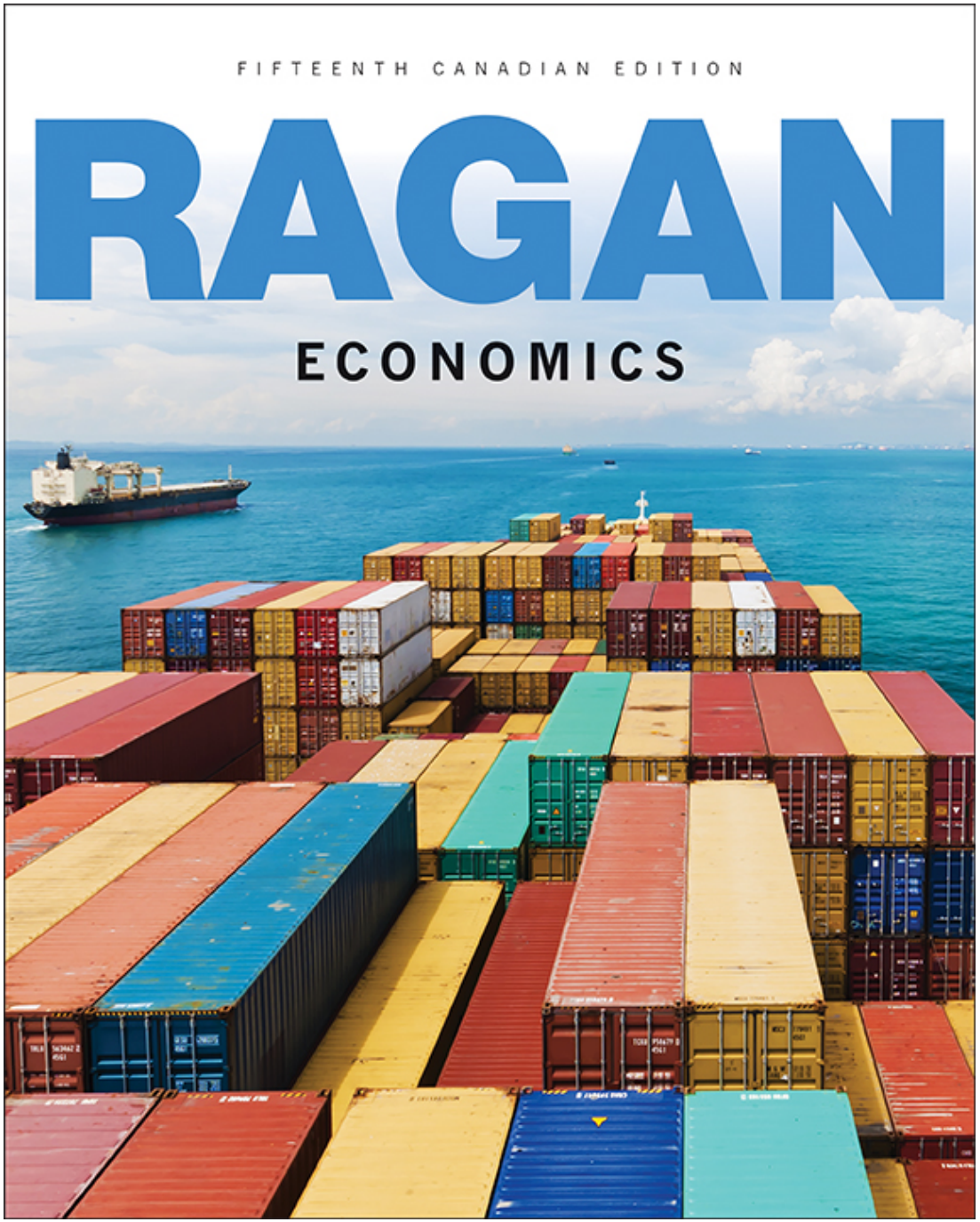


Chapter 3:
Demand, Supply, and Price

Chapter Outline/Learning Objectives

Section	Learning Objectives After studying this chapter, you will be able to
3.1 Demand	1. list the factors that determine the quantity demanded of a good. 2. distinguish between a shift of the demand curve and a movement along the demand curve.
3.2 Supply	3. list the factors that determine the quantity supplied of a good. 4. distinguish between a shift of the supply curve and a movement along the supply curve.
3.3 The Determination of Price	5. explain the forces that drive market price to equilibrium, and how equilibrium price is affected by changes in demand and supply.

Quantity Demanded

The total amount that consumers desire to purchase in some time period is called the **quantity demanded** of a product.

Quantity bought (or exchanged) refers to **actual** purchases.

Quantity demanded is a **flow**, as opposed to a **stock**.

EXTENSIONS IN THEORY 3-1

The Distinction Between Stocks and Flows

- Flow variable: it is so much per unit of time
- Stock variable: has a meaning at a point in time

Examples:

- Income earned is a flow
- Consumers' expenditure is a flow
- Amount of money in a bank account is a stock

Quantity Demanded and Price

A basic hypothesis is that—*ceteris paribus*—the price of a product and the quantity demanded are **negatively** related.

Why? There are usually several products that can satisfy any given want or desire.

A reduction in the price of a product means that the specific desire can now be satisfied more cheaply by buying more of that product.

