\text{Catherine}}(P) + D_{\text{Nicholas}}(P)$.

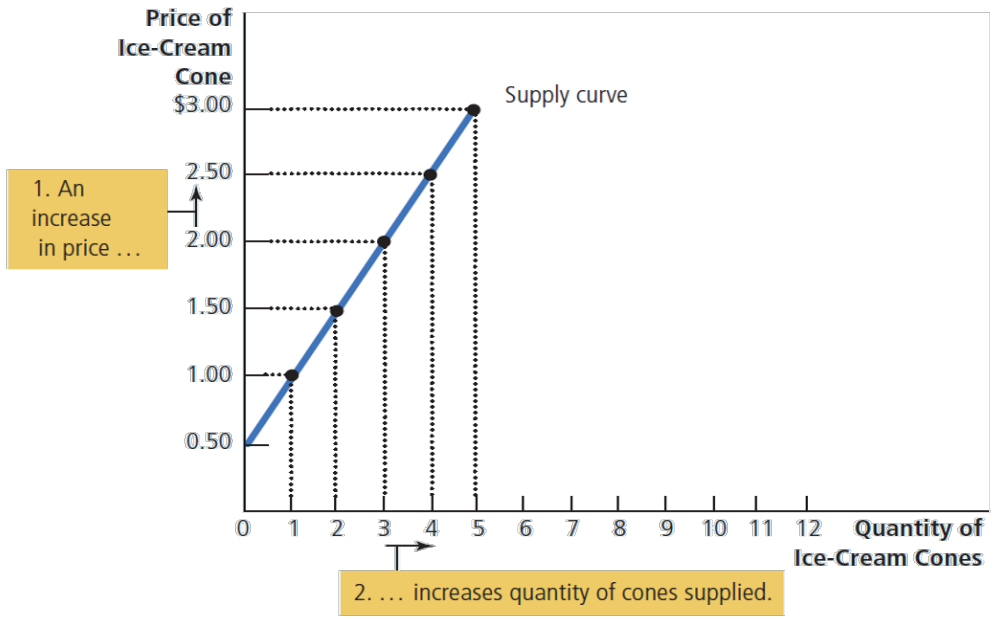


- Shifts in the demand curve. ($\neq$ move along the curve)
  - income: (for normal good) income $\downarrow$, demand $\downarrow$;
    (for inferior good) income $\downarrow$, demand $\uparrow$.
  - prices of related goods: substitutes' price $\uparrow$, demand $\uparrow$;
    complements' price $\uparrow$, demand $\downarrow$.
  - tastes, expectations, and numbers of buyers.

I. Demand and Supply

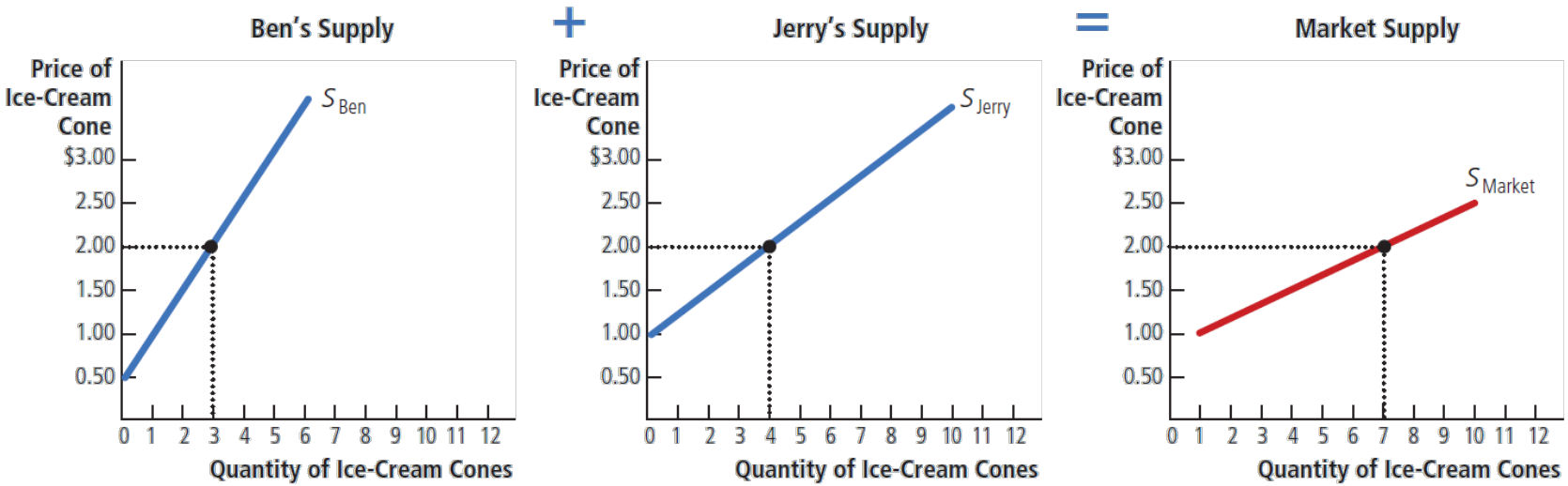
The **quantity supplied** of any good or service is the amount that sellers are willing and able to sell.

