Demand, Supply & Market Equilibrium

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OUTLINE

1) Demand and Demand Function
2) Supply and Supply Function
3) Market Equilibrium
   - Excess Supply and Demand

1. Demand and Demand Function

What is Demand?

- *How different is it from –*
  - **Desire**
  - **Want/Need**
- **"The willingness to buy a commodity for which necessary resources are available"**

Cont.

What is a Demand Function?

- "The functional relationship between the quantity of a commodity that a consumer is willing to buy and the factors that influence the demand of (or willingness to buy) that commodity"

Factors Determining Demand

- $QD_x = f(P_x, P_s, P_c, Y, T, E, U)$

QD_x = Quantity of good X demanded

P_x = Price of the good X

P_s = Price of substitute goods

P_c = Price of complimentary goods

Y = Income of the consumer

T = Tastes or preferences of the consumer

E = Price expectation of the consumer

U = All other factors

Cont.

Linear Demand Function

$$QD_x = \alpha + \beta_1 P_x + \beta_2 P_s + \beta_3 P_c + \beta_4 Y + \beta_5 T + U$$

α = constant

β's = marginal coefficients

Cont.

Non-Linear Demand Function

$$QD_x = \alpha\ P_x^{\beta 1}\ P_s^{\beta 2}\ P_c^{\beta 3}\ Y^{\beta 4}\ T^{\beta 5}$$

- E.g., logarithmic function
- Implies changing marginal coefficients with the levels of demand factors

Shape of the demand function cannot be known apriorily

Cont.

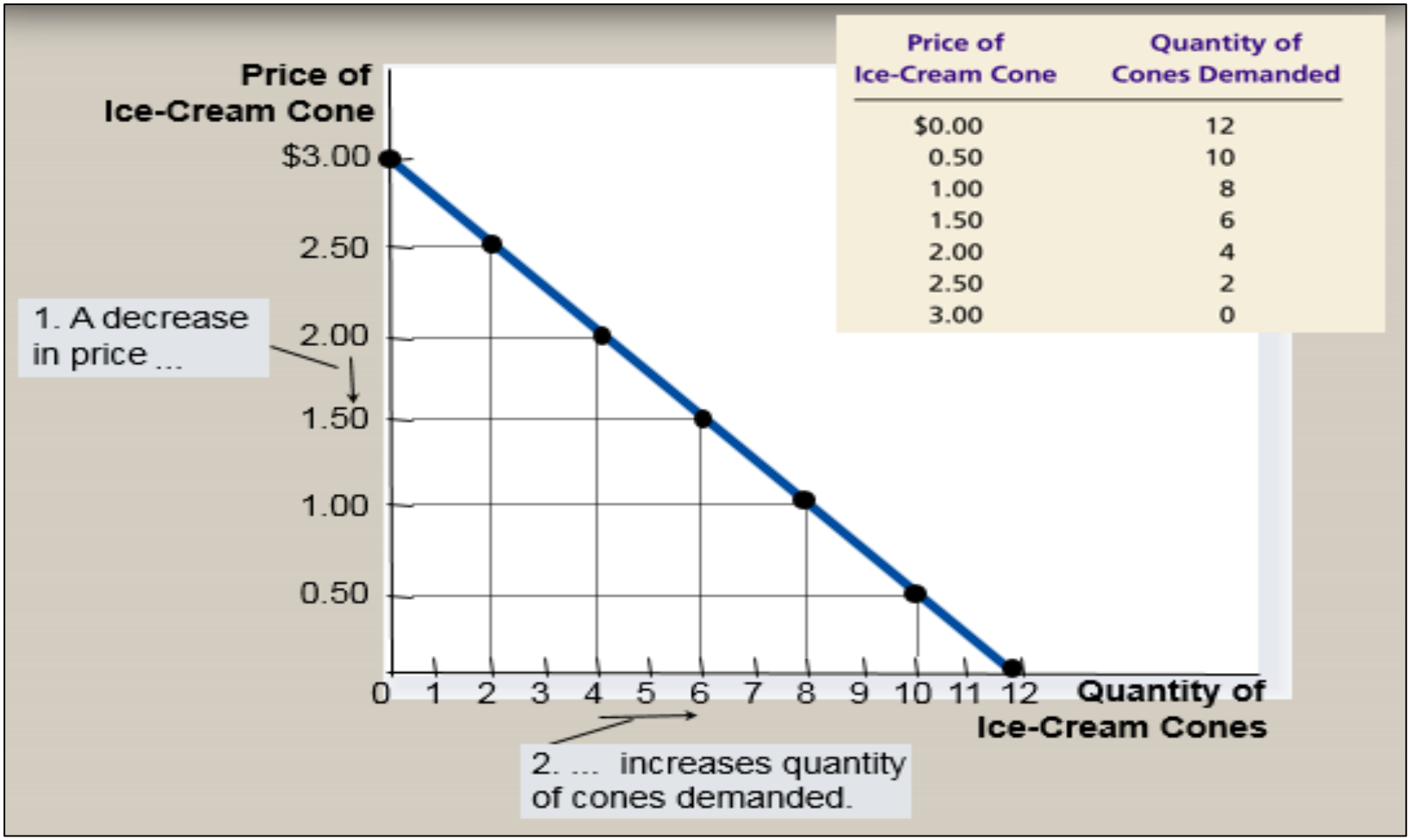
What is a Law of Demand?

- It states that "the quantity demanded of a good falls when the price of the good rises and vice-versa, ceteris paribus (other things equal)"
- Income Effect & Substitution Effect

Demand Schedule

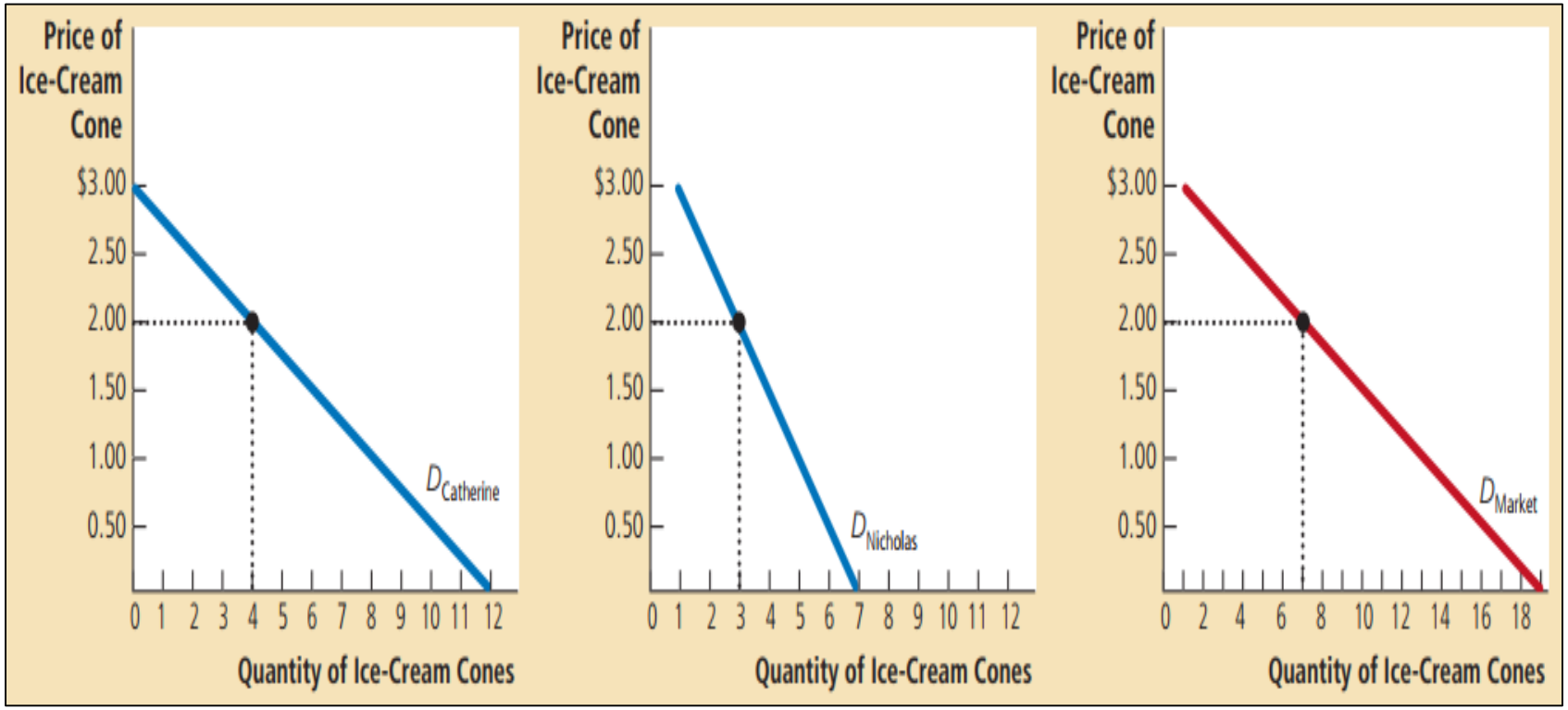
Price of Ice-Cream Cone	Quantity of Cones Demanded
$0.00	12
0.50	10
1.00	8
1.50	6
2.00	4
2.50	2
3.00	0