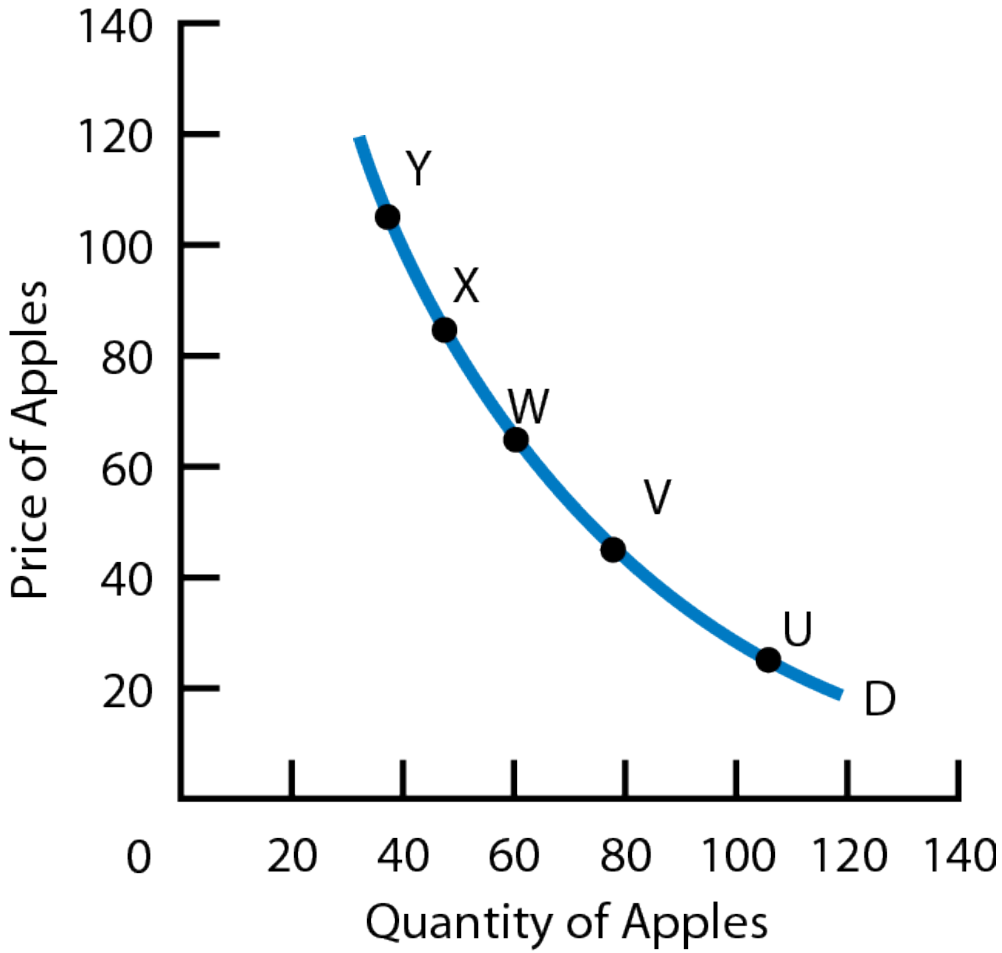
Demand Schedules and Demand Curves

Fig.3-1 **The Demand for Apples**

Demand Schedule

Reference Point	Price ($ per bushel)	Quantity Demanded
U	$ 20	110
V	40	85
W	60	65
X	80	50
Y	100	40

Demand Curve



A change in variables **other than price** will shift the demand curve to a new position.

- average household income
- prices of other products
- distribution of income or population
- expectations about the future

Fig. 3-2 **An Increase in the Demand for Apples**

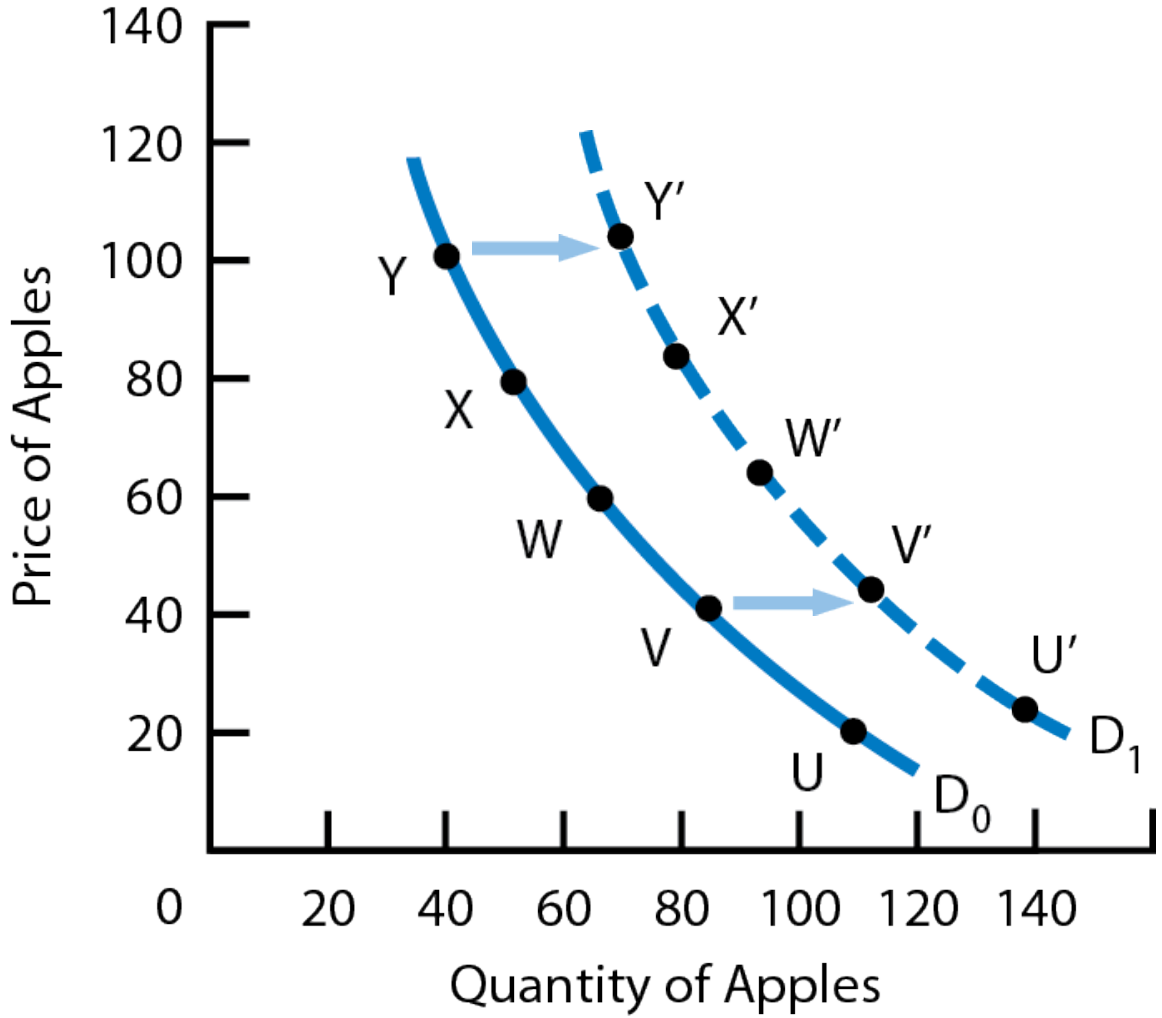
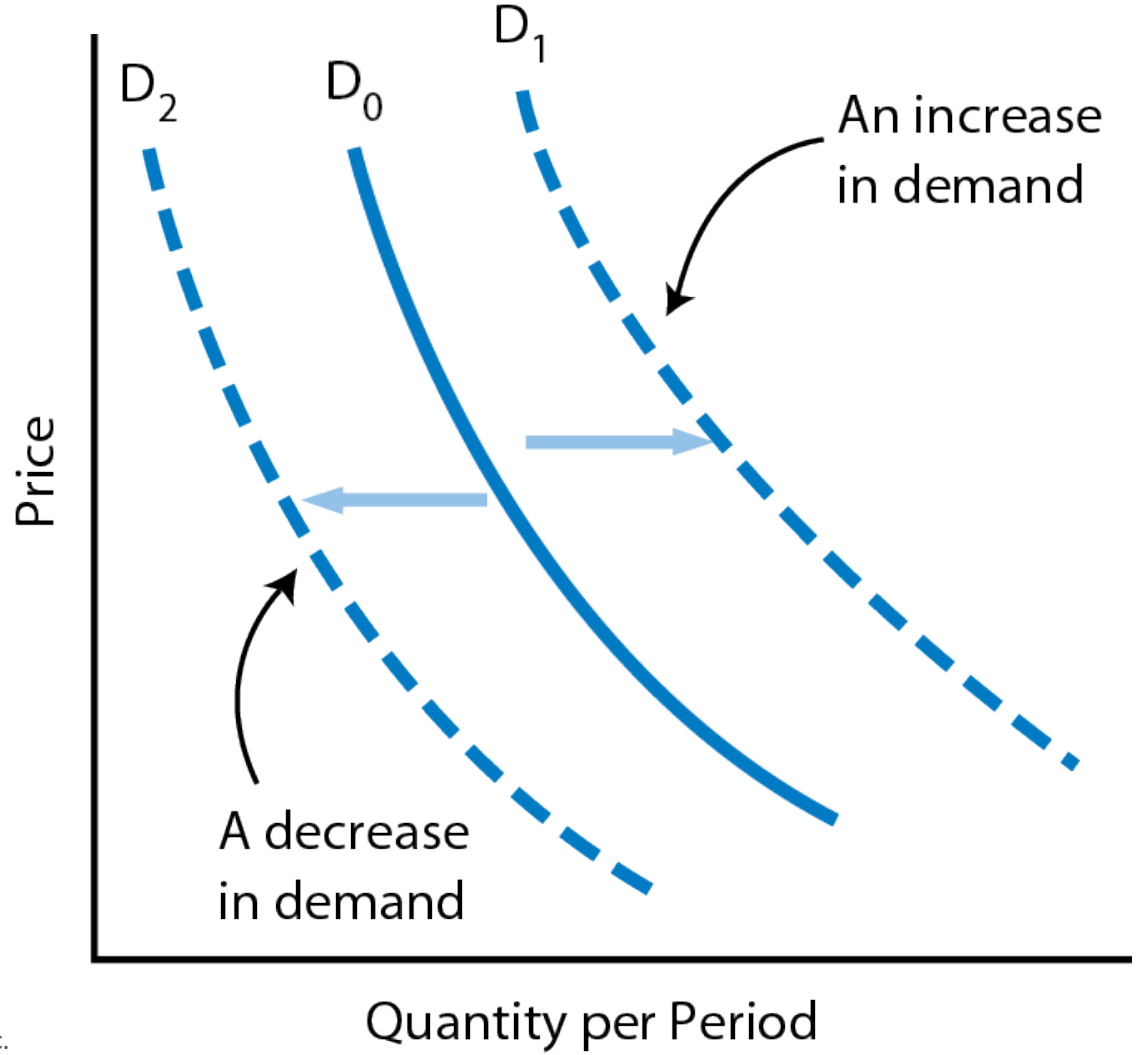


