Chapter 2
Demand and Supply

- *Lecture 2: Demand*
- *Lecture 3: Supply and Market Mechanism*

Motivation

Pig Epidemic Pushes Vietnamese Farmers Toward Cows and Ostriches

Bloomberg news (5, 2019)

The terms ***supply*** and ***demand*** refer to the behavior of people as they interact with one another in competitive markets.

Market: is a group of buyers and sellers of a particular good or service.

2.1. Demand

2.1.1. Key definitions
2.1.2. The Law of demand
2.1.3. Illustrating demand
2.1.4. Determinants of demand
2.1.5. Distinguishing the movement along and shift of the demand curve

2.1.1 Key definitions

- **Demand:** is the amount of a good that buyers are willing and able to purchase at different prices in a particular period of time, ceteris parabus

- **Quantity demanded:** is the amount of a good that buyers are willing and able to purchase at a particular price in a particular period of time, ceteris parabus

- **Individual demand vs Market demand**

2.1.2 The law of demand

Price ↓ → Demand ↑

Price ↑ → Demand ↓

Law of Demand

- There is an inverse relationship between price and quantity.
- When the price increases the quantity demanded decreases, and vice versa, other things equal (ceteris paribus).

Ceteris Paribus

Ceteris paribus is a Latin phrase that means all variables other than the ones being studied are assumed to be constant. Literally, *ceteris paribus* means "other things being equal."

The demand curve slopes downward because, ceteris paribus, lower prices imply a greater quantity demanded!

2.1.3 Illustrating demand: Demand equation

The equation relates price and quantity demanded

$$Qd = a - bP$$

Qd: Quantity demanded

P: Price

b : coefficient ($b \geq 0$)

a : constant

Demand function: Qd=f(P)

Increase Price → Decrease in Qd

Decrease Price → Increase in Qd

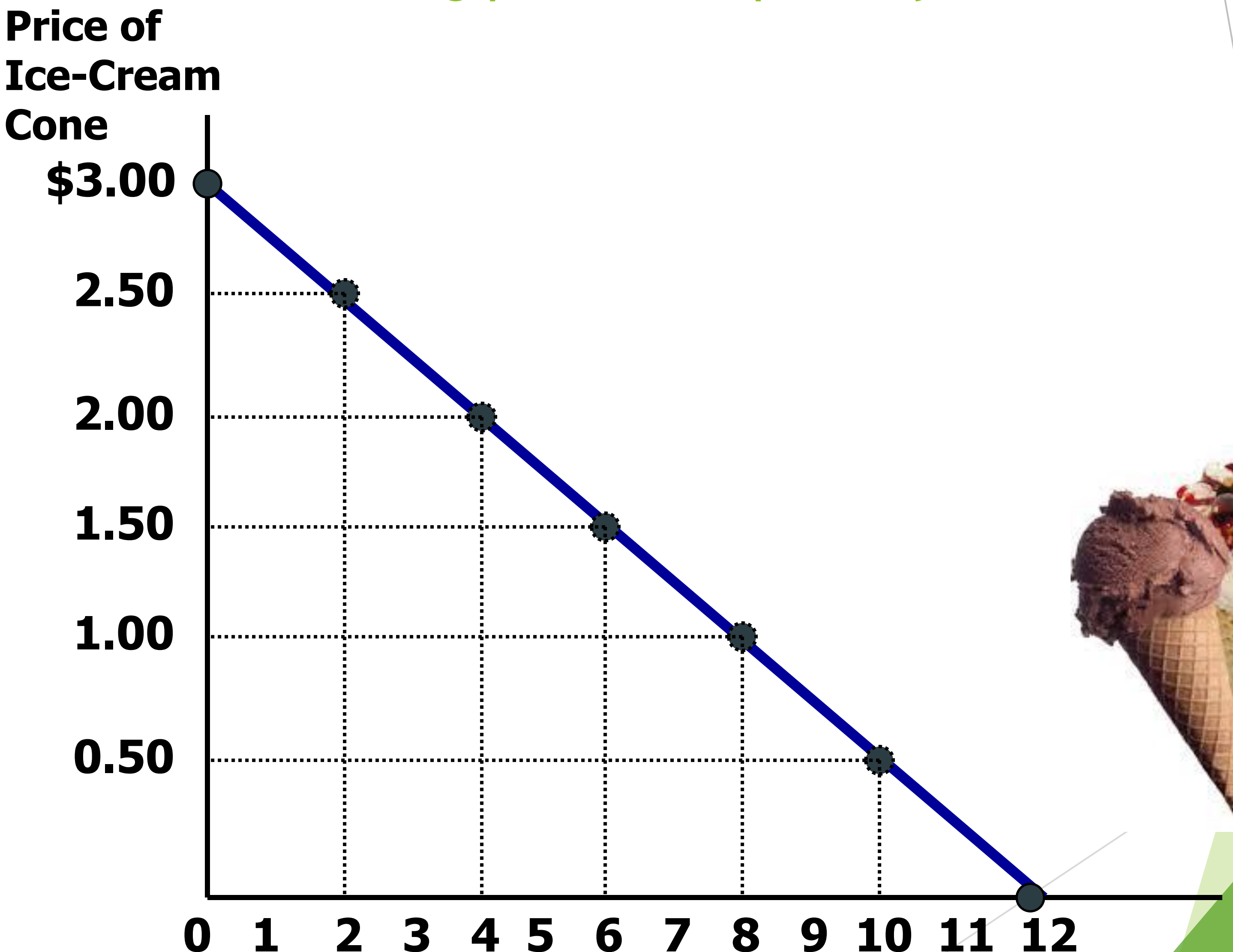
2.1.3 Illustrating demand: Demand Schedule

The curve relates price and quantity demanded

Unit price of ice-cream (US Dollar)	Quantity demanded of ice-cream
0.5	10
1	8
1.5	6
2	4
2.5	2
3	0

2.1.3 Illustrating demand: Demand Curve

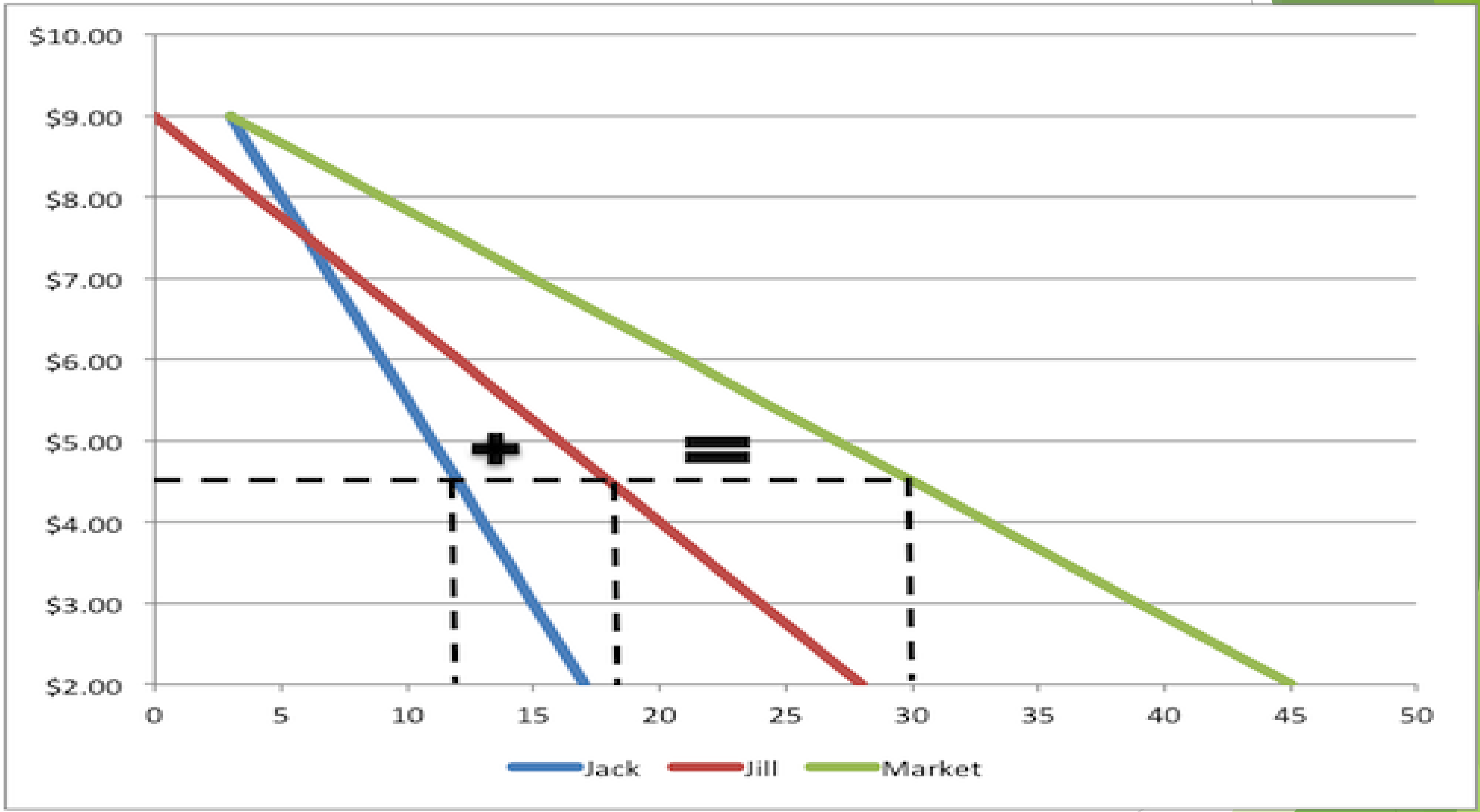
The curve relating price and quantity demanded



Market Demand

- Market demand refers to the sum of all individual demands for a particular good or service.
- Graphically, individual demand curves are summed ***horizontally*** to obtain the market demand curve.