Demand Curve



Market Demand Curve

Buyer A + **Buyer B** = **Market**



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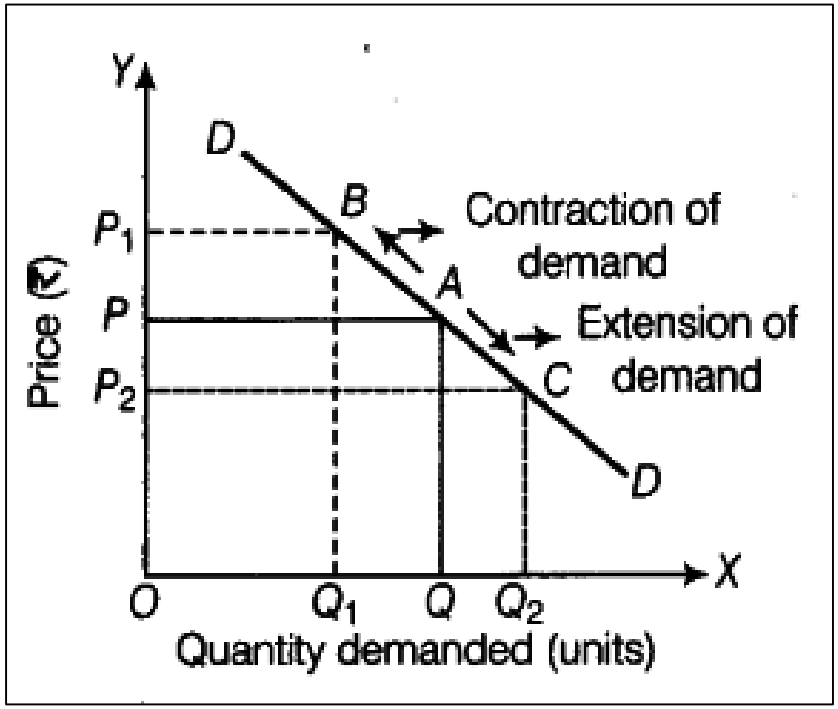
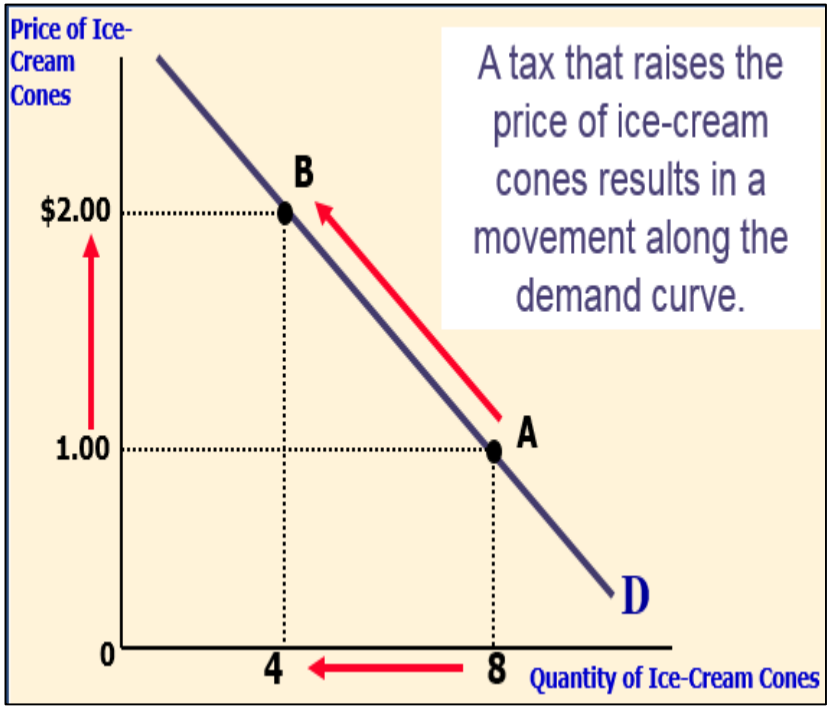
Change in Quantity Demanded Vs Change in Demand

- **Change** in the **Price** of the Good – change in quantity demanded (movement along the demand curve)
- **Change** in all **factors other** than Price – change in demand (shift in demand curve)

Cont.

Change in Quantity Demanded





Change in Demand

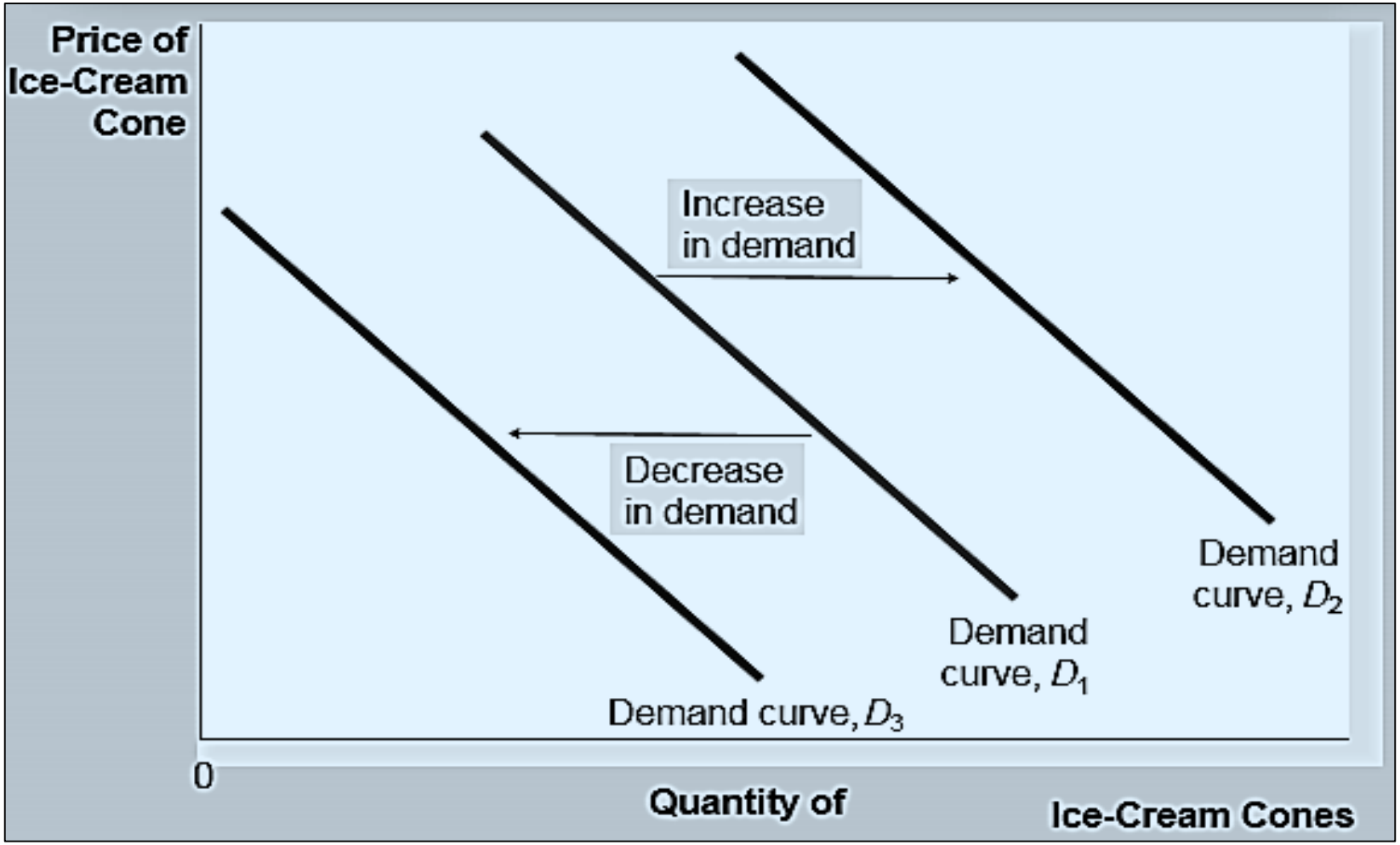
Demand Factor

Income

What would happen to your demand for ice cream if you lost your job one summer?