Fig. 3-3 **Shifts in the Demand Curve**

A **rightward** shift indicates an **increase in demand**.

A **leftward** shift indicates a **decrease in demand**.



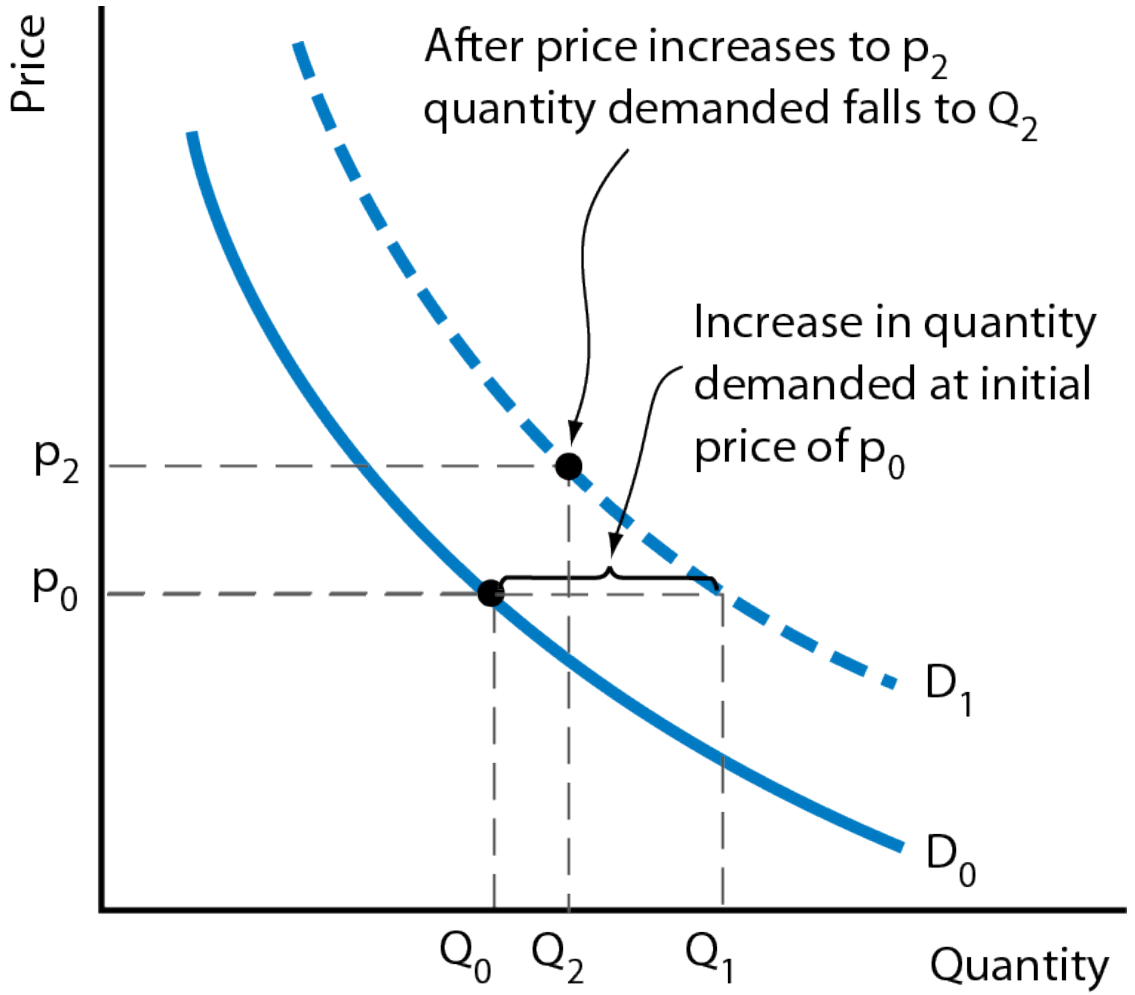
Shifts in the Demand Curve

- average household income: *normal* vs. *inferior* goods
  - Normal good: quantity demanded increases when income rises.
  - Inferior good: quantity demanded falls when income rises.
- distribution of income: changes for particular groups
- prices of other products: *substitutes* vs *complements*
  - *Substitutes:* Goods that can be used in place of another good to satisfy needs. E.g: coffee and tea
  - *Complements:* Goods that need to be consumed together. E.g: milk and cereals
- population
- expectations about the future

Fig. 3-4 Shifts of and Movements Along the Demand Curve

A **change in demand** is a change in quantity demanded at every price—a shift of the entire curve.