Market Demand



2.1.4. Distinguishing the movement along and shift of the demand curve: Two Simple Rules for Movements vs. Shifts

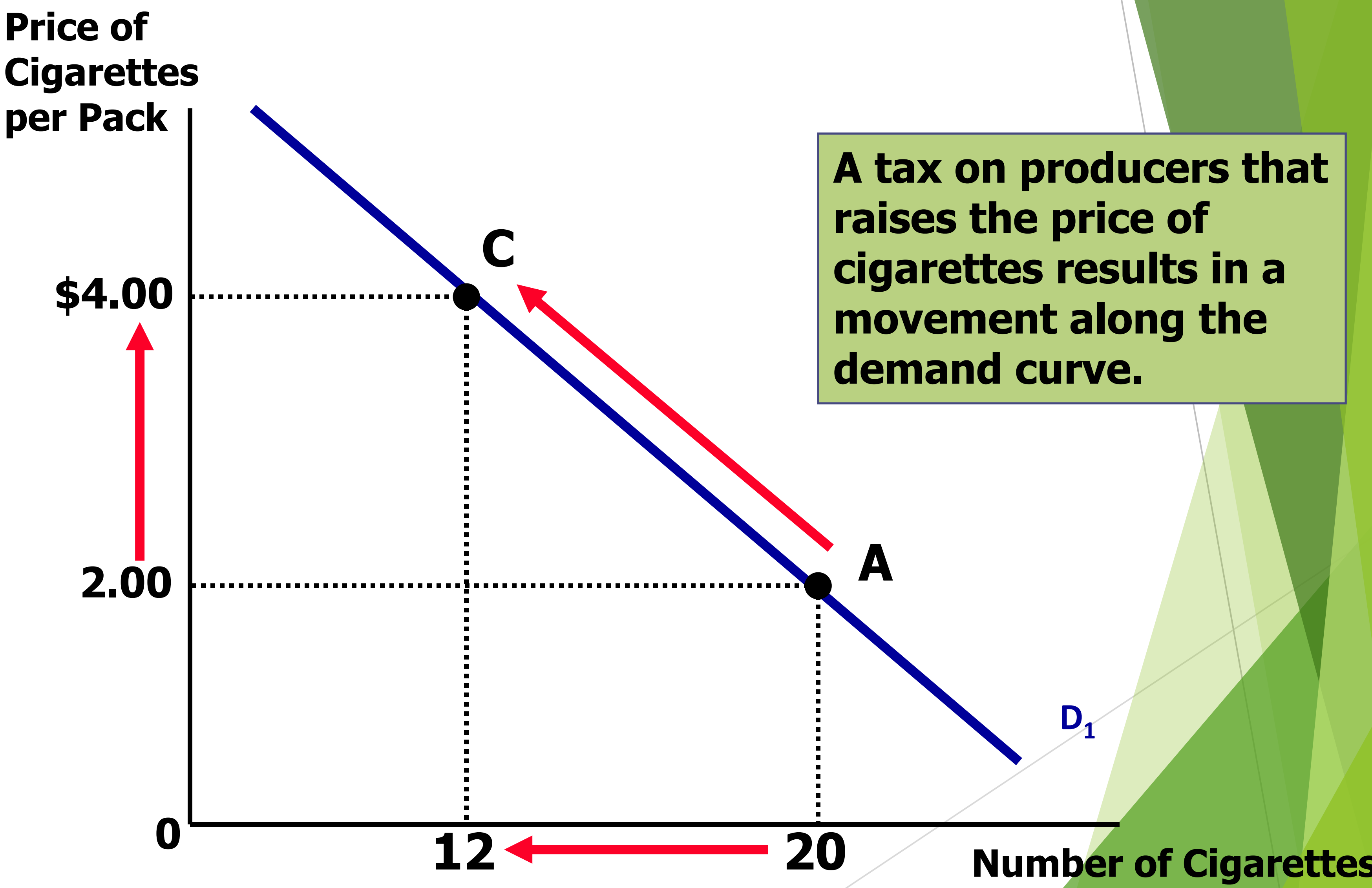
- Rule One
  - When an independent variable changes and that variable does not appear on the graph, the curve on the graph will shift.
- Rule Two
  - When an independent variable does appear on the graph, the curve on the graph will not shift, instead a movement along the existing curve will occur.

Change in Quantity Demanded versus Change in Demand

Change in Quantity Demanded

- Movement along the demand curve.
- Caused by a change in the *price* of the product.

Changes in Quantity Demanded



A tax on producers that raises the price of cigarettes results in a movement along the demand curve.

Change in Quantity Demanded versus Change in Demand

Change in <u>Demand</u>

- A shift in the demand curve, either to the left or right.
- Caused by a change in a determinant other than the price.

2.1.5.Determinants of Demand

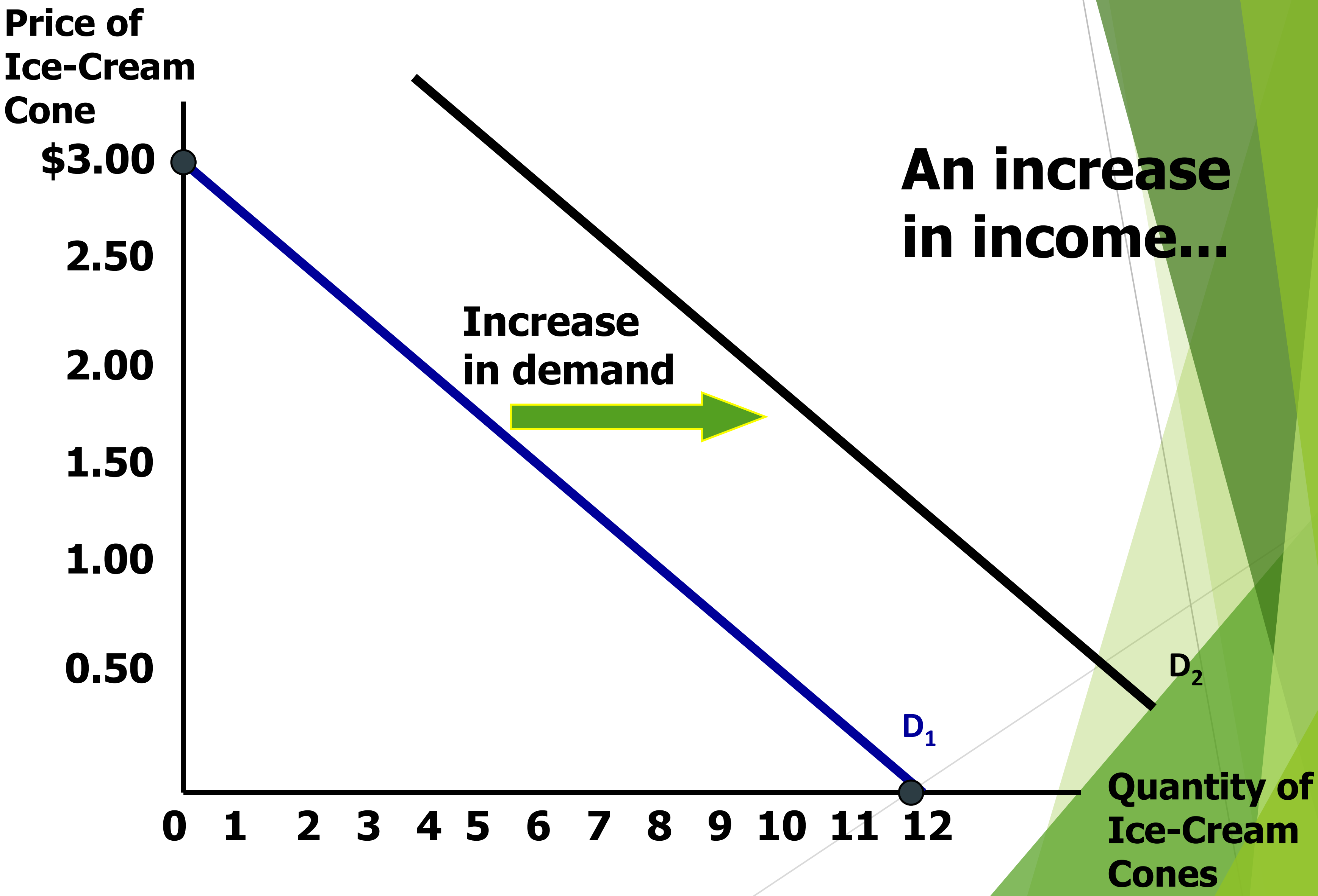
- Market price (Px) :
- Consumer income (I)
- Prices of related goods (Py)
- Tastes (T)
- Expectations (E)
- Number of buyers (N)