- Law of supply: other things being equal, when the price of a good rises, the quantity supplied of the good also rises.
- We call the relationship between the price of a good and the quantity supplied a supply schedule (or a supply curve).



I. Demand and Supply

- From individual supply to market supply: an aggregation.
  - 2 agents: Ben and Jerry.
  - $S_{\text{Market}}(P) = S_{\text{Ben}}(P) + S_{\text{Jerry}}(P)$.

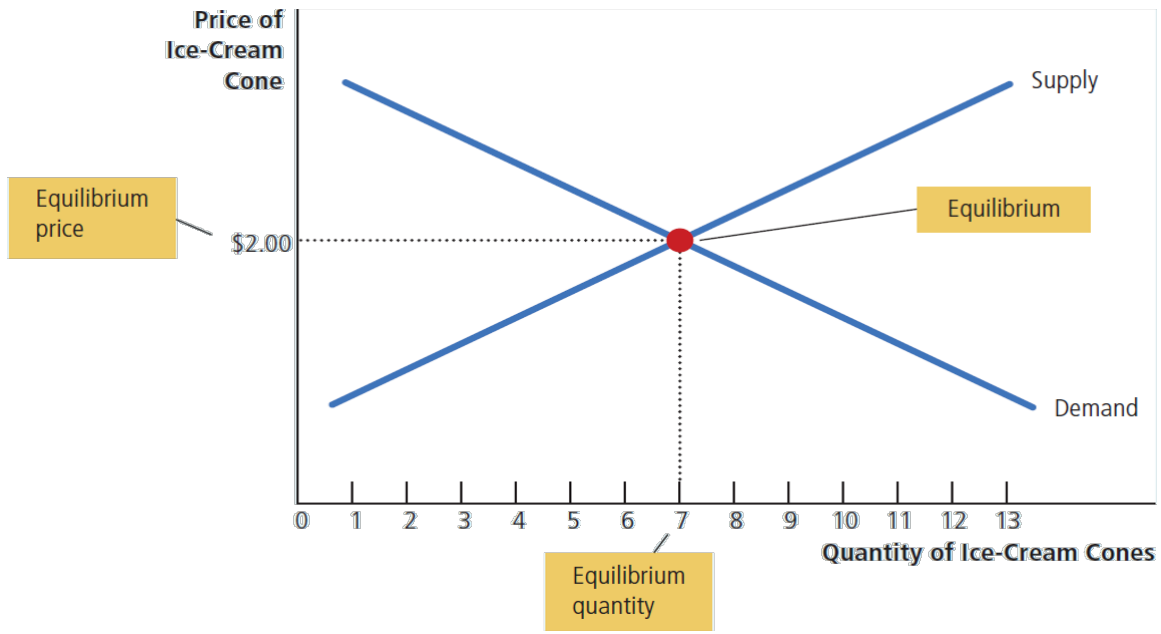


- Shifts in the supply curve.
  - input price: input price ↑, supply ↓.
  - technology: technology ↑, supply ↑.
  - expectations, and number of sellers.