- **Demand falls**
  - **BUT, the price didn't change**
- **Shifts the Demand Curve to the Left**

Shifts in the Demand Curve



Quantity Demanded and Income

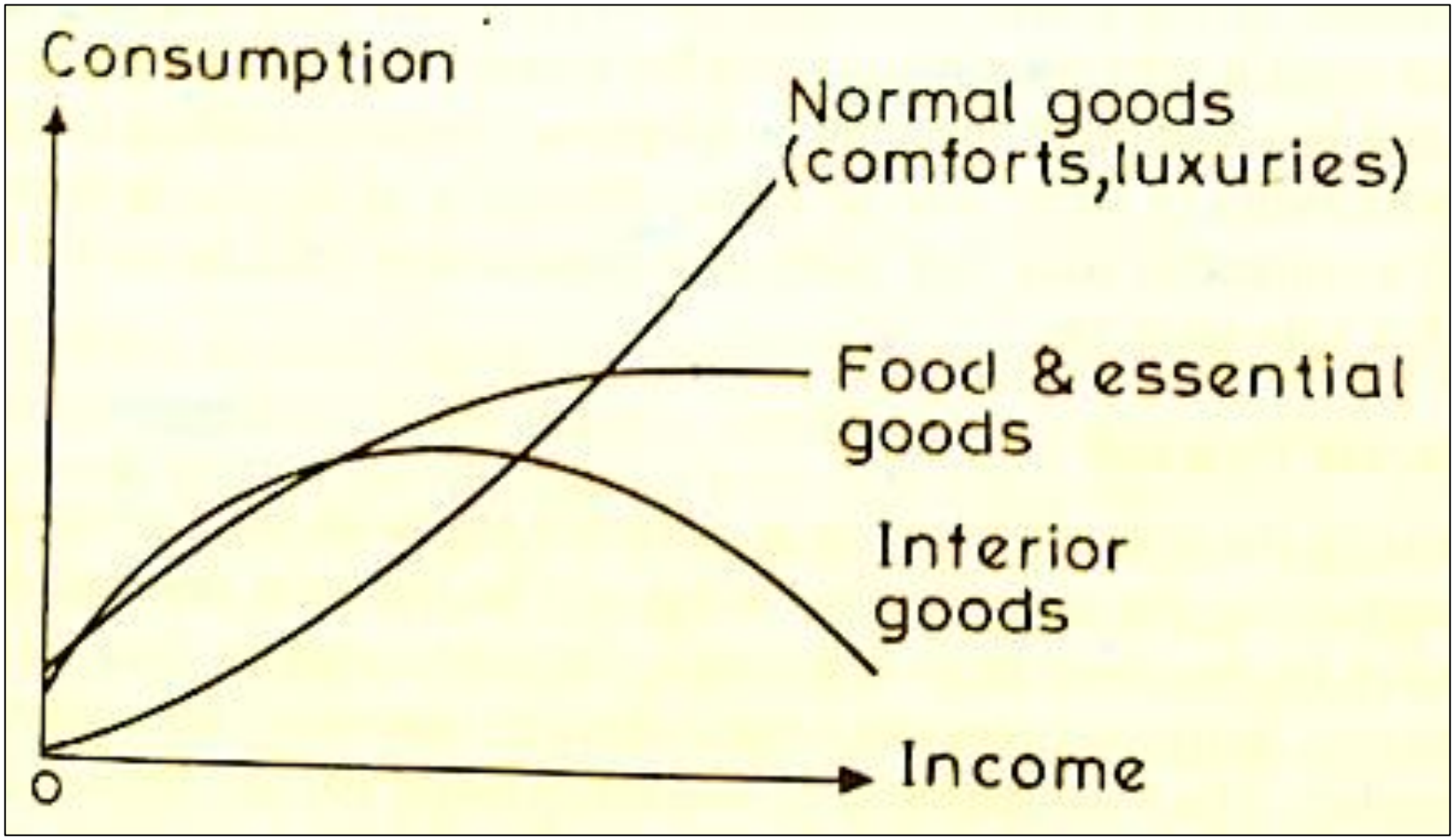
Normal Good

- As income increases the demand for a normal good will increase, ceteris paribus