Change in Quantity Demanded versus Change in Demand

Variables that Affect Quantity Demanded	A Change in This Variable . . .
Price	Represents a movement along the demand curve
Income	Shifts the demand curve
Prices of related goods	Shifts the demand curve
Tastes	Shifts the demand curve
Expectations	Shifts the demand curve
Number of buyers	Shifts the demand curve

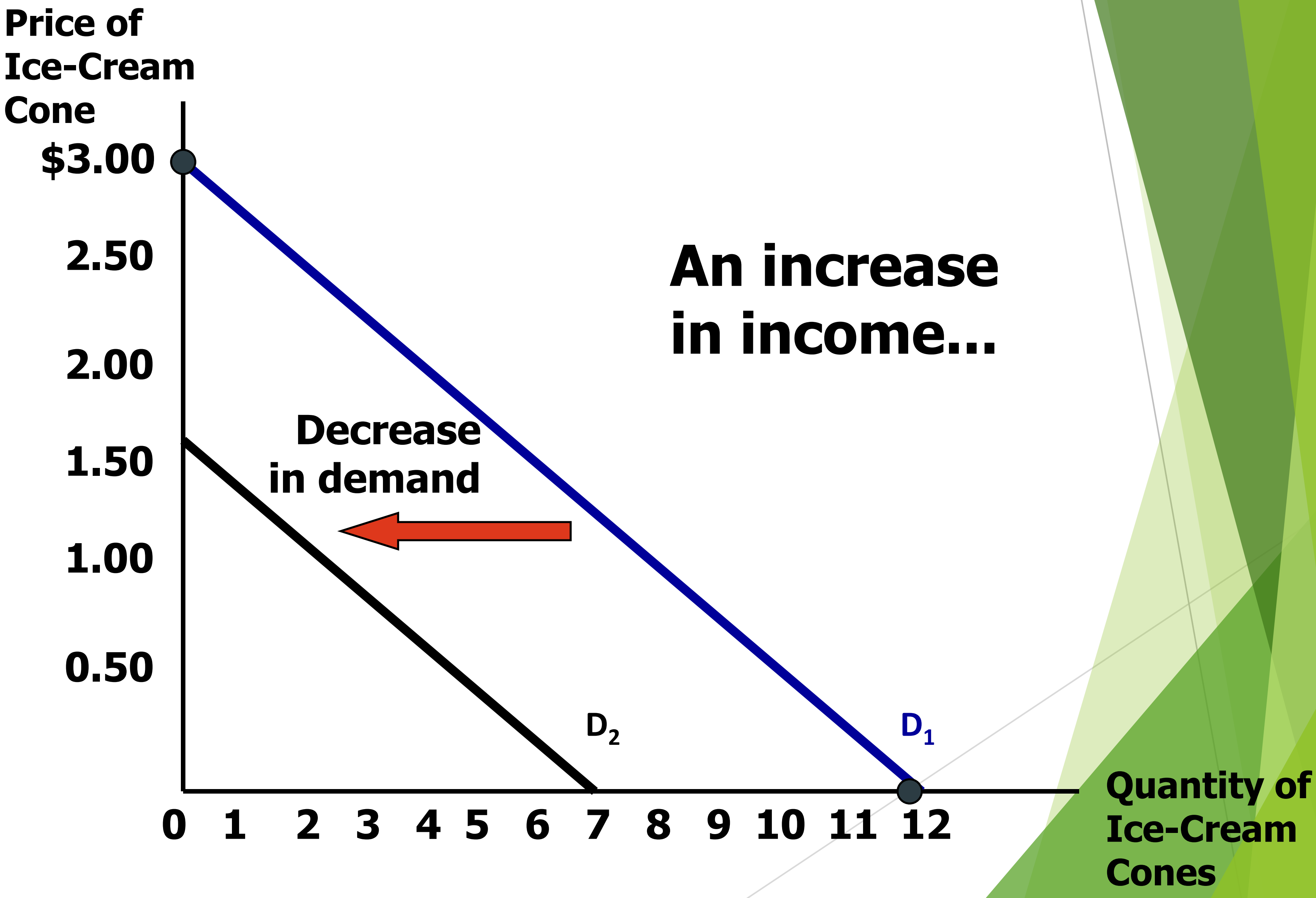
Consumer Income

Normal Good



An increase in income...

Consumer Income
Inferior Good



Consumer Income
Normal Good & Inferior Good

If the demand for a good falls when income falls, the good is called a normal good.

If the demand for a good rises when income falls, the good is called an inferior good.

Prices of Related Goods
Substitutes : Plant-based food

Prices of Related Goods
Complements: Sugar and Coffee

Prices of Related Goods
Substitutes & Complements

When a fall in the price of one good reduces the demand for another good, the two goods are called **substitutes.**

When a fall in the price of one good increases the demand for another good, the two goods are called **complements.**

*When **oil markets** might be headed for the big crash?*

- There are more than one billion cars on the road worldwide today, and only one tenth of one percent of them have a plug.
- By 2020, some electric cars will be faster, safer, cheaper, and more convenient than their gasoline counterparts.
- What if people just stop buying oil?

Source : In the first episode of our animated series, Sooner Than You Think, Bloomberg's Tom Randall does the math on when oil markets might be headed for the big crash.

2.2. Supply

2.2.1. Key definitions

2.2.2. The Law of supply

2.2.3. Illustrating supply

2.2.4. Determinants of supply

2.2.5. Distinguishing the movement along and shift of the supply curve

2.2.1 Key definitions

<u>Quantity supplied</u> is the amount of a good that sellers are <u>willing and able</u> to sell at a particular price in a particular period of time ceteris parabus

2.2.1 Key definitions

<u>Supply</u> is the amount of a good that sellers are <u>willing and able</u> to sell at different prices in a particular period of time ceteris parabus

2.2.2 Law of Supply

The law of supply states that there is a ***direct (positive)*** *relationship* between price and quantity supplied.

P↑ → Qs↑

P↓ → Qs↓

2.2.3 Illustrating supply: Supply Schedule

The table relates price and quantity supplied

Unit price of ice-cream (US Dollar)	Quantity supplied of ice-cream
0.5	0
1	1
1.5	2
2	3
2.5	4
3	5

2.1.3 Illustrating supply: Supply equation
The equation relates price and quantity supplied

$$Qs = a + bP$$

Qs: Quantity supplied

P : Price

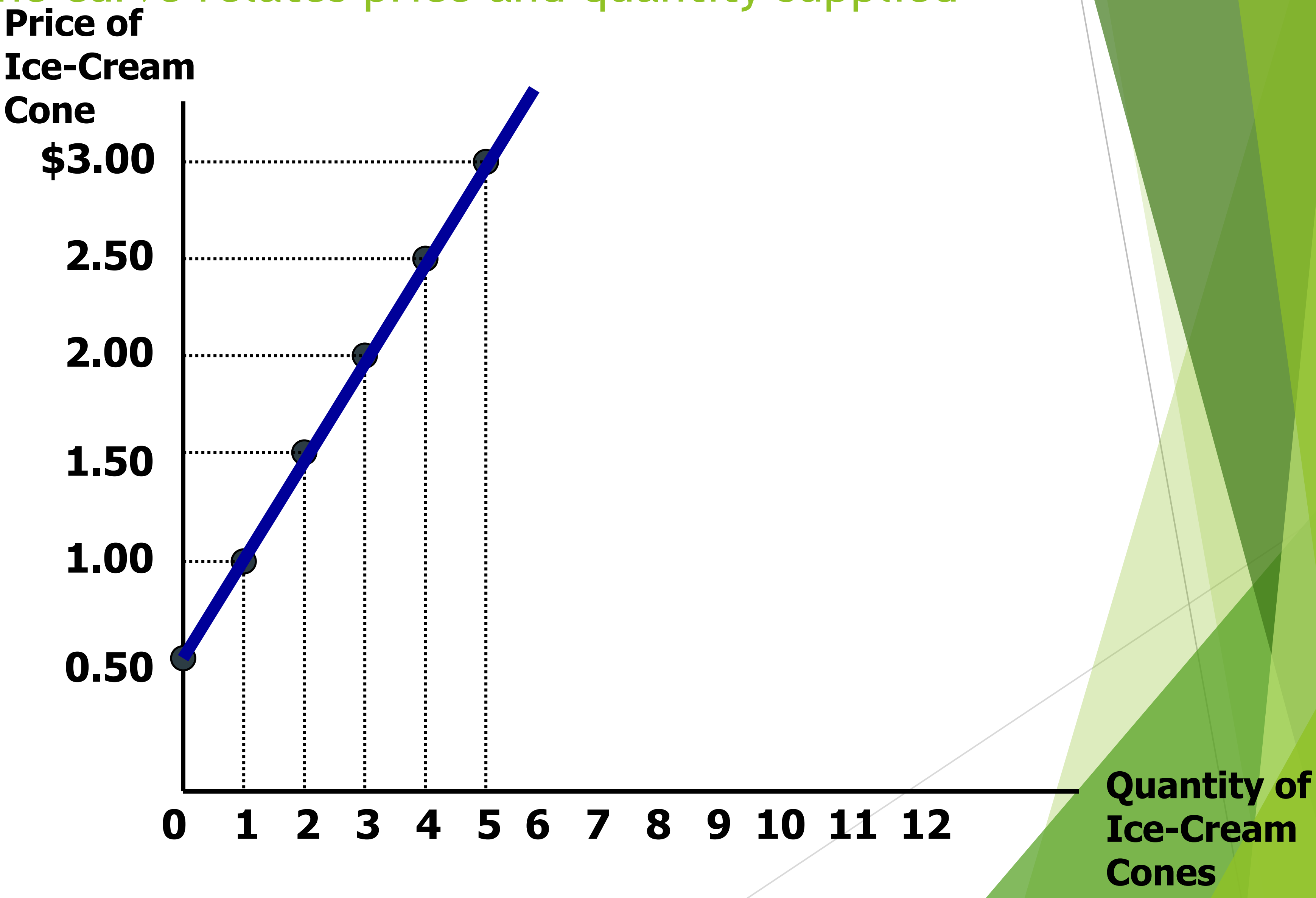
b : coefficient ($b \geq 0$)

a : constant (other things equal)