I. Demand and Supply

An **equilibrium** is a situation in which the market price has reached the level at which quantity supplied equals quantity demanded.

- Shortage v.s. Surplus.
- Three steps for analyzing changes in equilibrium:
  - decide whether the event shifts the supply or demand curve (or both).
  - decide in which direction the curve shifts.
  - use the supply-and-demand diagram to see how the shift changes the equilibrium price and quantity.



II. Elasticity

Elasticity is a measure of the responsiveness of quantity demanded or quantity supplied to a change in one of its determinants.

- **The price elasticity of demand** measures how much the quantity demanded responds to a change in price:

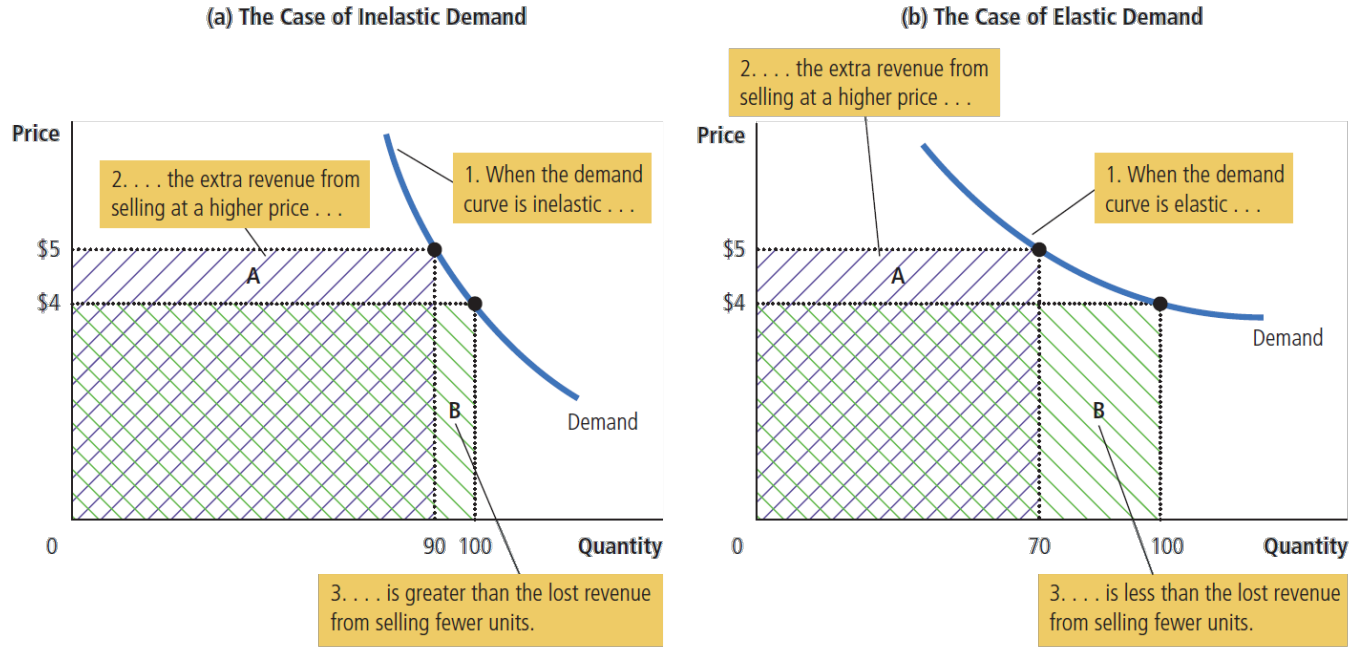
$$\eta = \left| \frac{\Delta D/D}{\Delta P/P} \right|$$

where $\Delta X = X_1 - X_2$ or $\Delta X = X_2 - X_1$.