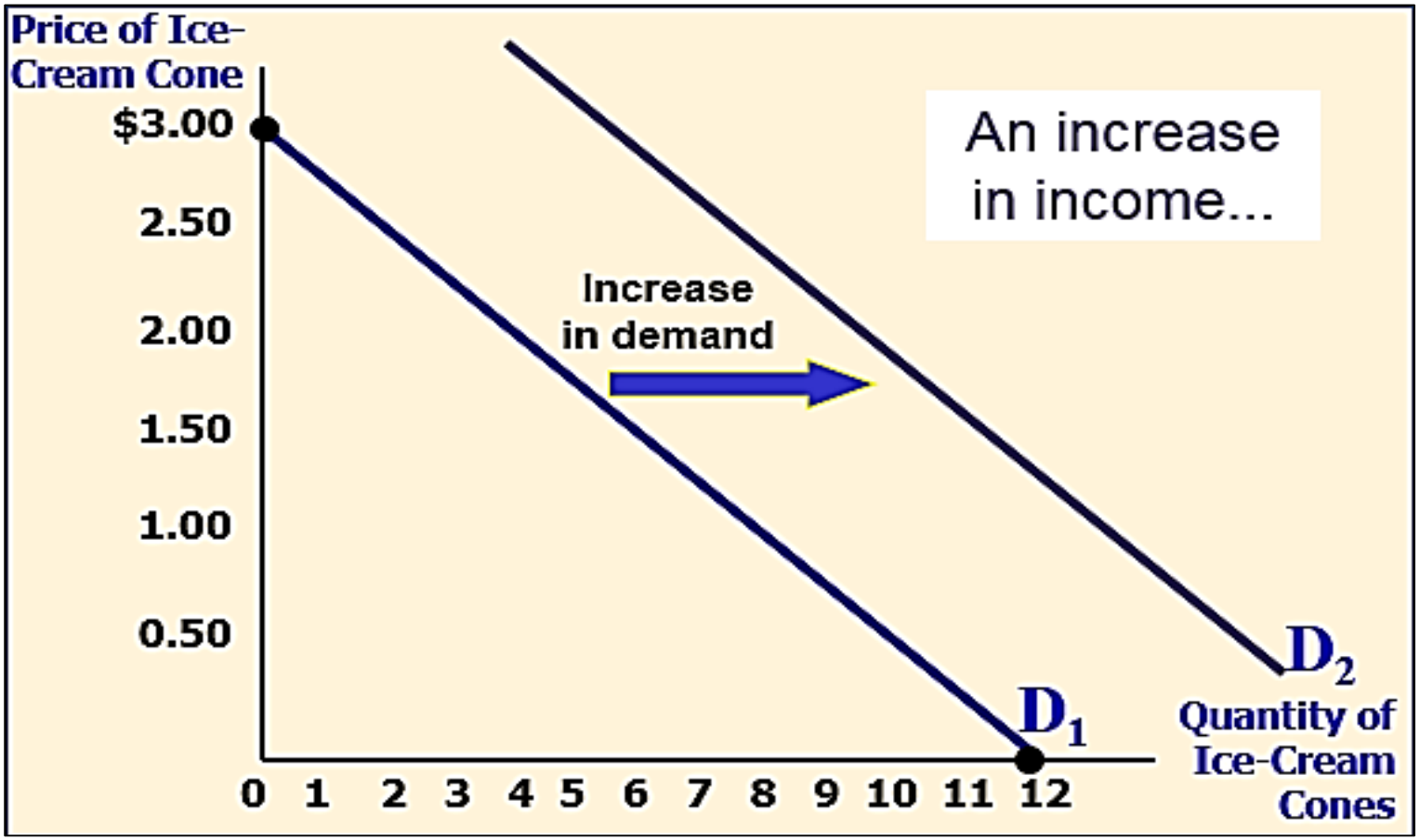
Inferior Good

- As income increases the demand for an inferior good will decrease

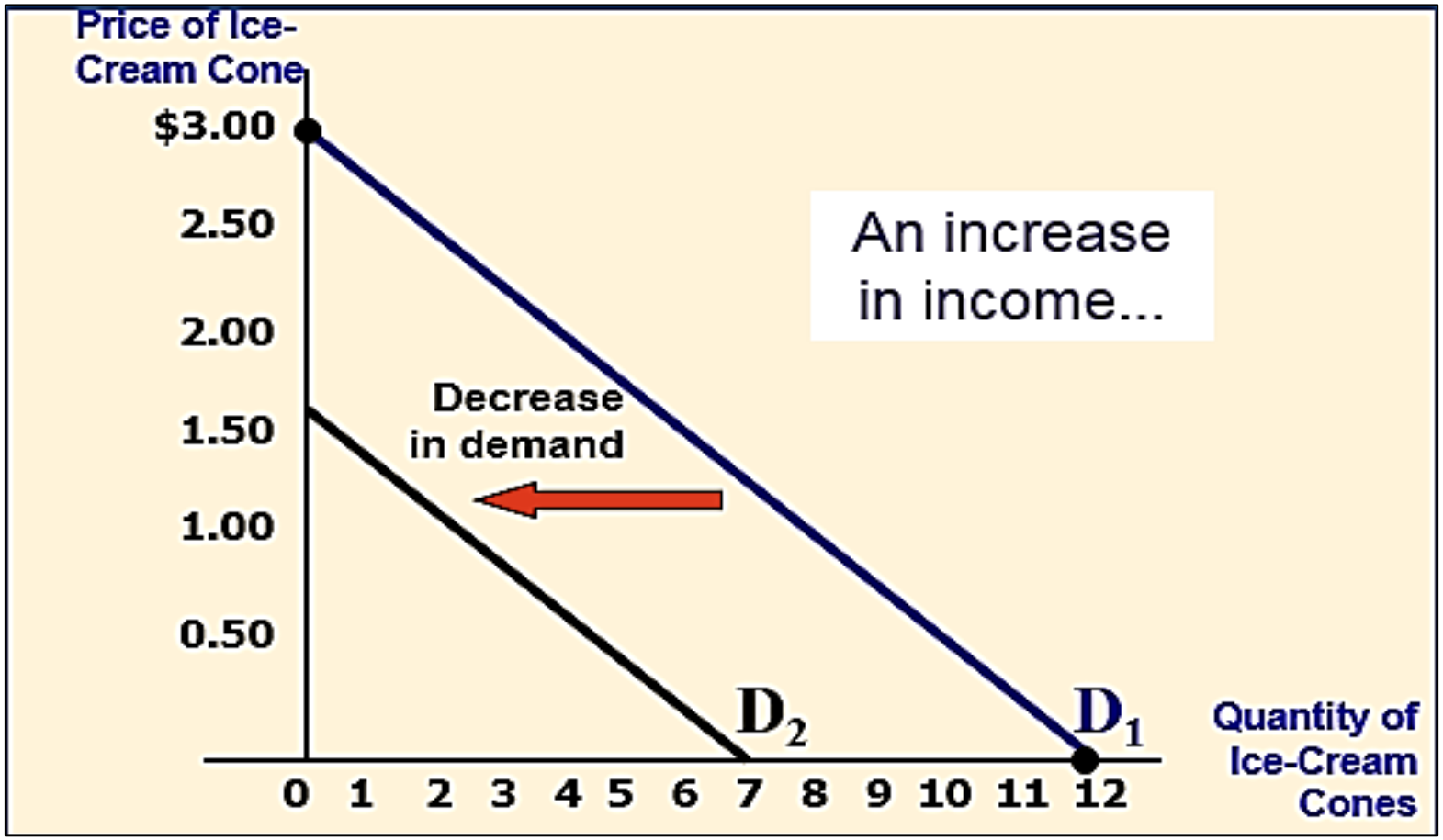
Normal, Inferior & Essential Goods



Consumer Income and Normal Goods



Consumer Income and Inferior Goods



Demand Factor:
Prices of Related Goods

Substitutes

- Goods that are used to satisfy the same needs separately
- Increase in the price of one leads to an increase in the demand for the other
- E.g., Ice-cream and Frozen Yogurt

Demand Factor:
Prices of Related Goods

Complements

- Goods that are used to jointly satisfy the same needs
- Increase in the price of one leads to a decrease in the demand for the other
- E.g., Petrol and Automobiles

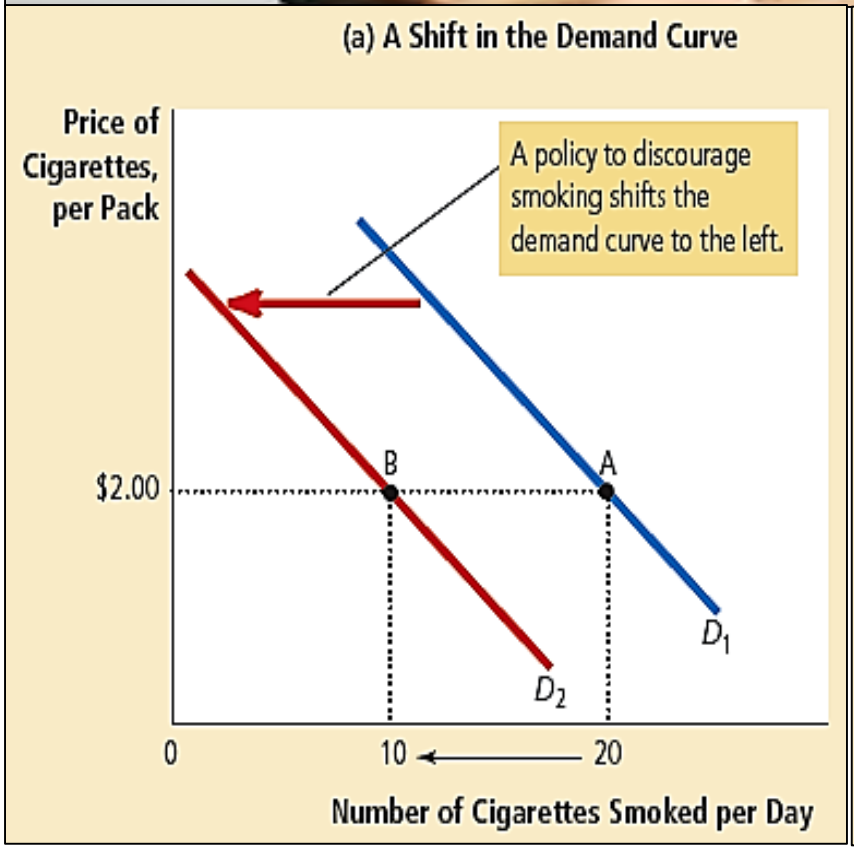
Demand Factor:

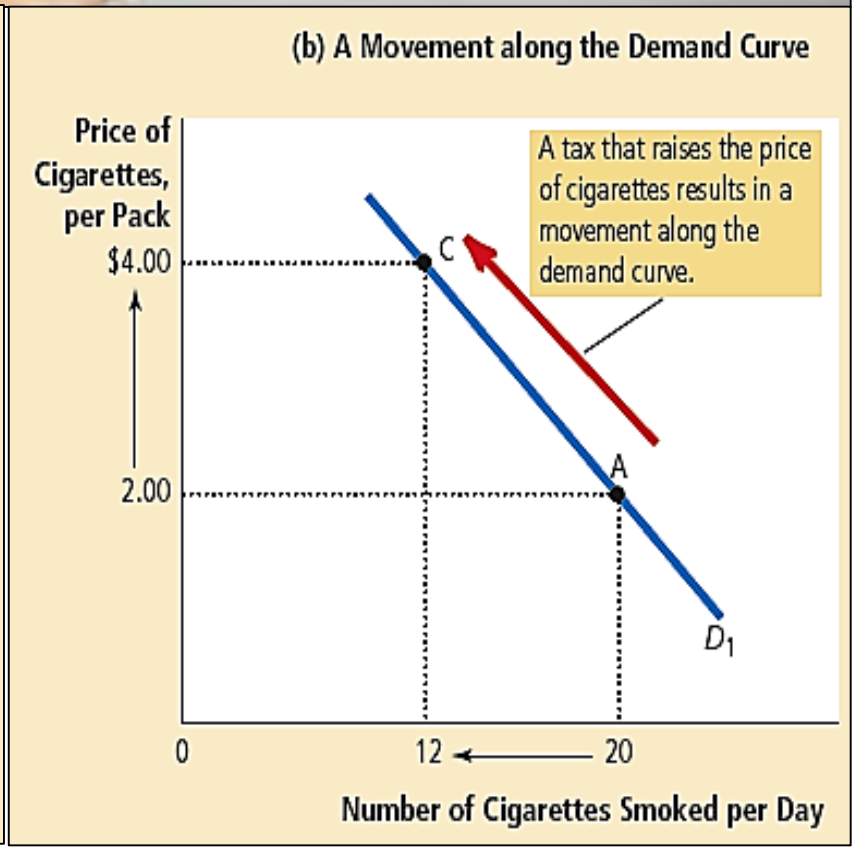
- **Tastes and Preferences**
  - Positive or Negative
- **Social Customs**
  - Usually has a positive impact
- **Expectations**
  - Positive or Negative

Case Study

Two Ways to Reduce the Quantity of Smoking Demanded

- Policymakers often want to reduce the amount that people smoke because of smoking's adverse health effects
  - Raise the price of cigarettes
  - Shift the demand curve for cigarettes and other tobacco products


(a) A Shift in the Demand Curve
Price of Cigarettes, per Pack
A policy to discourage smoking shifts the demand curve to the left.
$2.00
B
A
D_1
D_2
0
10
20
Number of Cigarettes Smoked per Day


(b) A Movement along the Demand Curve
Price of Cigarettes, per Pack
A tax that raises the price of cigarettes results in a movement along the demand curve.
$4.00
2.00
C
A
D_1
0
12
20
Number of Cigarettes Smoked per Day

Cont.

How the Price of Cigarettes affects the Demand for Illicit Drugs, such as Marijuana?

Substitutes or Complements ???

Summary of Demand Factors

Variables that Influence Buyers

Variable	A Change in This Variable . . .
Price of the good itself	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

Cont.