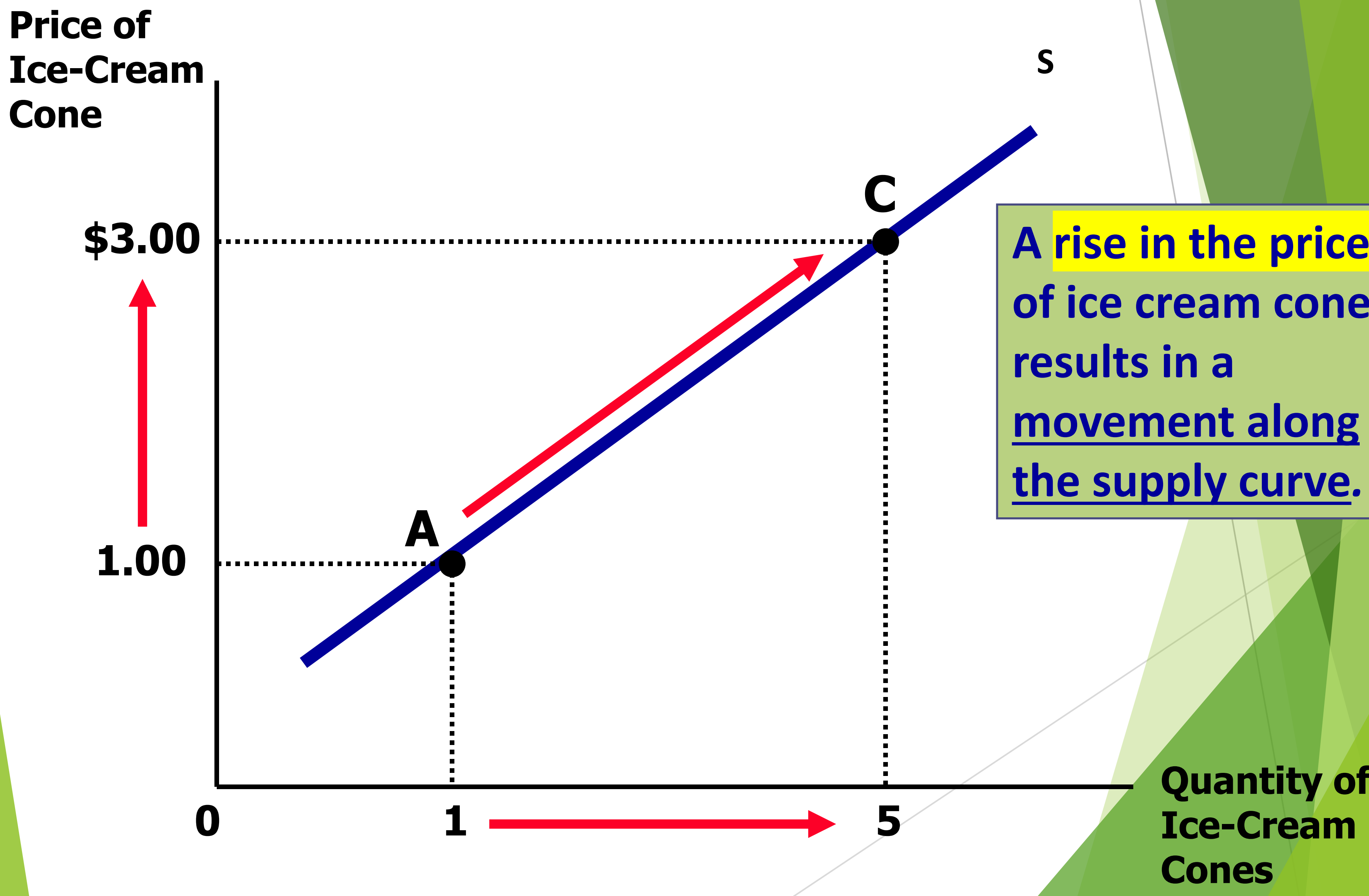
Supply function: $Qs=f(P)$

2.2.3 Illustrating supply: Supply Curve

The curve relates price and quantity supplied



Change in Quantity Supplied



A rise in the price of ice cream cones results in a movement along the supply curve.

Market Supply

- Market supply refers to the sum of all individual supplies for all sellers of a particular good or service.
- Graphically, individual supply curves are summed *horizontally* to obtain the market supply curve.

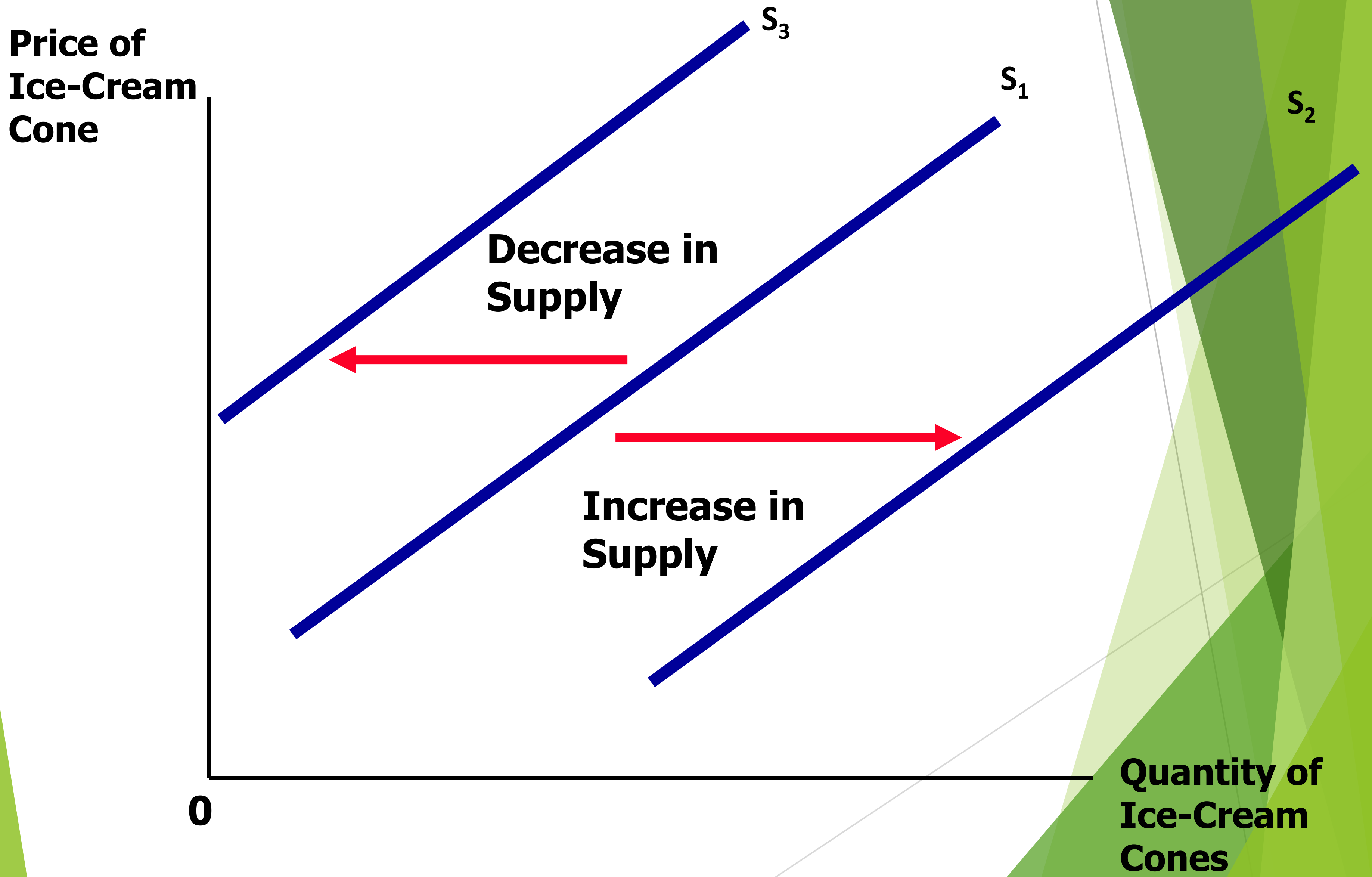
2.2.4. Determinants of Supply

- Market price
- Input prices
- Technology
- Expectations
- Number of producers
- What are some examples?