- determinants: availability of close substitutes, necessities v.s. luxuries, definition of the market, time horizon.
- the elasticity from point 1 to point 2 seems different from the elasticity from point 2 to point 1. So we use midpoint method: $\hat{\eta} = \left| (\Delta D/\overline{D})/(\Delta P/\overline{P}) \right|$ where $\overline{X} = (X_1 + X_2)/2$.
- $\hat{\eta} = 0$: perfectly inelastic; $0 < \hat{\eta} < 1$: inelastic; $\hat{\eta} = 1$: unit elastic; $\hat{\eta} > 1$: elastic; $\hat{\eta} \to \infty$: perfectly elastic.

II. Elasticity

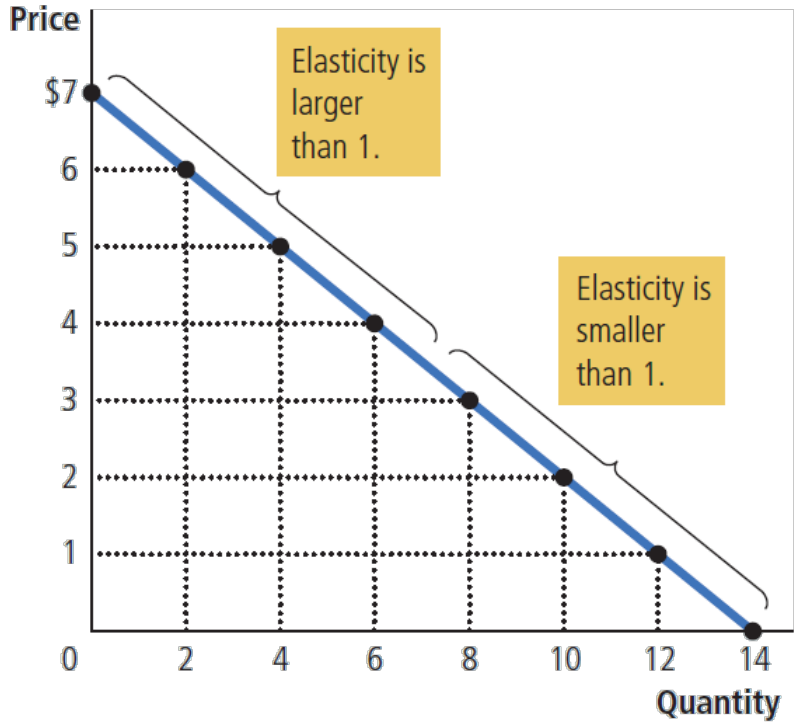
[Discussion 1: total revenue changes and price changes]



- Demand is inelastic: price ↑, total revenue ↑.
- Demand is elastic: price ↑, total revenue ↓.
- Demand is unit elastic, price ↑, total revenue doesn't change.

II. Elasticity

[Discussion 2: linear demand curve]



- Elasticity $\neq$ Slope, e.g., linear demand curves.