Exceptions to the Law of Demand

1) Speculative Demand*
2) Snob Appeal or Veblen Good
3) Using Price as an Index of Quality
4) Highly Essential Goods
5) Giffen Goods

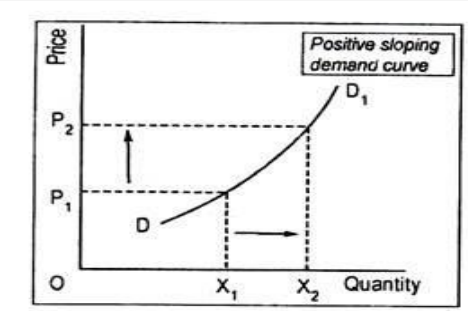
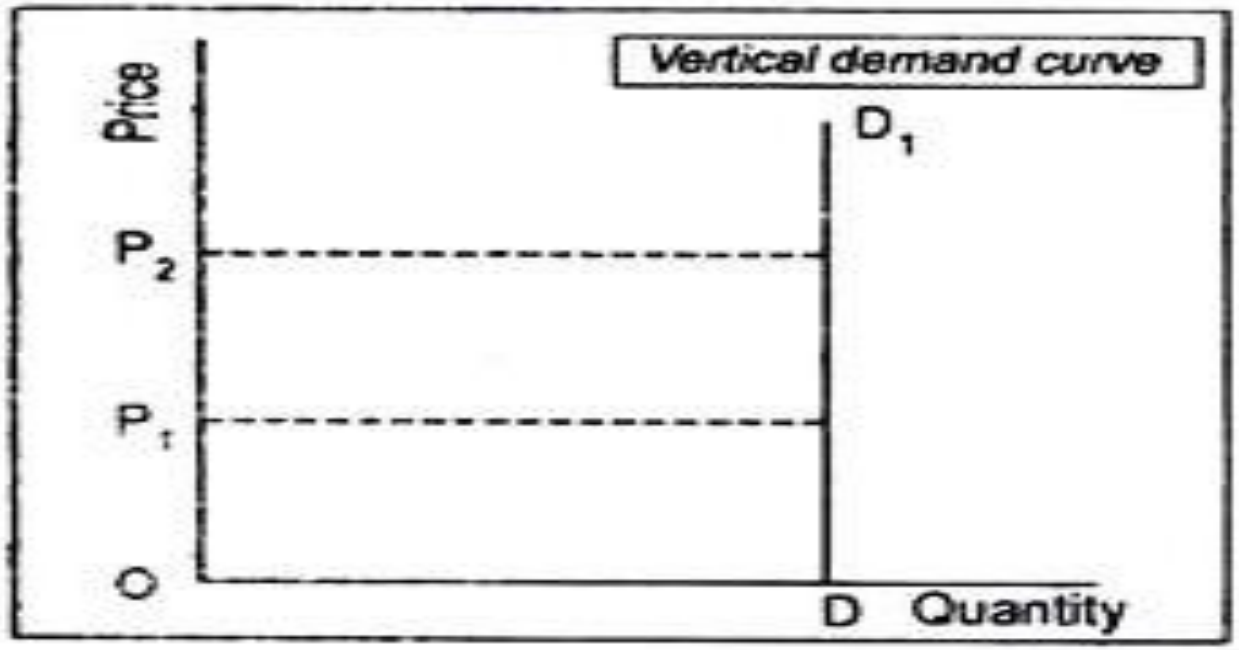


Fig. 2.3: Exceptional Demand Curve

Cont.

4) Highly Essential Goods

- Ex: Life saving drugs (e.g., Sorbitrate)



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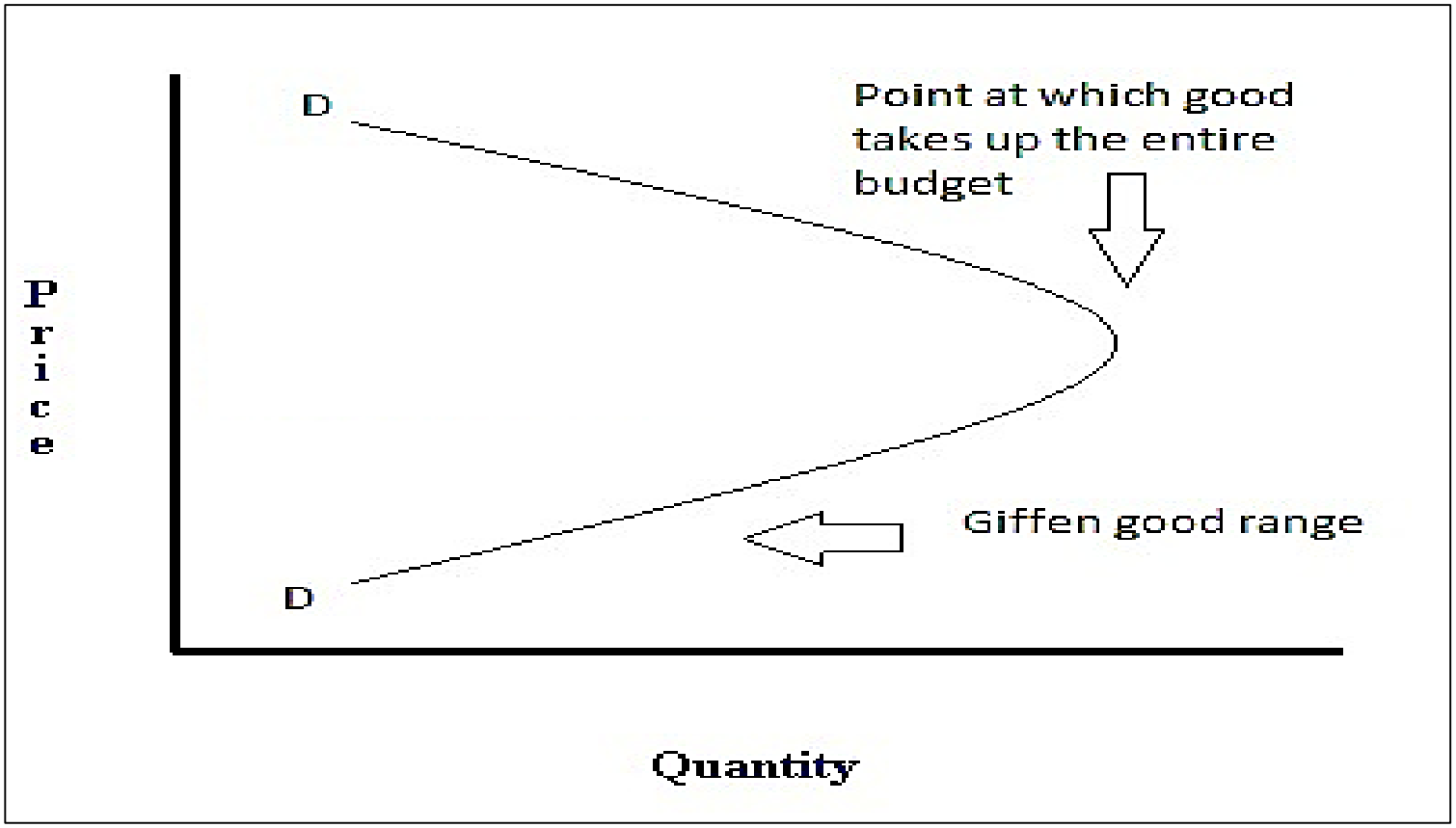
5) Giffen Goods



2. Supply and Supply Function

What is Quantity Supplied?

- Amount of a good that producers are willing and able to offer for sales at a given price
- It is flow concept
- Both willingness and ability are its essential features

Cont.

What is Supply Function?

- "The functional relationship between the quantity of a commodity that a producer is willing to sell and the factors that influence the supply of (or willingness to sell) that commodity"

Factors Determining Supply

- $QS_x = f(P_x, P_s, P_c, F_j, C, T, G, U)$

QS_x = Quantity of good X supplied

P_x = Price of the good X

P_s = Vector of Prices of Substitutes

P_c = Vector of Prices of Compliments

F_j = Prices of Factors of Production

C = Total Budgetary Expenditure

T = State of Technology

U = All other factors

Cont.