Change in Quantity Supplied versus Change in Supply

Variables that Affect Quantity Supplied	**A Change in This Variable . . .**
Price	Represents a movement along the supply curve
Input prices	Shifts the supply curve
Technology	Shifts the supply curve
Expectations	Shifts the supply curve
Number of sellers	Shifts the supply curve

Change in Supply



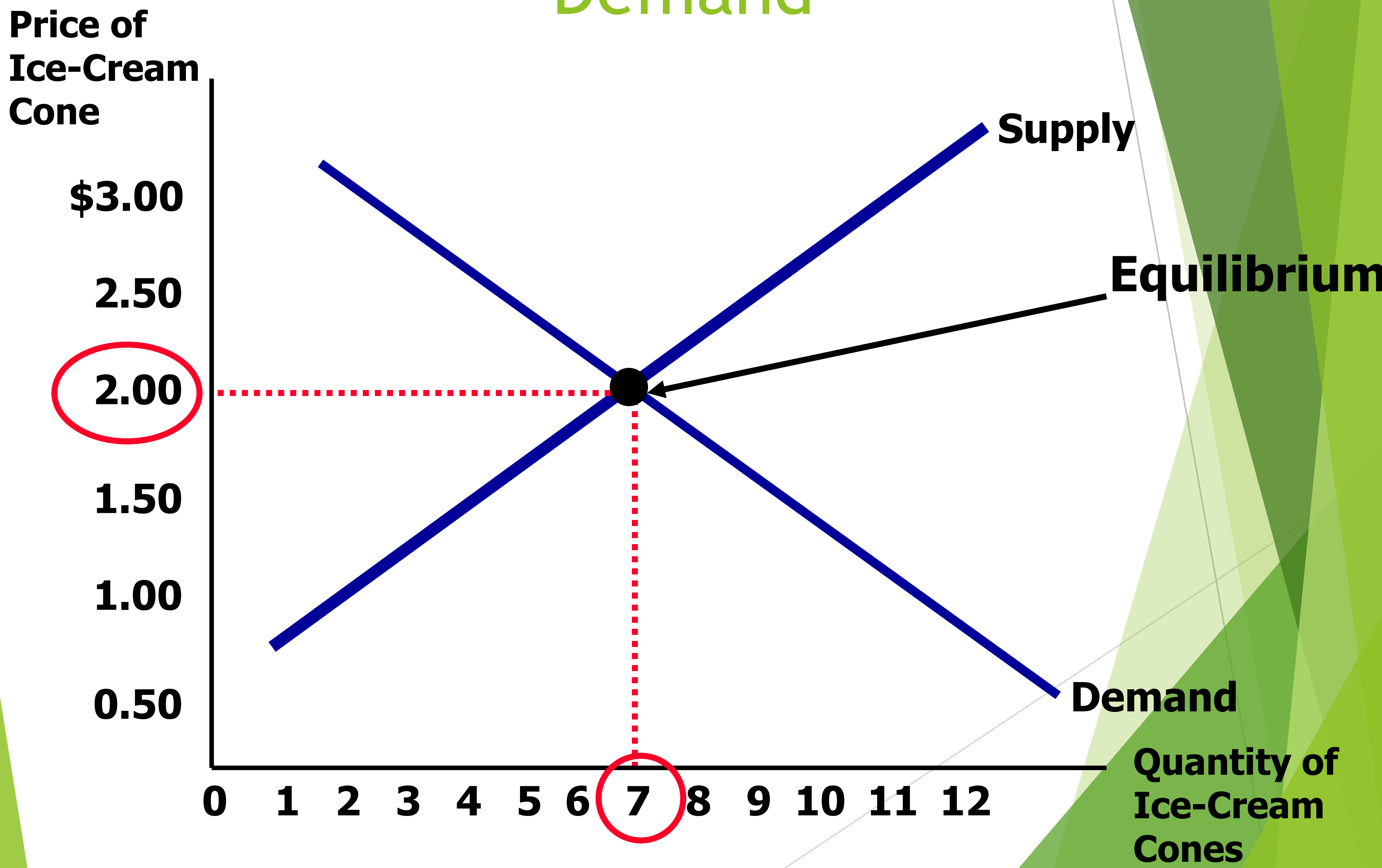
2.3. The market mechanism

2.3.1. Market Equilibrium