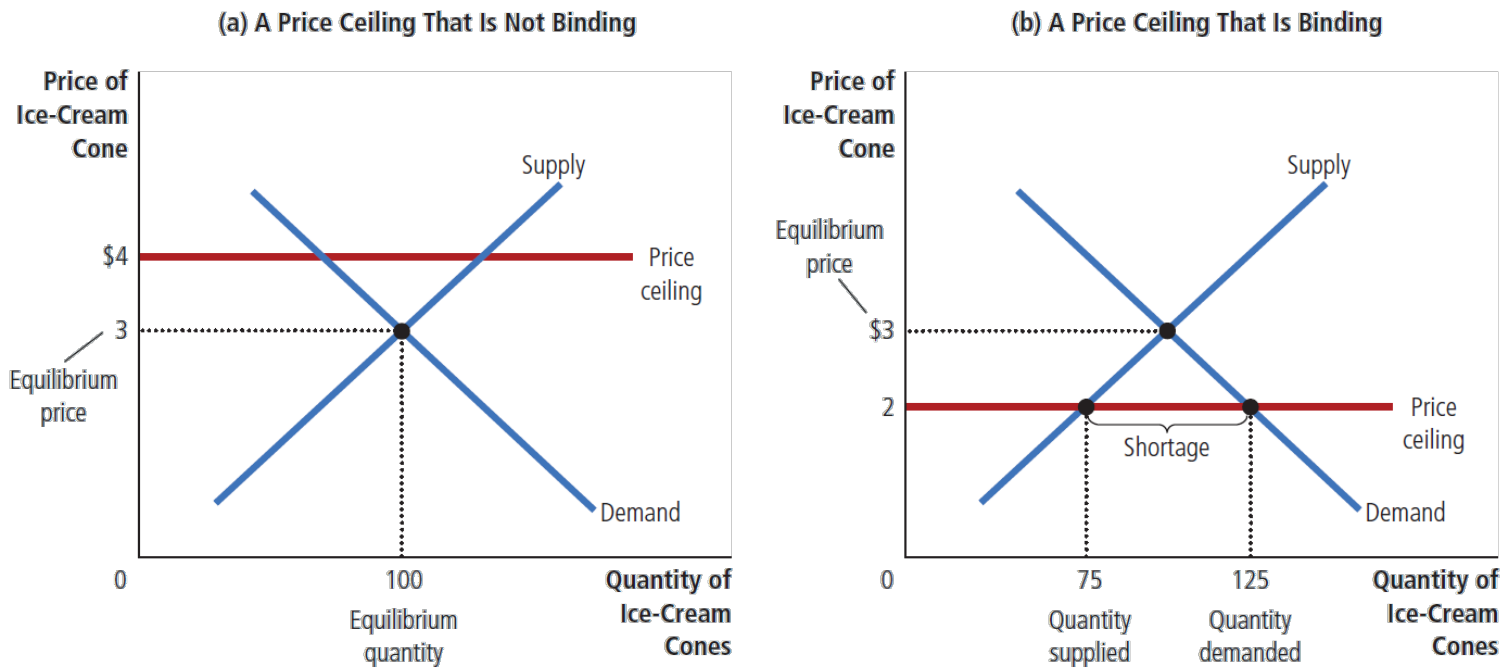
II. Elasticity

- **The income elasticity of demand** measures how the quantity demanded changes as consumer income changes.
  - normal goods: income elasticity > 0; inferior goods: otherwise.
  - necessities: small income elasticity; luxuries: large income elasticity.
- **The cross-price elasticity of demand** measures how the quantity demanded of one good responds to a change in the price of another good.
  - substitutes: cross-price elasticity > 0; complements: otherwise.
- **The price elasticity of supply** measures how much the quantity supplied responds to changes in the price.
  - Because firms often have a maximum capacity for production, the elasticity of supply may be very high at low levels of quantity supplied but very low at high levels of quantity supplied.