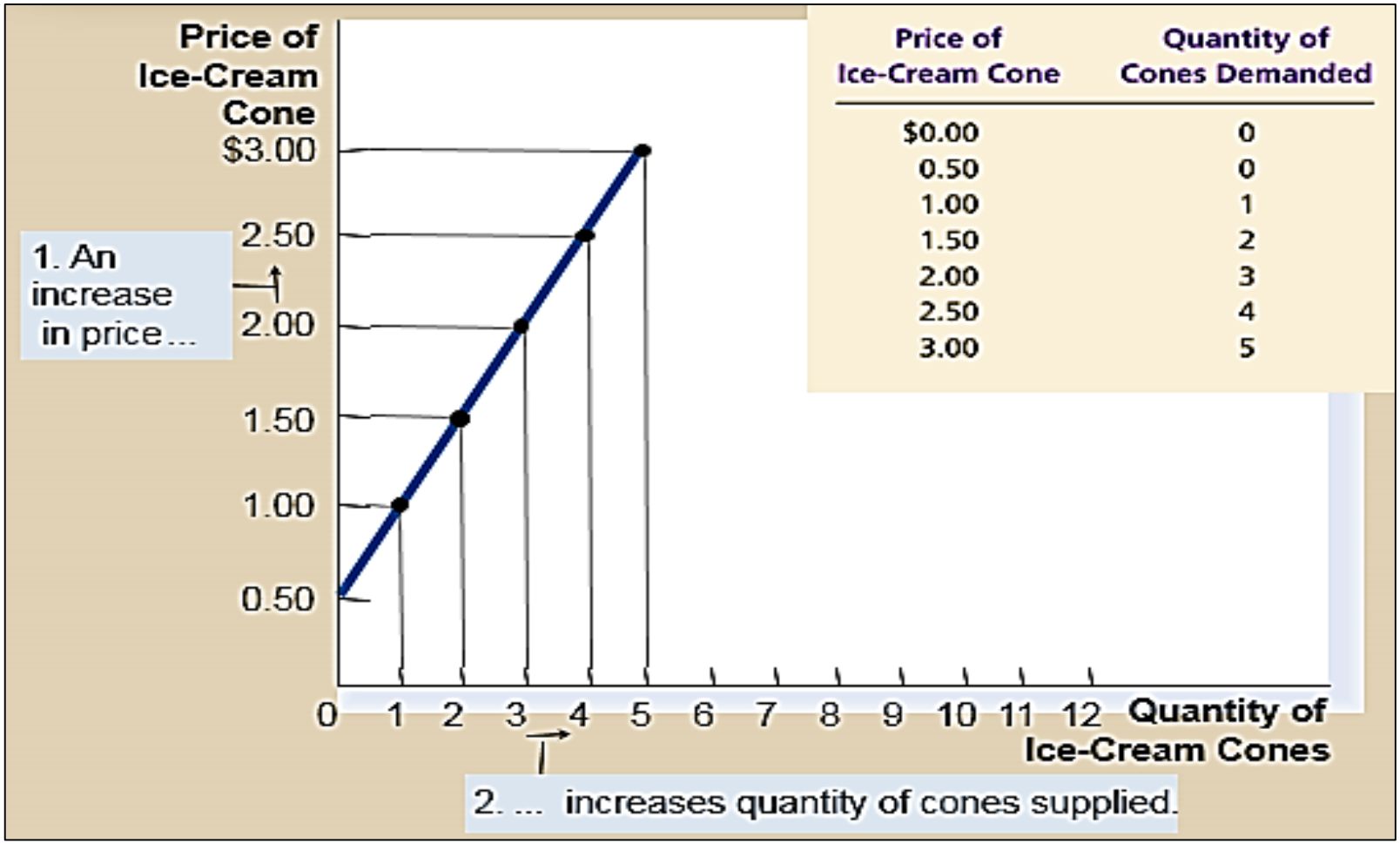
What is a Law of Supply?

- It states that "the quantity supplied of a good rises when the price of the good falls and vice-versa, ceteris paribus (other things equal)"

Supply Schedule

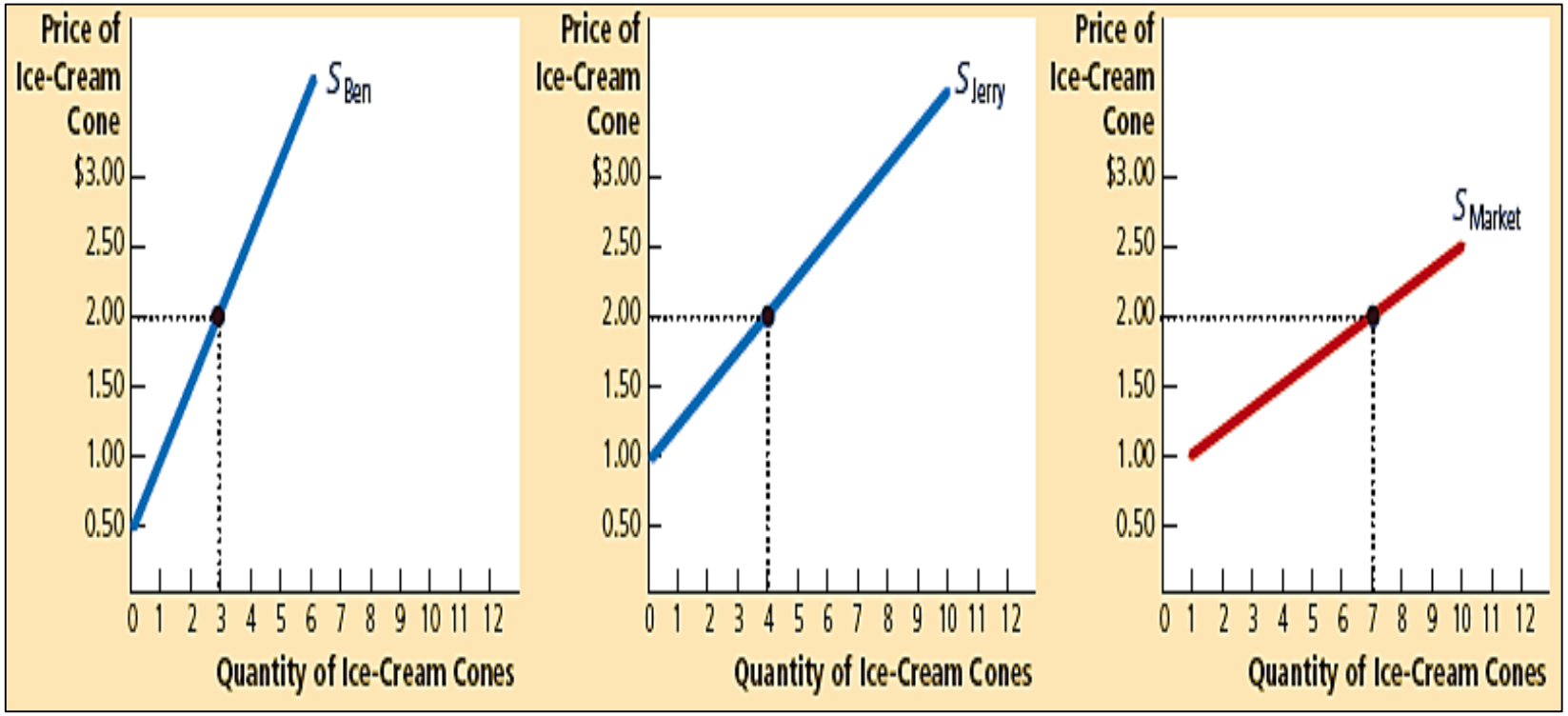
Price of Ice-Cream Cone	Quantity of Cones Supplied
$0.00	0 cones
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5

Supply Curve



Market Supply Curve

Producer A + **Producer A** = **Market**

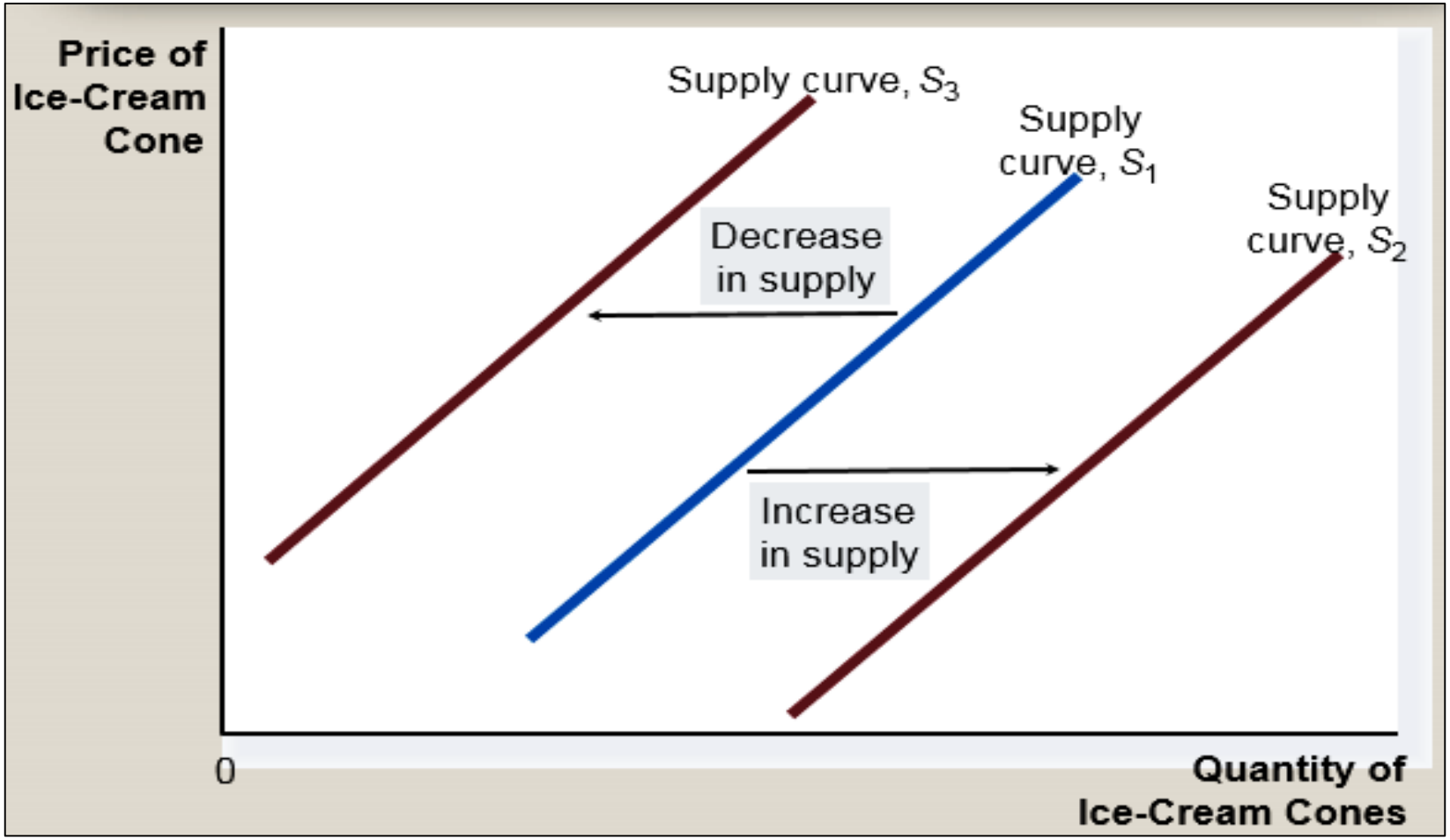


Cont.