2.3.2. Surplus and shortage

2.3.3. Price control

2.3.1 Equilibrium of Supply and Demand

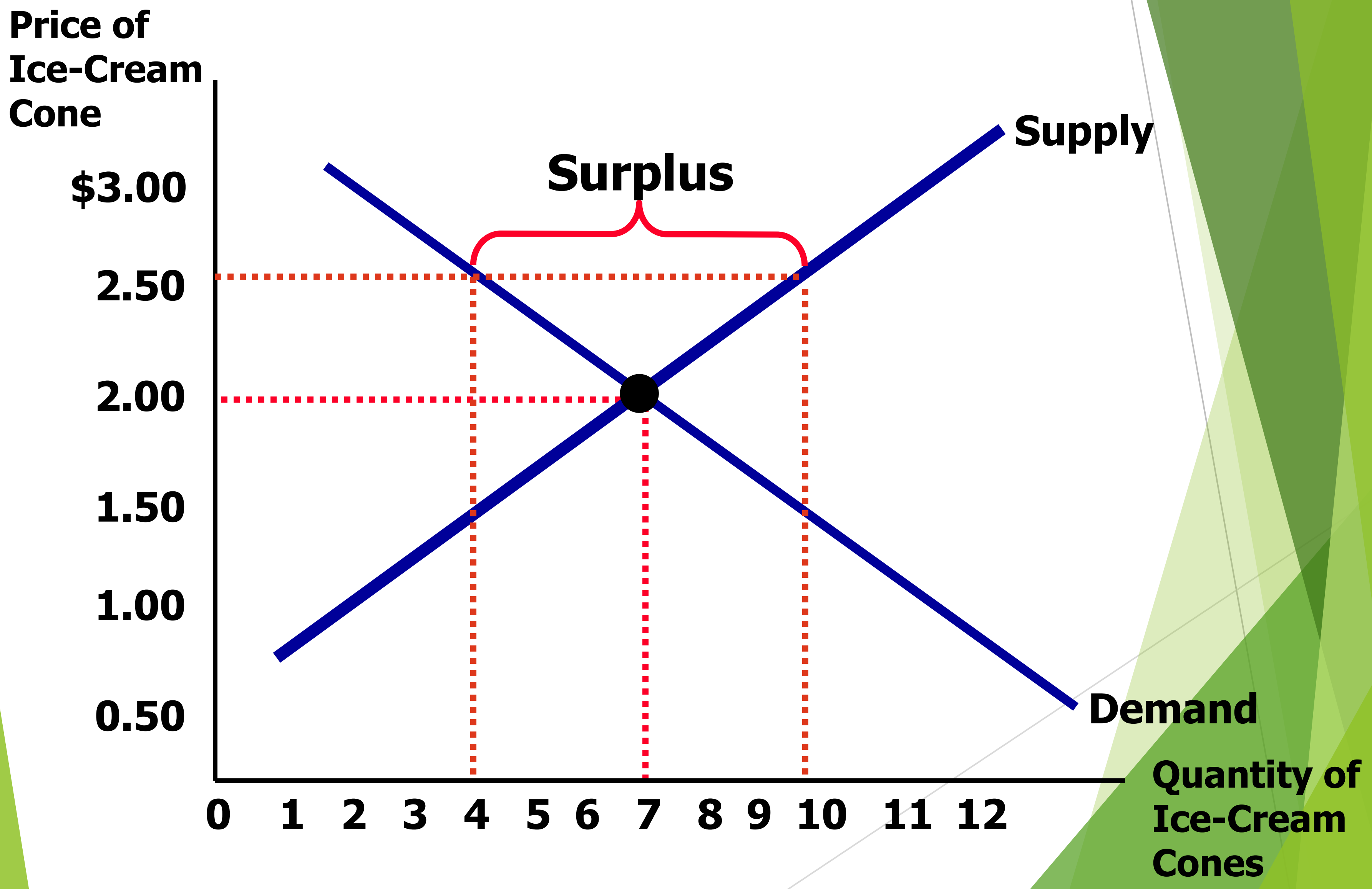


2.3.1 Equilibrium of Supply and Demand

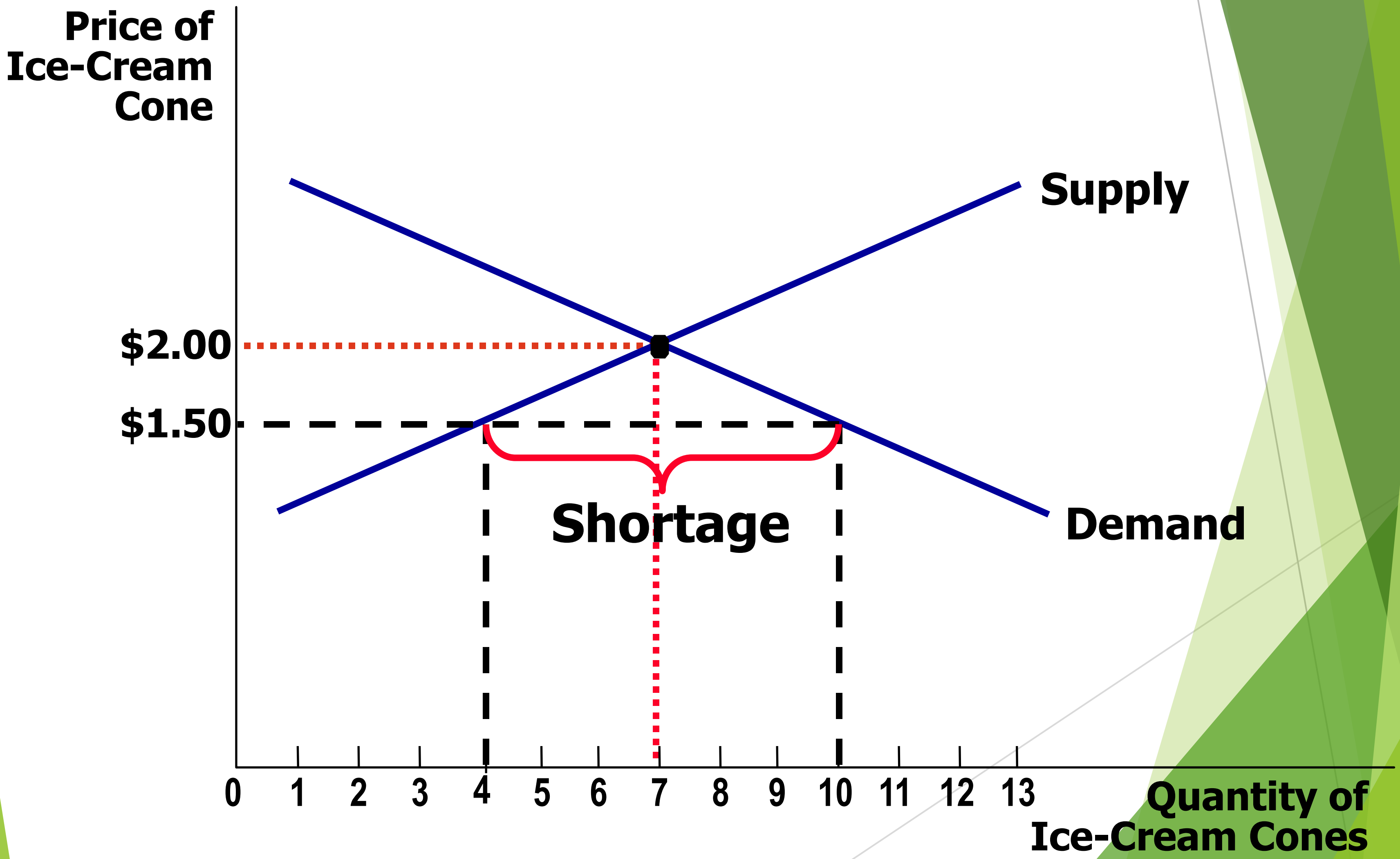
$$Qd = Qs$$

$$Equilibrium(Pe,Qe) = E(2,7)$$

2.3.2. Excess Supply



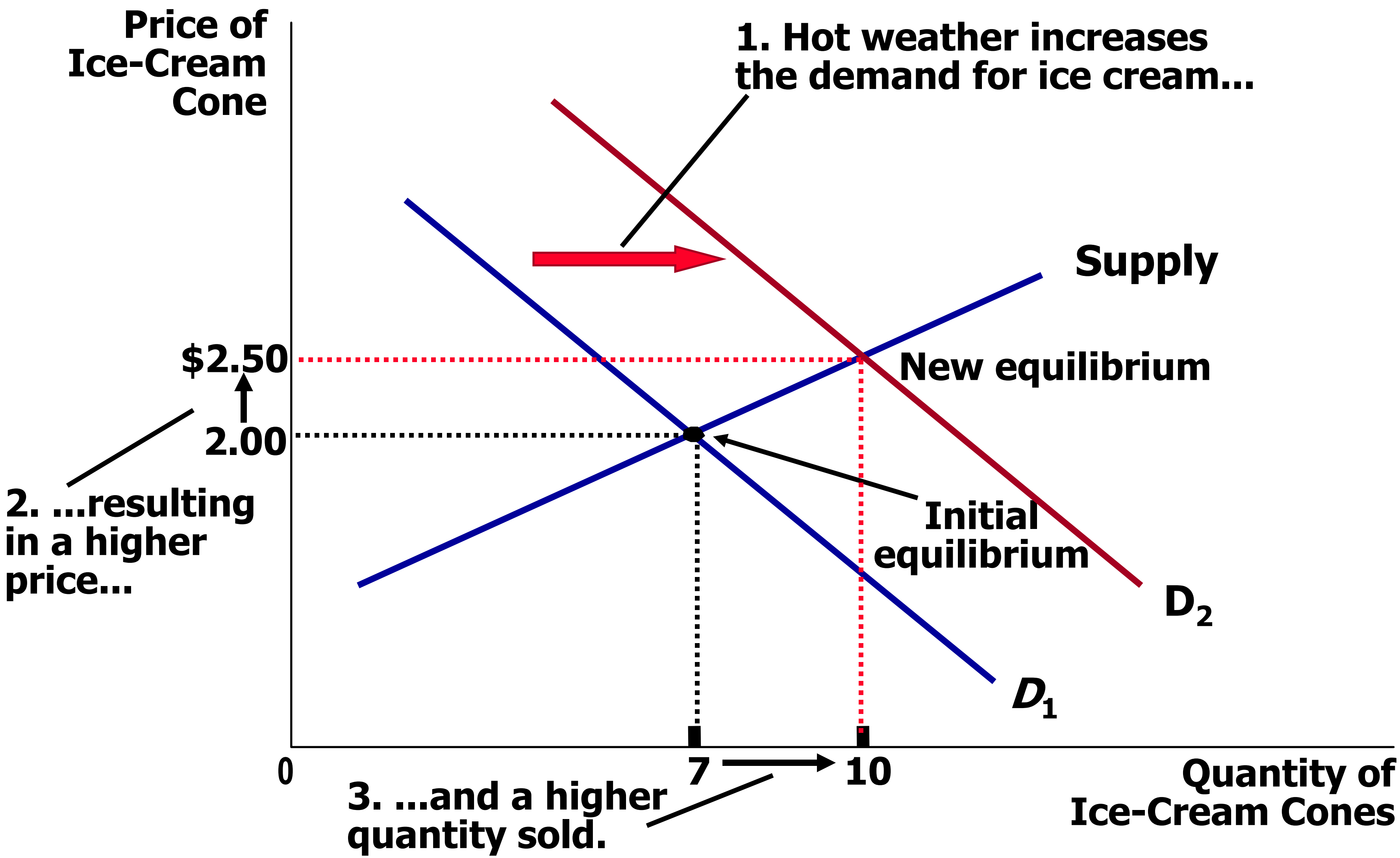
Excess Demand



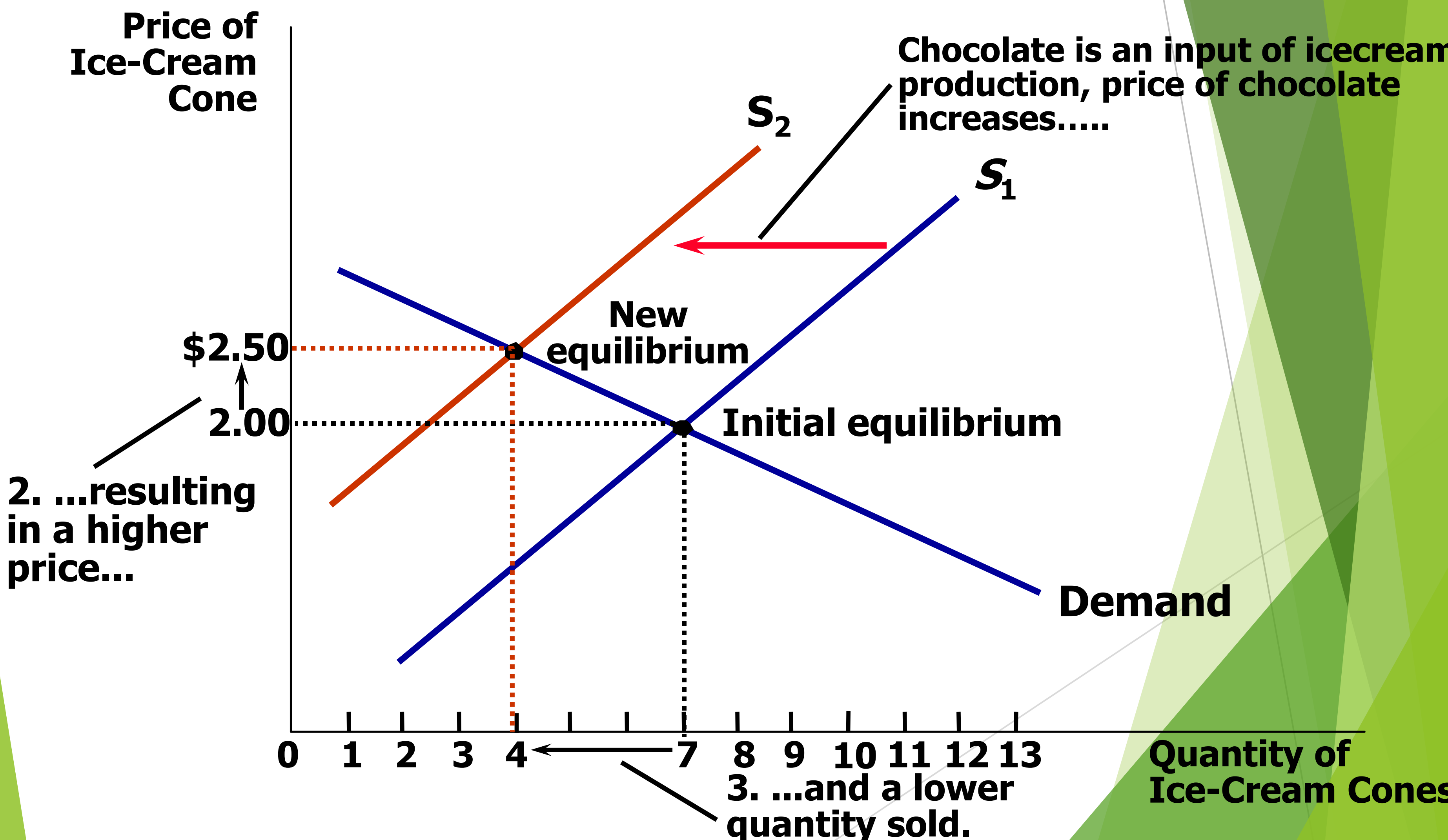
Three Steps
To Analyzing Changes in Equilibrium