III. Government Policies

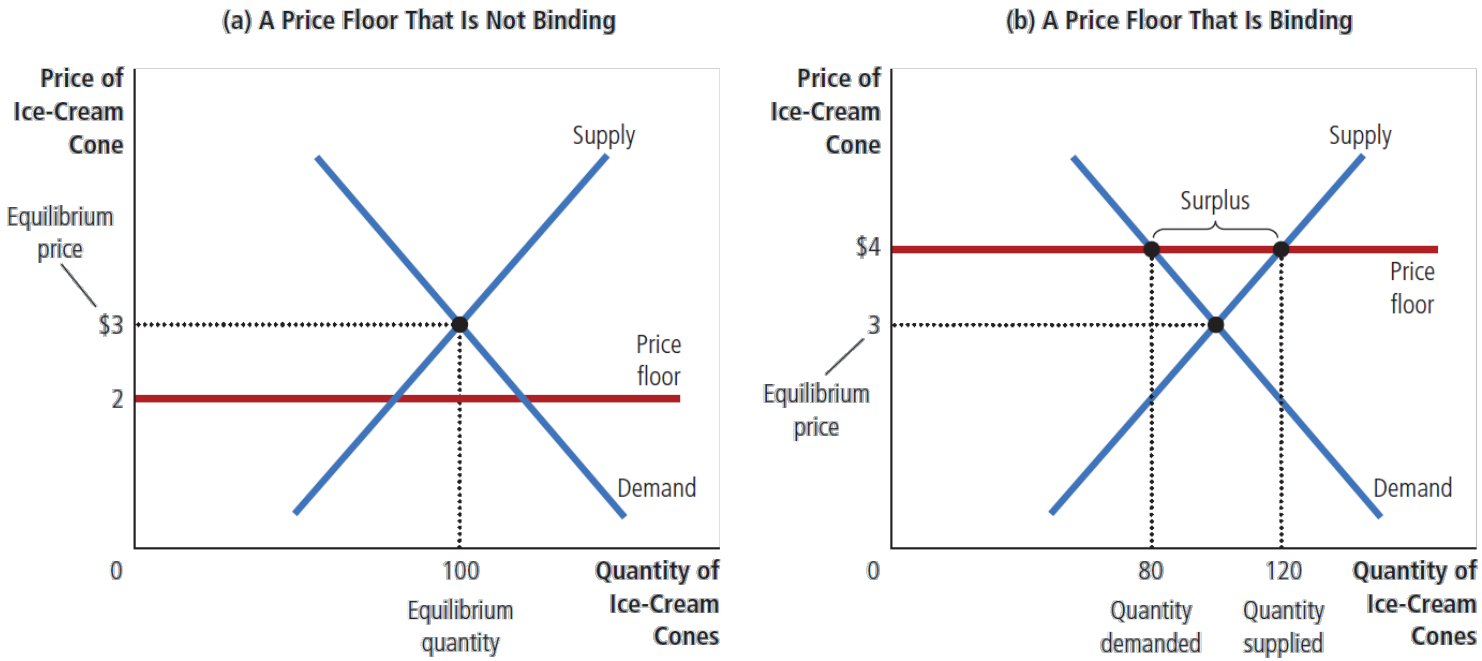
Here we analyze various types of government policy using only the tools of supply and demand. The analysis yields surprising insights.

- **Price ceiling**: the legislated maximum level of price.
  - price ceiling $\geq$ equilibrium price: no influence;
  - price ceiling $<$ equilibrium price: shortage;
  - ration according to willingness of waiting, or seller's personal bias.
  - this policy is designed to be good for buyers, then?