A **change in quantity demanded** refers to a movement from one point on a demand curve to another point, either on the same demand curve or on a new one.



Quantity Supply

The amount of a product that firms **desire** to sell in some time period is called the **quantity supplied** of that product.

Quantity supplied is the amount that firms are willing to offer for sale and not necessarily the **quantity actually sold**.

Quantity supplied is a flow as opposed to a stock.

Quantity Supplied and Price

A basic hypothesis is that—*ceteris paribus*—the price of the product and the quantity supplied are **positively** related.

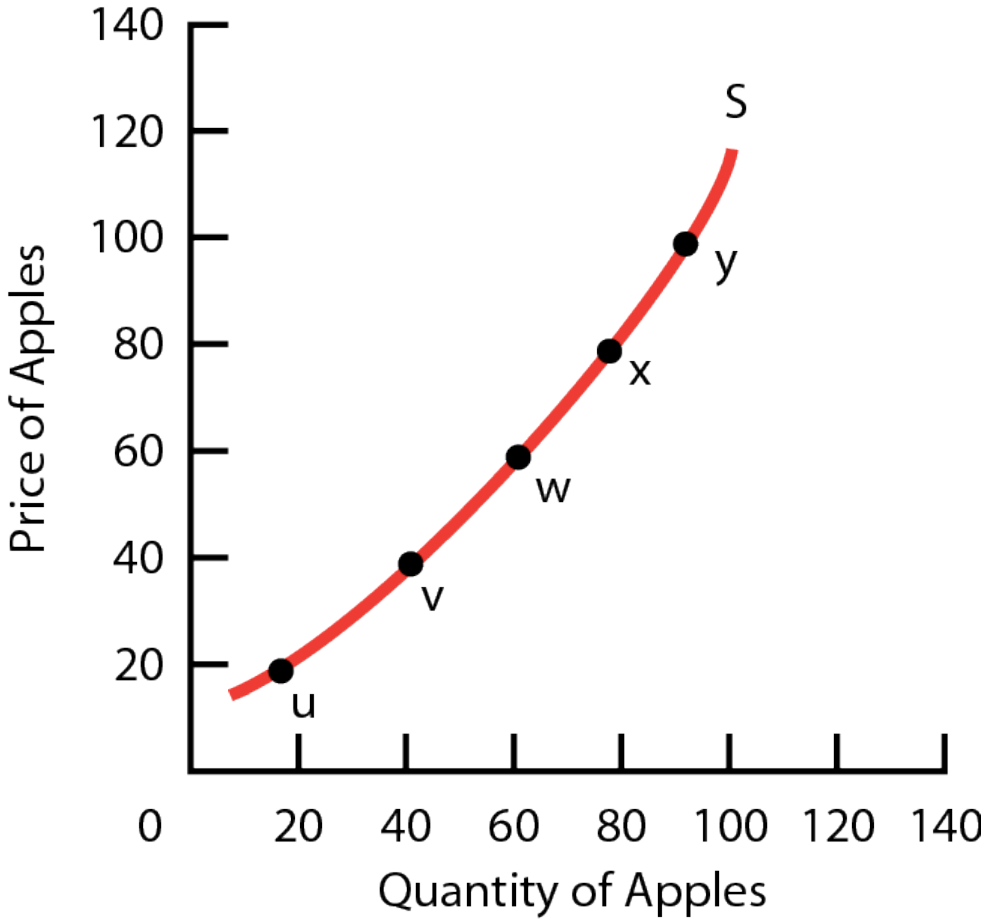
Why? Producers are interested in making profits. If the price of a particular product rises, then the production and sale of this product is more profitable.

Fig. 3-5 The Supply of Apples

Supply Schedule

Reference Point	Price ($ per bushel)	Quantity Supplied
u	$ 20	20
v	40	45
w	60	65
x	80	80
y	100	95

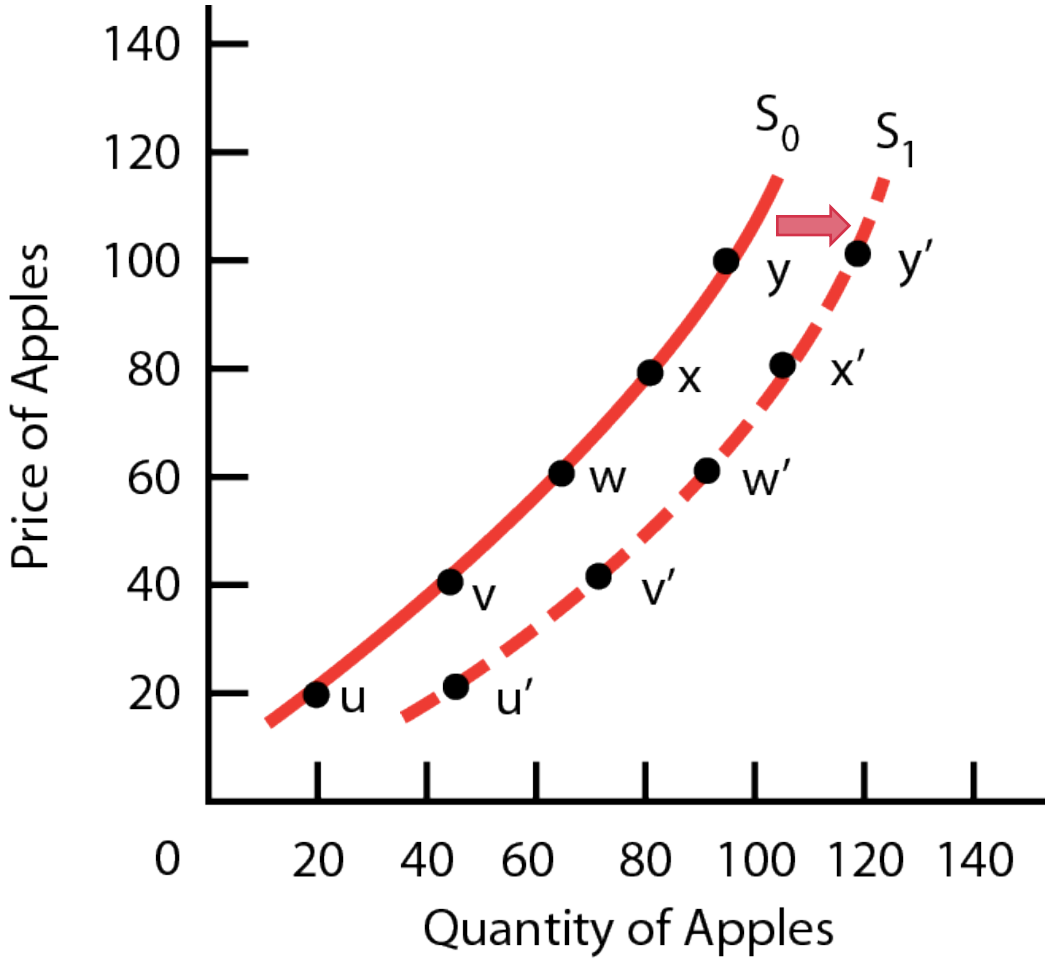
Supply Curve



A **change in supply** is a change in the quantity that will be supplied at **every** price—a shift of the entire curve.