- Decide whether the event shifts the supply or demand curve (or both).
- Decide whether the curve(s) shift(s) to the left or to the right.
- Examine how the shift affects equilibrium price and quantity.

How an Increase in Demand Affects the Equilibrium



How a Decrease in Supply Affects the Equilibrium



Exercise

Many pineapple farmers in Tien Giang Province's Tan Phuoc District, the largest pineapple planting area in the Cuu Long (Mekong) Delta, are taking losses because of fluctuating prices caused by an oversupply (June2018)

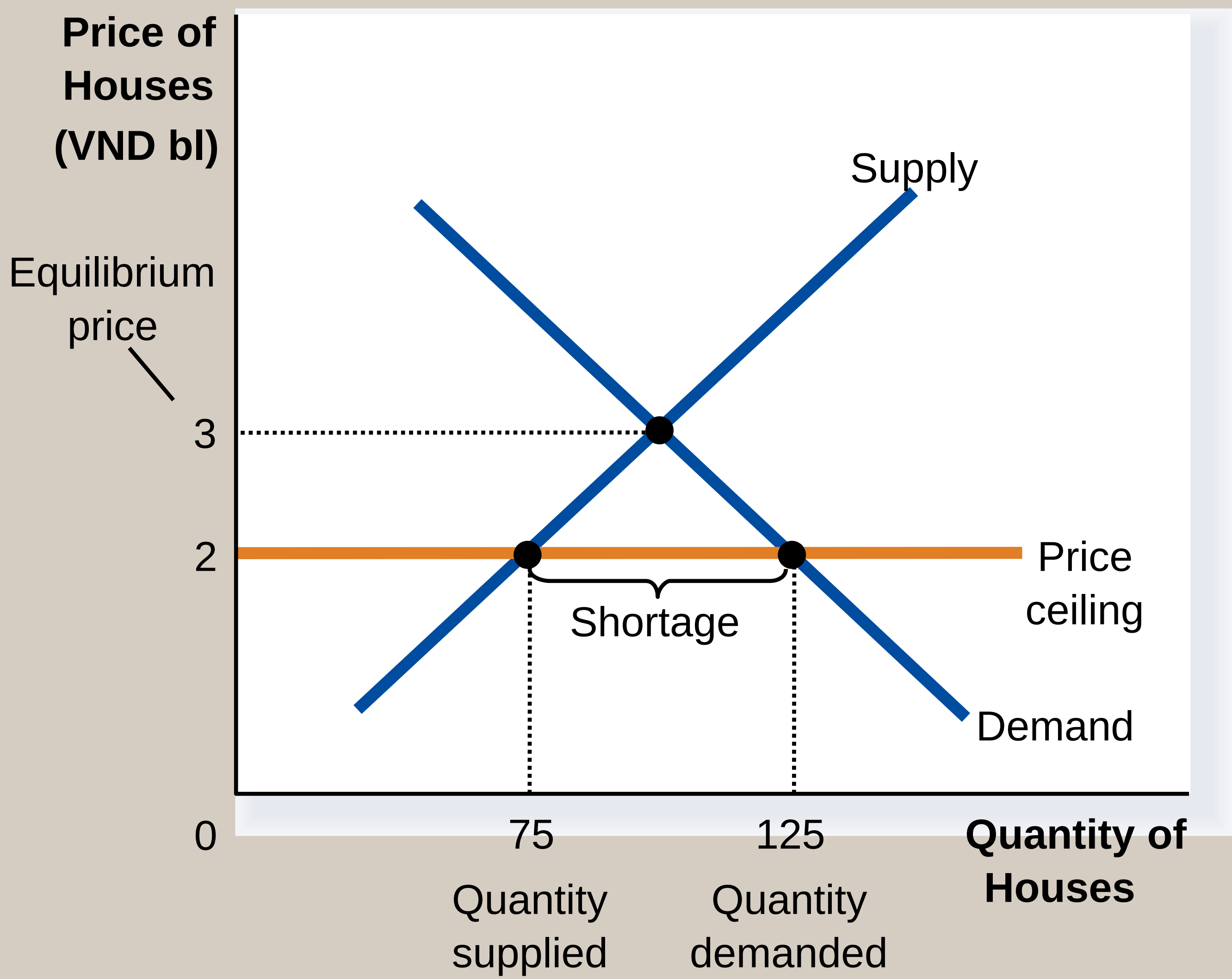
2.3.3. Price control

Price controls are usually enacted when policymakers believe that the market price of a good or service is unfair to buyers or sellers:

- Price ceiling
- Price floor

Price ceiling : is a legal **maximum** on the price at which a good can be sold

Figure: A Market with a Price Ceiling



Example:
Affordable housing for low income citizens

A price floor is a legal minimum on the price at which a good can be sold.