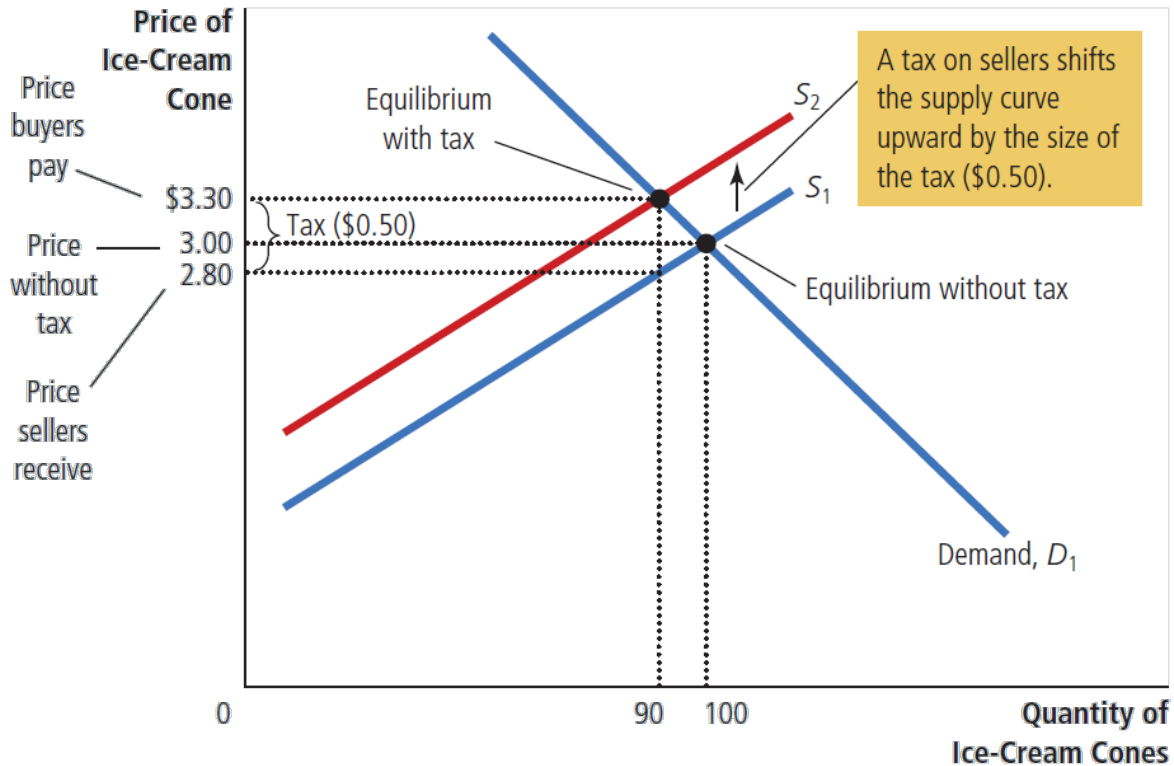
III. Government Policies

- **Price floor**: the legislated minimum level of price.
  - price floor $\leq$ equilibrium price: no influence;
  - price floor $>$ equilibrium price: surplus;
  - it also leads to undesirable rationing mechanisms.
  - this policy is designed to be good for sellers, then?



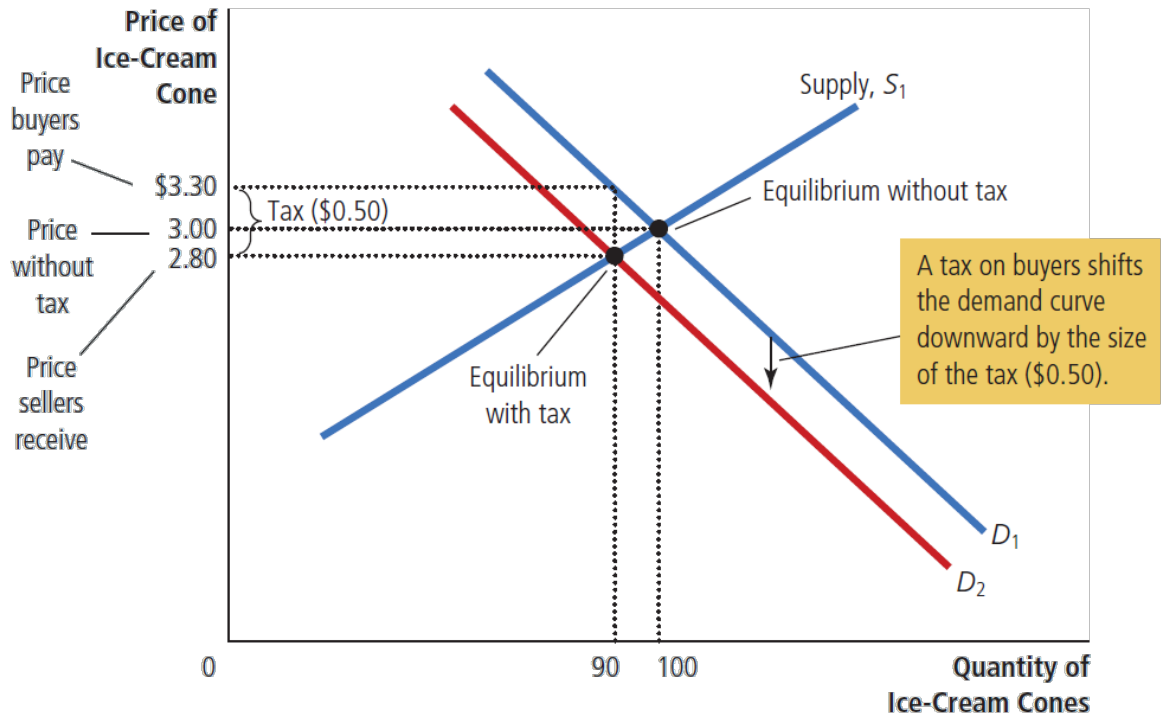
III. Government Policies

- Governments use **taxes** to raise revenue for public projects, such as roads, schools, and national defense.
- If the tax is levied on sellers: requiring sellers to send 0.50 dollars to the government for every ice cream cone they sell.