A **change in quantity supplied** refers to a movement from one point on a supply curve to another point, either on the same supply curve or on a new one.

Fig. 3-6 **An Increase in the Supply of Apples**

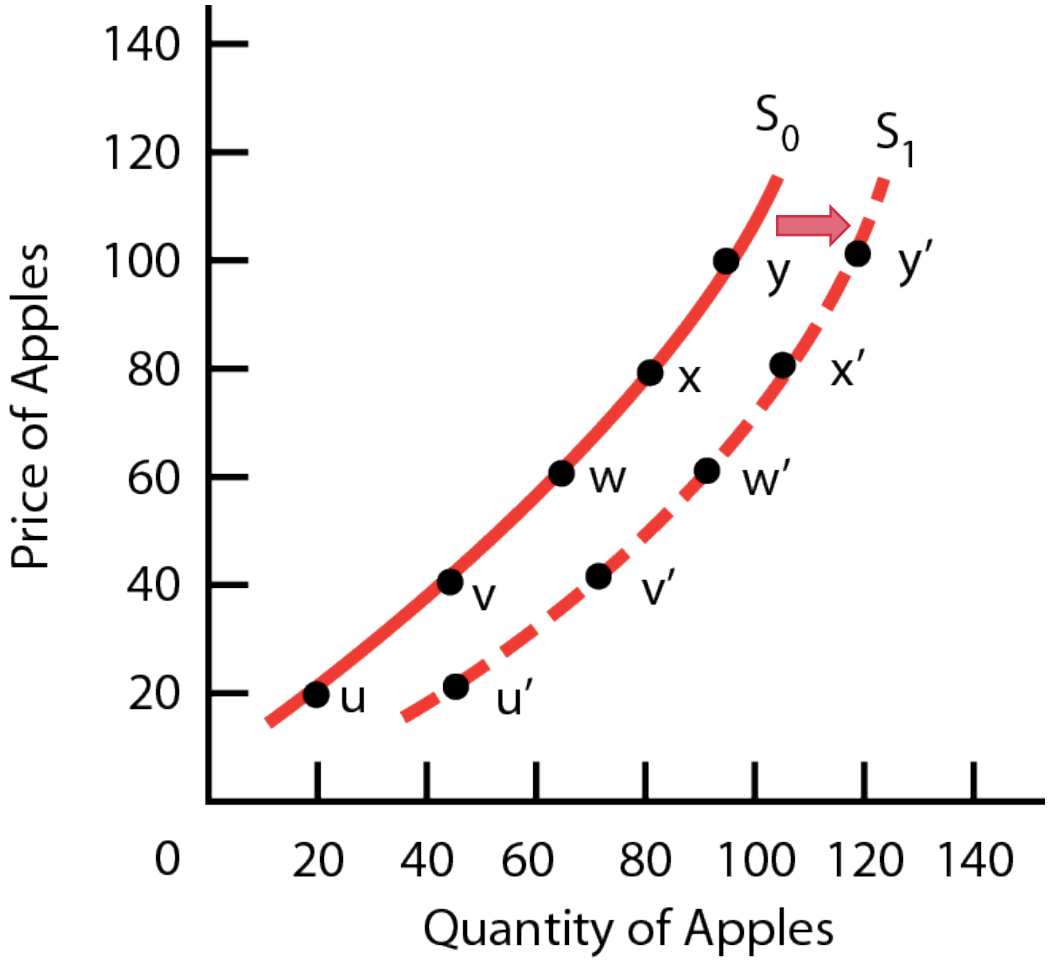


A change in any variable **other than price** will shift the supply curve to a new position.

Changes in these variables will shift the supply curve:

- prices of inputs
- technology
- number of suppliers

Fig. 3-6 **An Increase in the Supply of Apples**



Shifts in the Supply Curve

- prices of inputs
- technology
- government taxes and subsidies: affect profits
- prices of other products: substitutes vs complements
- number of suppliers: entering (right), exiting (left)

3.3 The Determination of Price

The Concept of a Market

A market may be defined as any situation in which buyers and sellers negotiate the transaction of some goods or services.

Markets may differ in the degree of **competition** among various buyers and sellers.

In a **perfectly competitive market** buyers and sellers are **price takers**.

APPLYING ECONOMIC CONCEPTS 3-1

Why Apples But Not iPhones?

Three conditions must be satisfied in order for price determination in a market to be well described by the demand-and-supply model:

1. Large number of consumers; each one small relative to the size of the market.

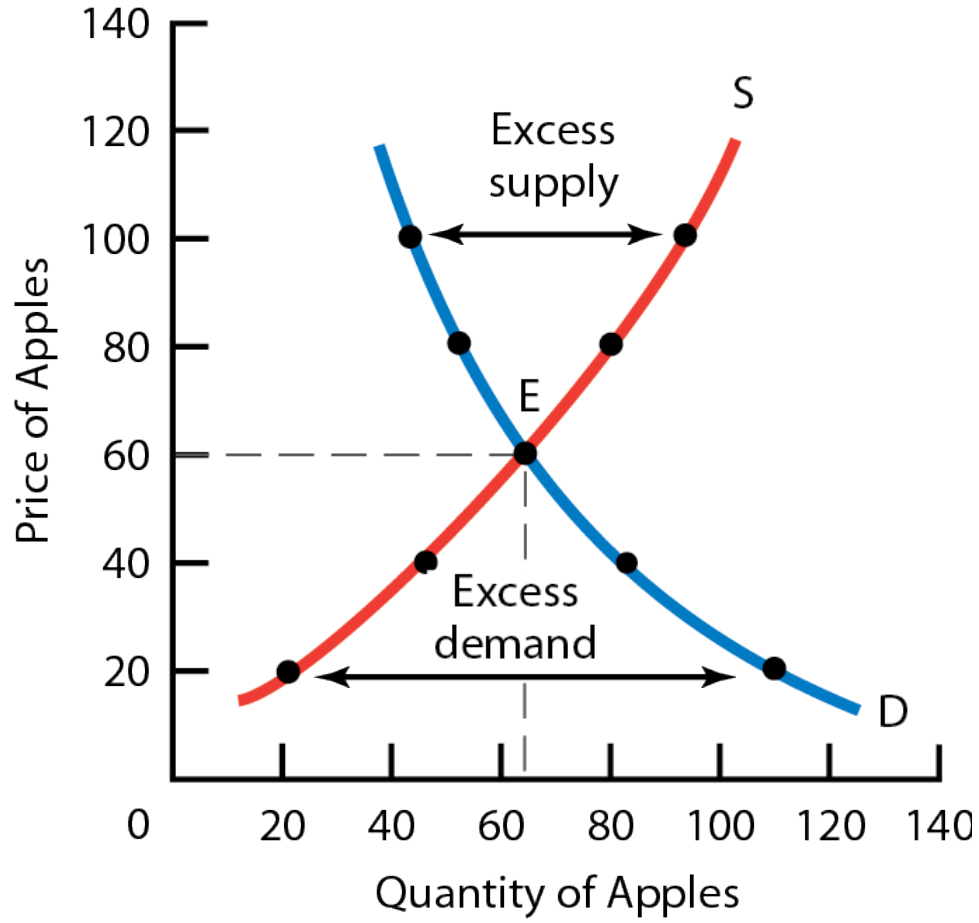
2. Large number of producers; each one small relative to the size of the market.