Change in Quantity Supplied Vs Change in Supply

- **Change** in the **Price** of the Good – change in quantity supplied (movement along the supply curve)
- **Change** in all **factors other** than Price – change in supply (shift in supply curve)

Shifts in the Demand Curve



Supply Factor:

- **Prices of Substitutes Increase**
  - **Impact?**
    - **Supply curve shifts left**
- **Prices of Complements Increase**
  - **Impact?**
    - **Multiple possible effects ???**

Supply Factor:

- **Input Prices**
  - Lowers the supply curve
- **Technology**
  - Raises the supply curve
- **Expectations**
  - Depends ???

Summary of Supply Factors

Variables that Influence Producers

Variable	A Change in This Variable . . .
Price of the good itself	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

Market Equilibrium

- Refers to a situation in which the price has reached the level where quantity supplied equals quantity demanded

Supply and Demand Together

Demand Schedule

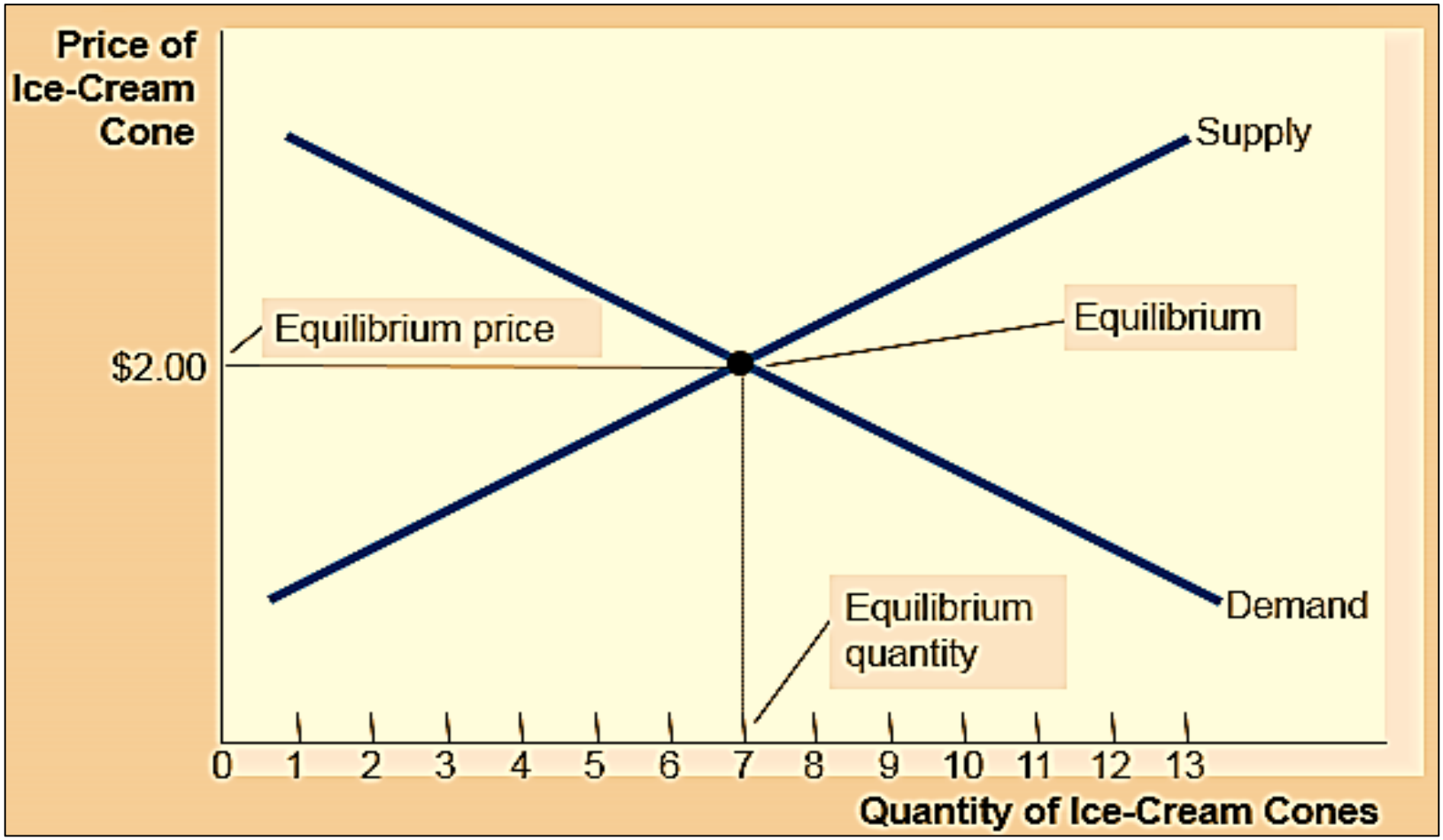
Price of Ice-Cream Cone	Market
$0.00	19
0.50	16
1.00	13
1.50	10
2.00	7
2.50	4
3.00	1

Supply Schedule

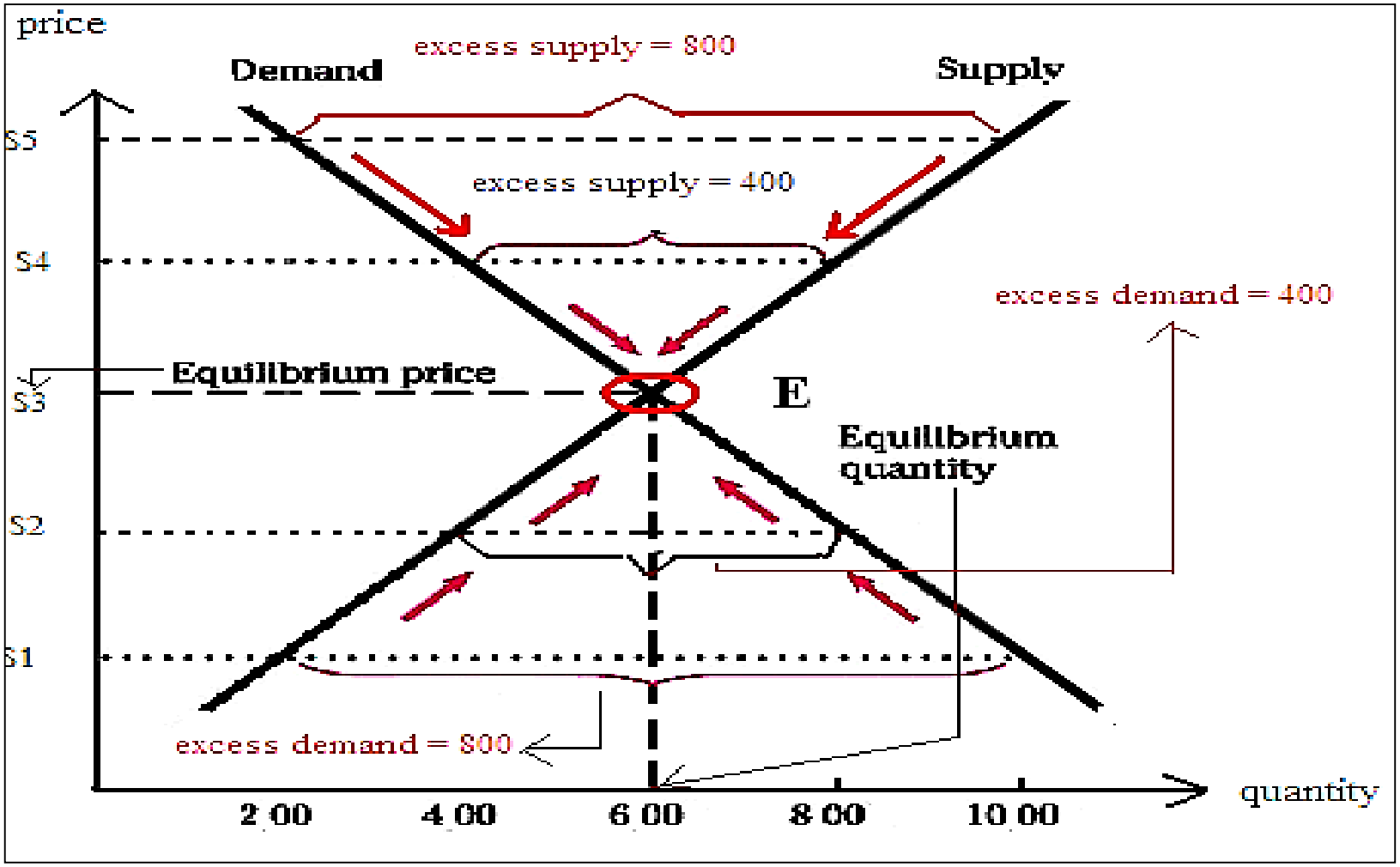
Price of Ice-Cream Cone	Market
$0.00	0
0.50	0
1.00	1
1.50	4
2.00	7
2.50	10
3.00	13

At $2.00, the quantity demanded is equal to the quantity supplied!