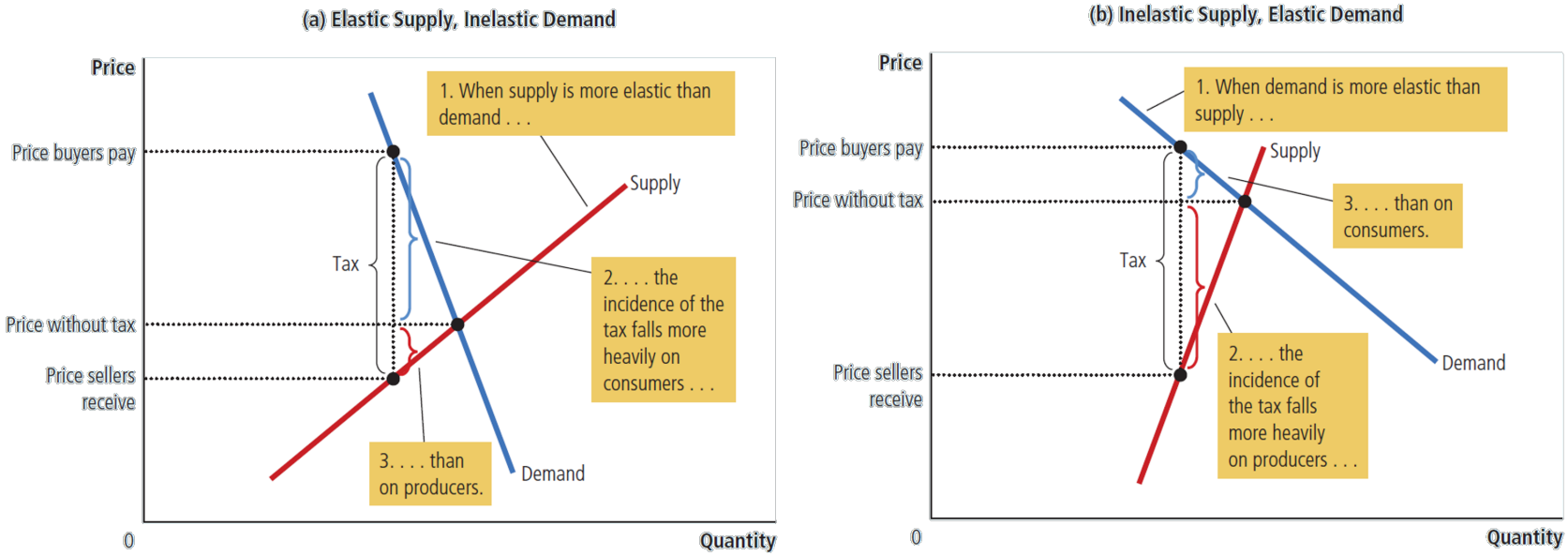
III. Government Policies

- If the tax is levied on buyers: requiring buyers to send 0.50 dollars to the government for every ice cream cone they buy.
  - Taxes discourage market activity.
  - Buyers and sellers share the burden of taxes.
  - Taxes levied on sellers and taxes levied on buyers are equivalent.



III. Government Policies

- How the burden of a tax is divided?
  - A tax burden falls more heavily on the side that is less elastic.
  - In essence, the elasticity measures the willingness of buyers or sellers to leave the market when conditions become unfavorable.



Reading

- Chapter 4 $\sim$ 6, *Principles of Economics* by Mankiw.