3. Producers must be selling 'homogeneous' versions of the product.

Graphical Analysis of a Market

At the **equilibrium price**, every buyer finds a seller and every seller finds a buyer—the market "clears."

Fig. 3-7 **Determination of Equilibrium Price**



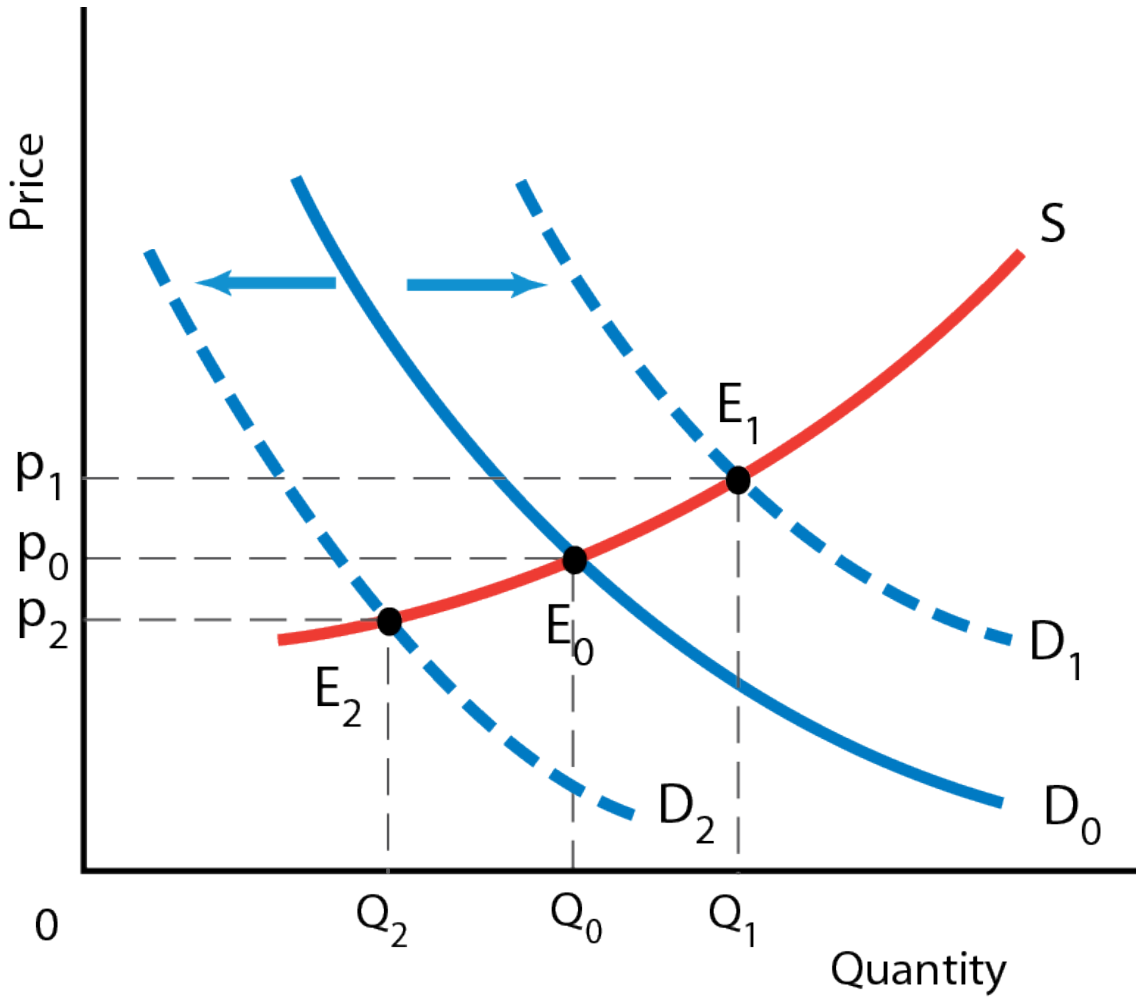
Changes in Market Prices

The four "laws" of supply and demand:

1. An increase in demand causes an increase in both the equilibrium price and equilibrium quantity.

2. A decrease in demand causes a decrease in both equilibrium price and equilibrium quantity.

Fig. 3-8(i) **Shifts in the Demand Curve**

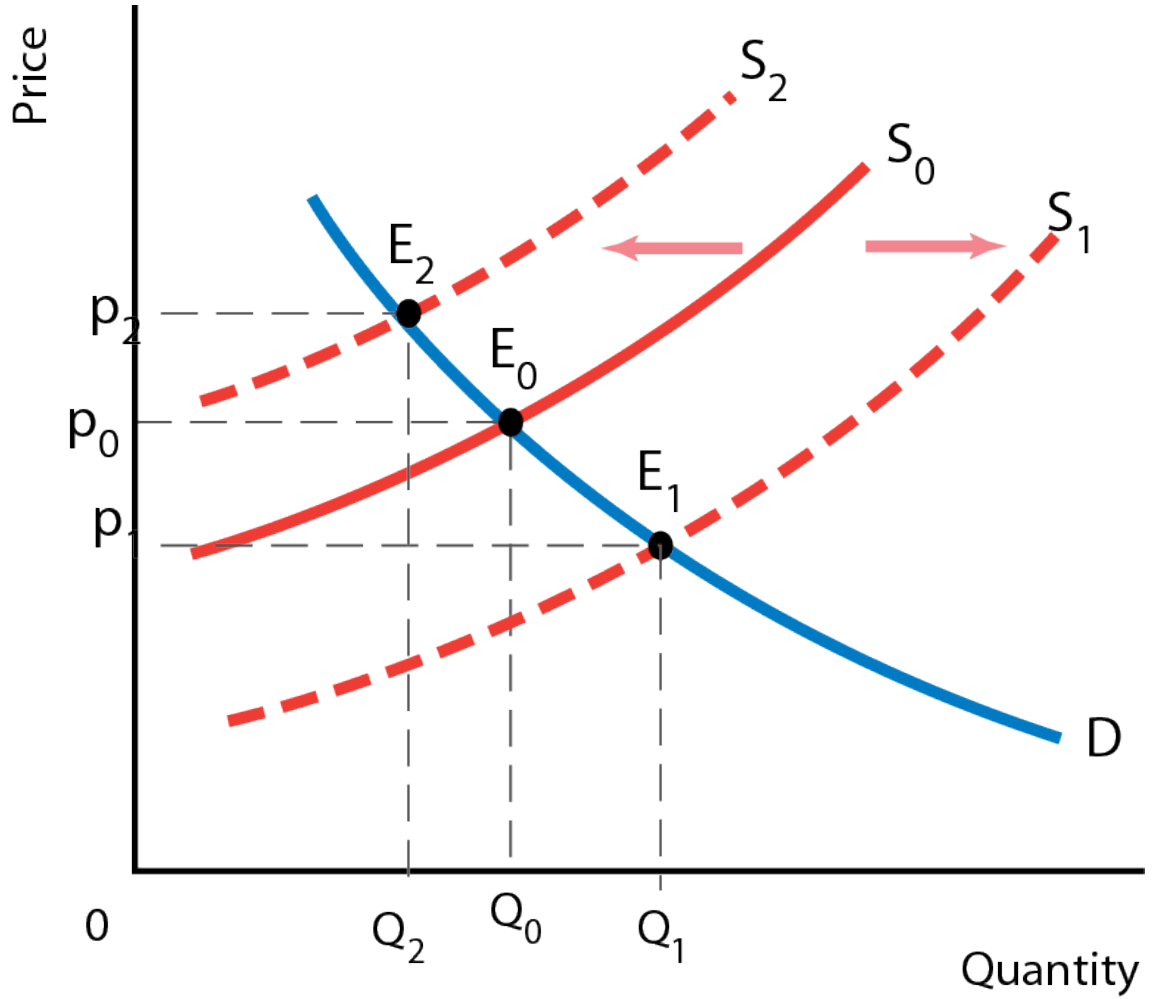


Changes in Market Prices

3. An increase in supply causes a decrease in the equilibrium price and an increase in the equilibrium quantity.

4. A decrease in supply causes an increase in the equilibrium price and a decrease in the equilibrium quantity.

Fig. 3-8(ii) **Shifts in the Supply Curve**



A change in supply or in the quantity supplied?

1. The price of Canadian-grown peaches skyrockets during an unusually cold summer that reduces the size of the peach harvest.

2. An increase in income leads to an increase in the price of beef and also to an increase in beef sales.

3. Technological improvements in the microchip lead to price reductions for laptop computers and an increase in computer sales.

4. Greater awareness of the health risks from smoking lead to a reduction in the price of cigarettes and to fewer cigarettes being sold.

Discussion questions

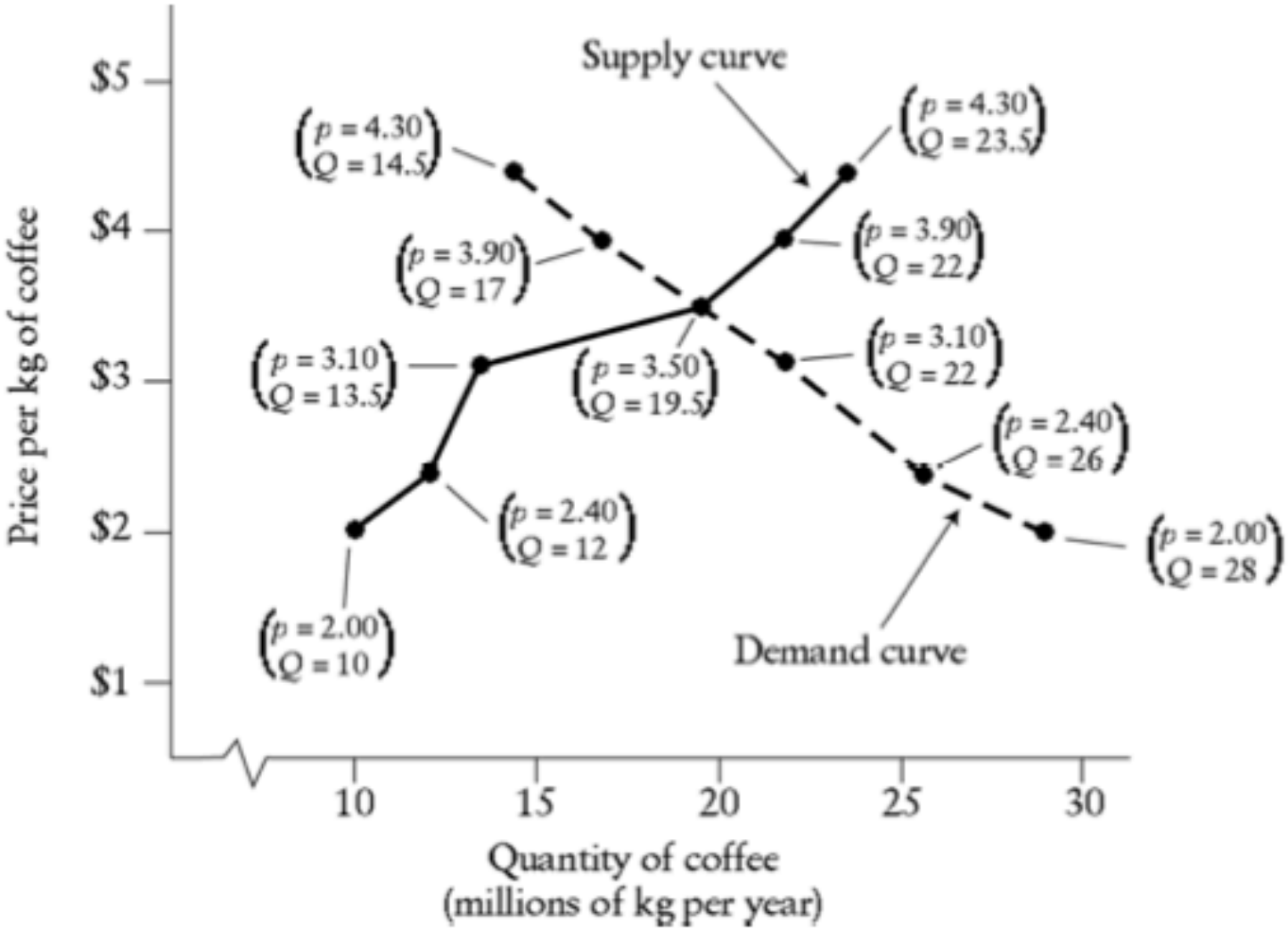
1. Suppose a government economist predicts that this spring's excellent weather will result in a larger crops of wheat and canola than farmers had expected. But the economist warns consumers not to expect prices to decrease because the cost of production is rising and foreign demand for Canadian crops is increasing. 'The classic pattern of supply and demand won't work this time', the economist says.

2. What would be the effect on the equilibrium price and quantity of marijuana if its sale and consumption were legalized?