Equilibrium of Supply and Demand

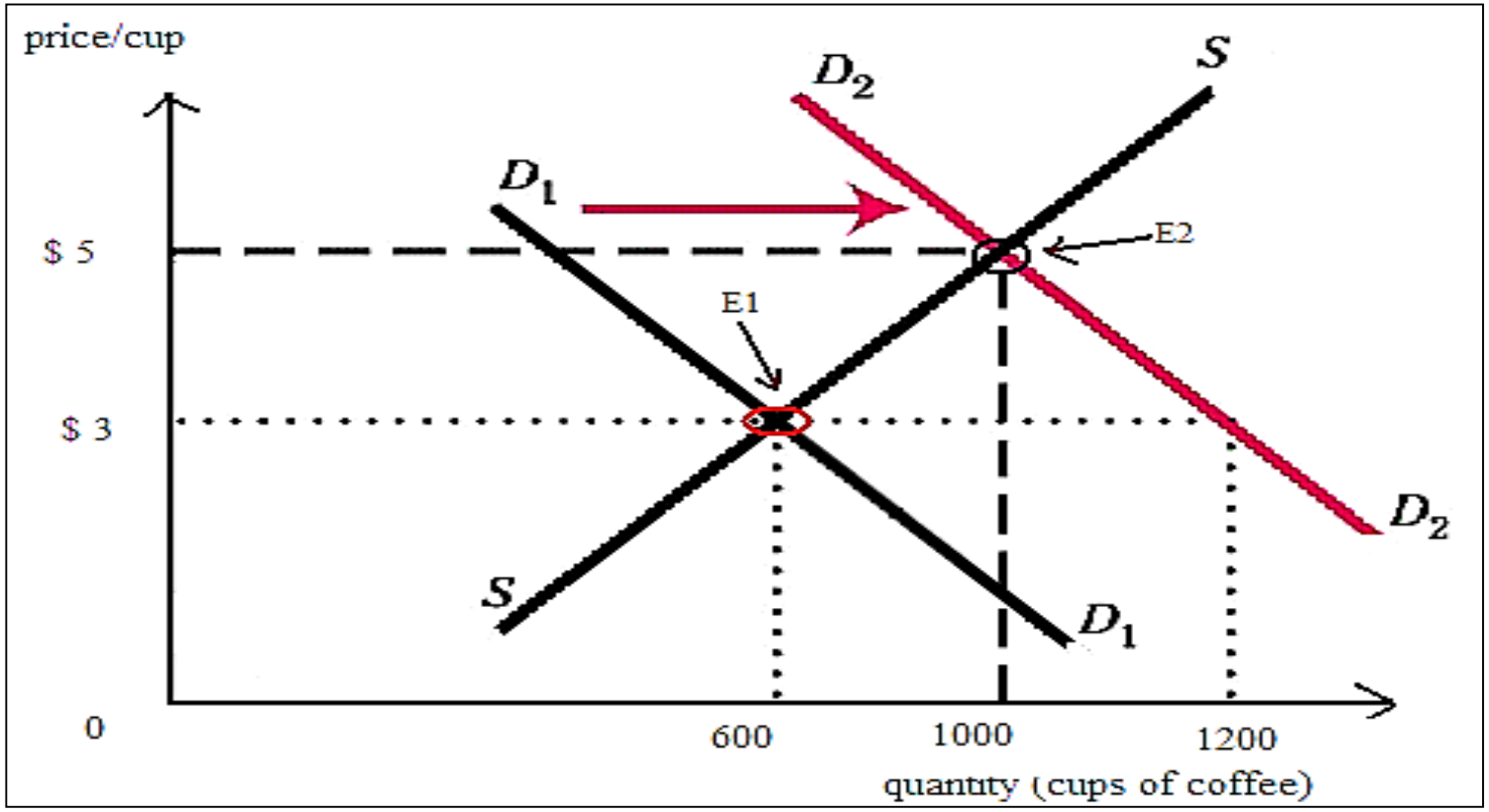


Excess Supply and Demand

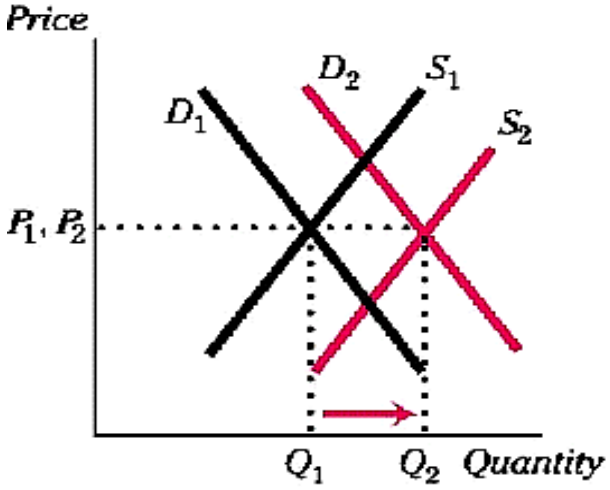


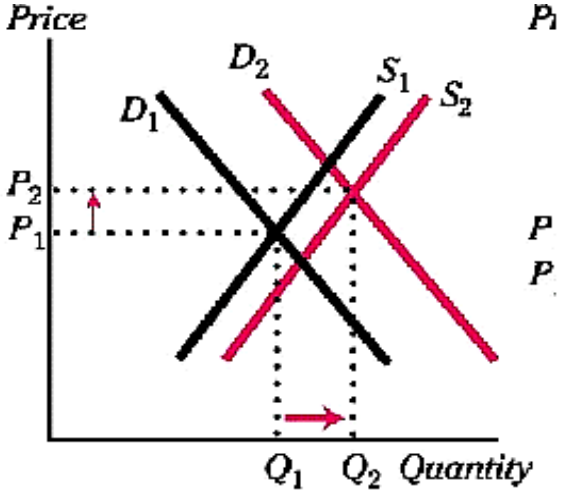
Change in Equilibrium

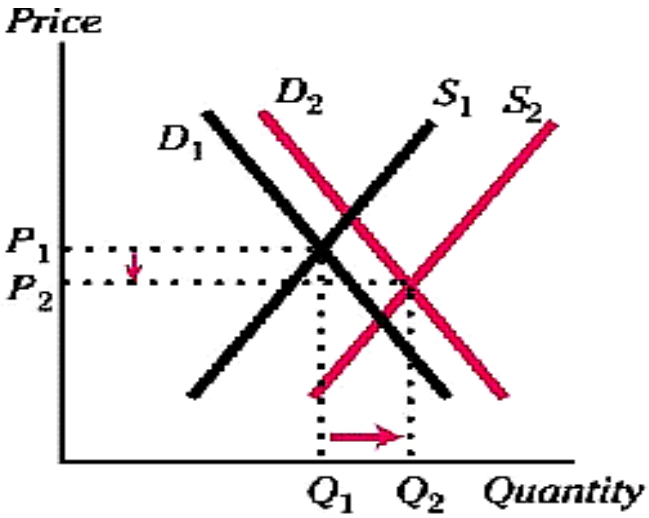
- An increase in demand, supply remaining unchanged



What happens when both demand and supply curves shift?







Summary

1) Modern microeconomics is about supply, demand, and market equilibrium

2) Economists use the model of supply and demand to analyse competitive markets

Cont.

3) A *Competitive Market* is a market in which there are many buyers and sellers so that each has a negligible impact on the market price

4) Buyers determine Demand and Producers determine Supply

Cont.

5) The demand curve shows how the quantity of a good depends upon the price

6) The supply curve shows how the quantity of a good supplied depends upon the price

Cont.

7) Market equilibrium is determined by the intersection of the supply and demand curves

8) At the equilibrium price, the quantity demanded equals the quantity supplied

9) The behavior of buyers and sellers naturally drives markets toward their equilibrium

THANK YOU

HAPPY LEARNING