Example: Miminum wages

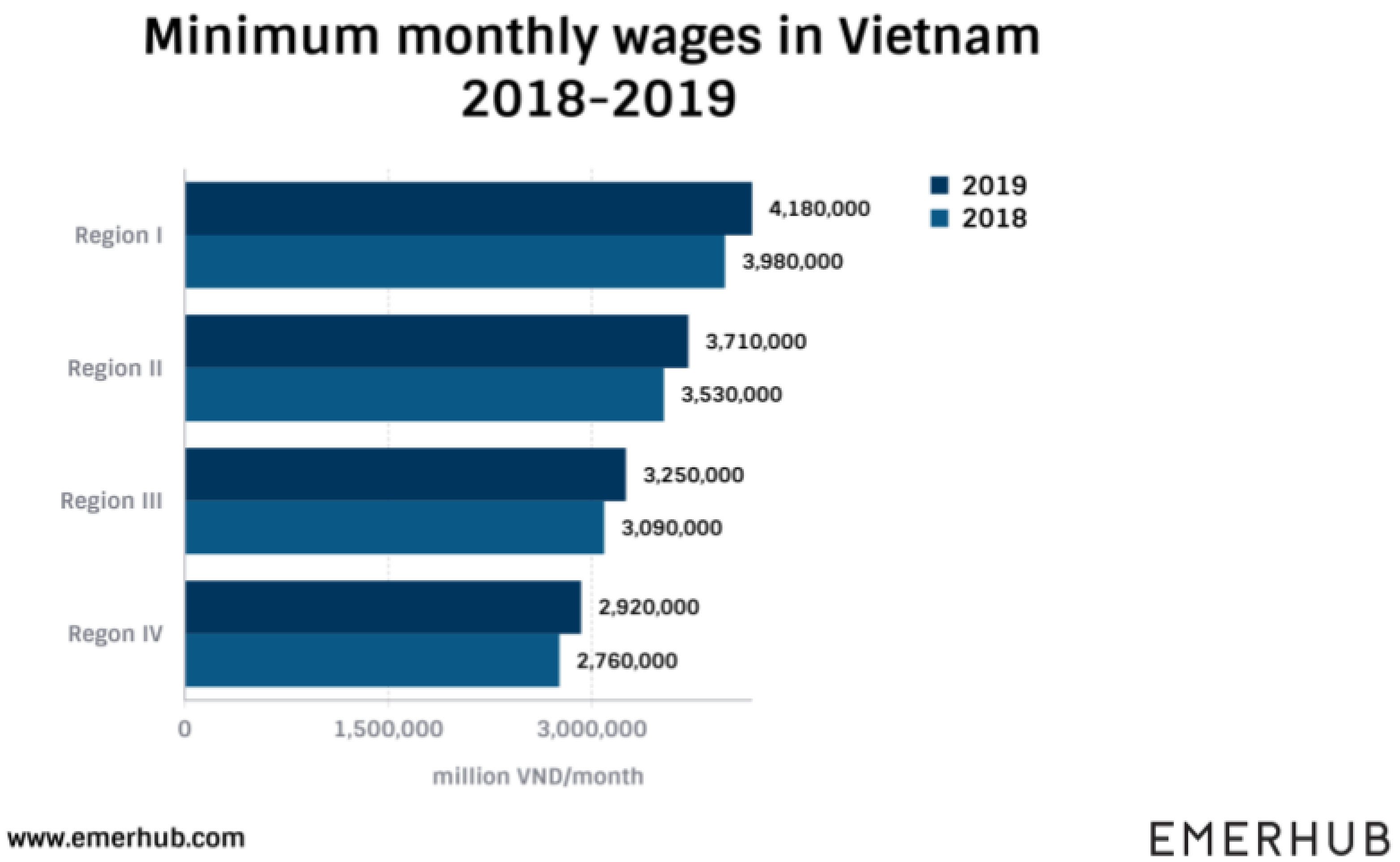


Figure How the Minimum Wage Affects the Labor Market

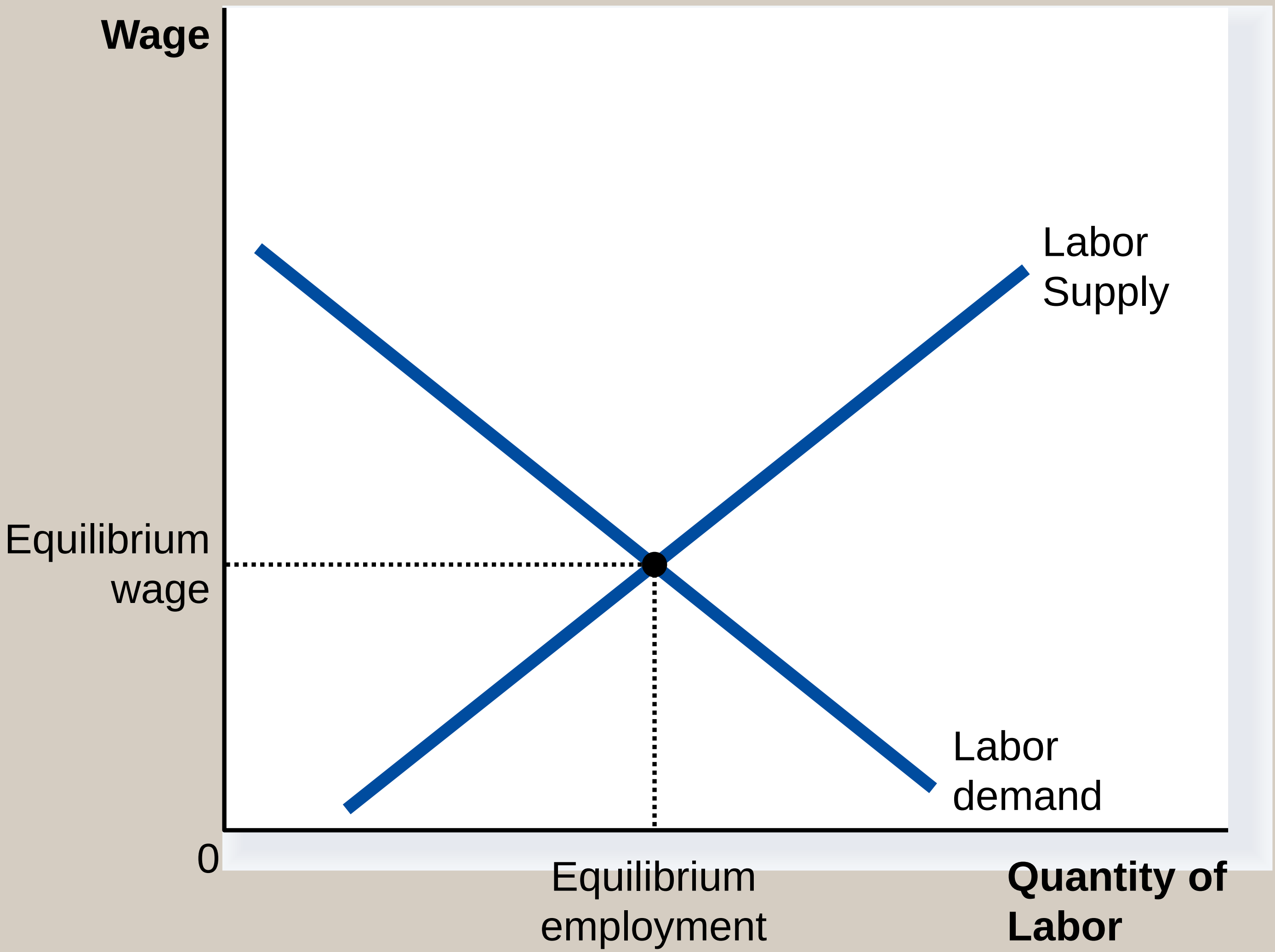
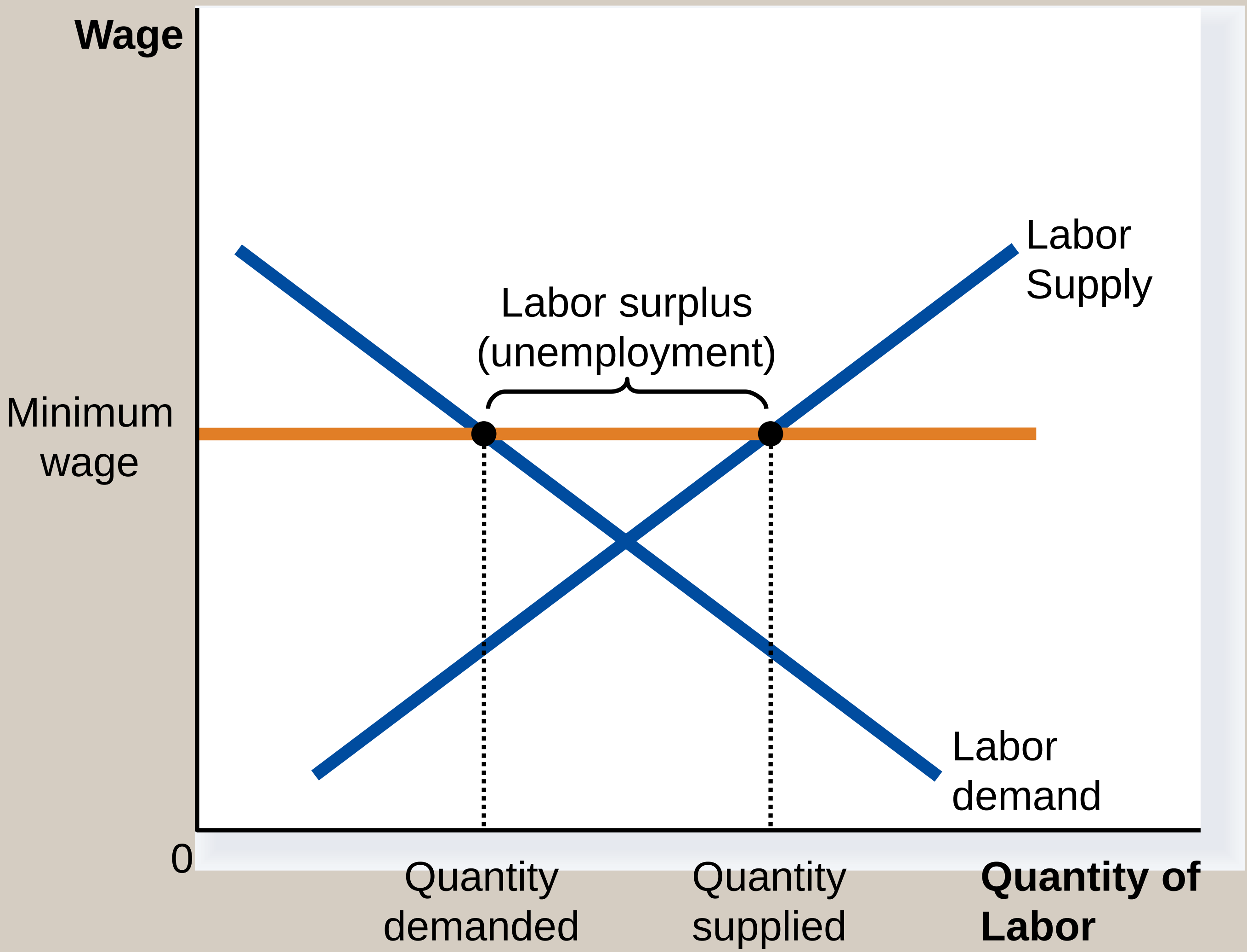


Figure How the Minimum Wage Affects the Labor Market



Summary

- The government will attempt to provide equity and security for people. So instead of the market deciding the price, the government issues a price.
- Policymakers issue price controls.
- Two types:
  - 1) price ceiling causes surplus
  - 2) price floor causes shortage

1. The demand for books is: Qd = 160 - 2P
The supply of books is: Qs = 20 + 5P
What is the equilibrium price of books?
A) 5
B) 10
C) 15
D) 20

2. Refer to Question 1. What is the equilibrium quantity of books sold?
A) 25
B) 50
C) 75
D) 120