Demand and Supply of Coffee Beans

Price per Kg	Q demanded (millions Kg/year)	Q supplied
$2.00	28	10
$2.40	26	12
$3.10	22	13.5
$3.50	19.5	19.5
$3.90	17	22
$4.30	14.5	23.5

Demand and Supply of Coffee Beans



The Algebra of Market Equilibrium

demand : $Q^* = a - bp^*$

supply : $Q^* = c + dp^*$

2 equations and 2 unknowns

$$a - bp^* = c + dp^*$$

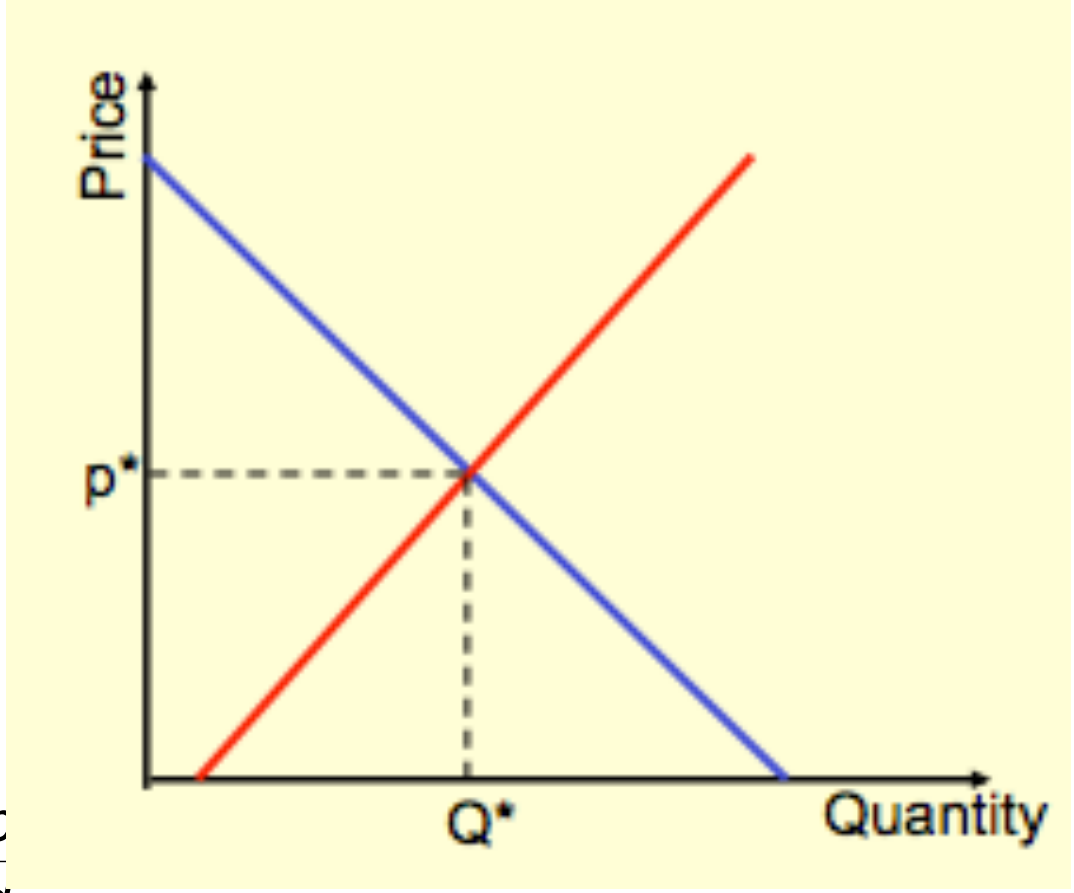
$$a - c = (b + d)p^*$$

Solving for p* :

$$p^* = \frac{a - c}{b + d}$$

Solving for Q^* :

$$Q^* = a - bp^* = a - \frac{b(a - c)}{(b + d)} = \frac{(ad + b}{b + d}$$



The Algebra of Market Equilibrium

demand: $Q^* = 18 - 3p^*$

supply: $Q^* = 2 + 5p^*$

2 equations and 2 unknowns

$$18 - 3p^* = 2 + 5p^*$$

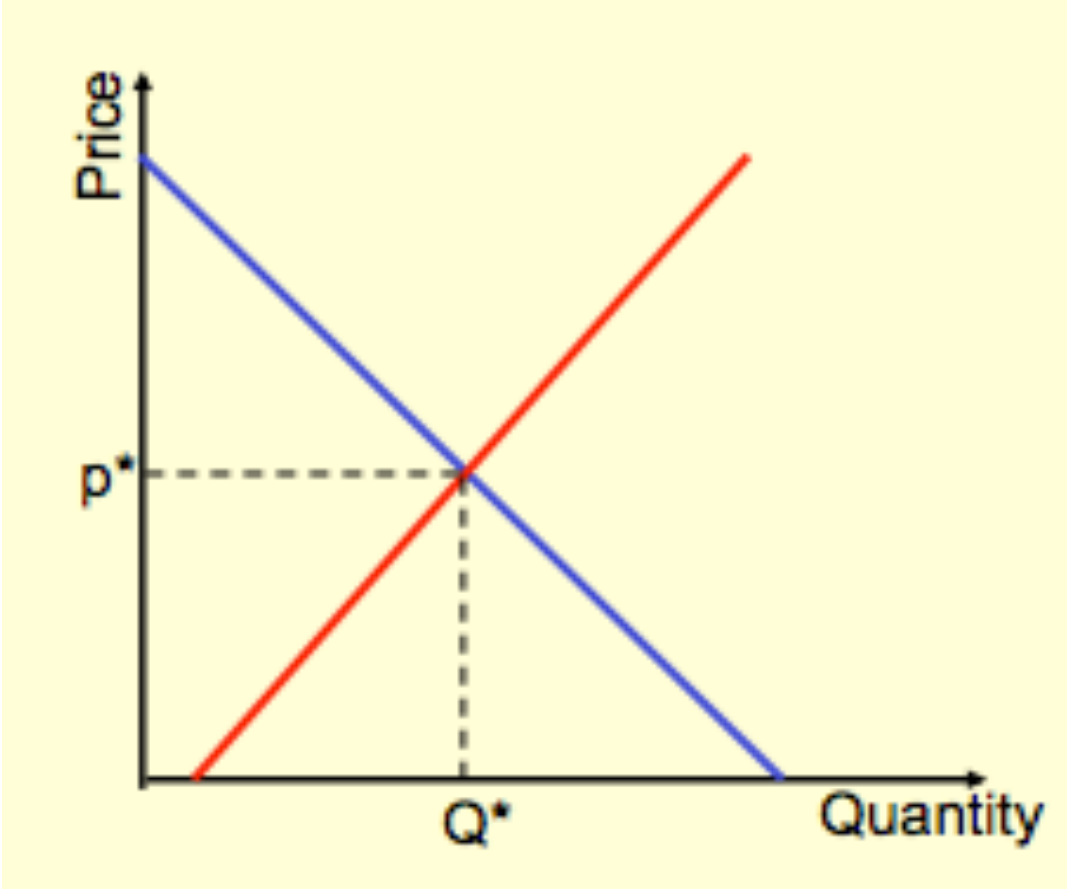
$$16 = 8p^*$$

Solving for p*:

$$p^* = \frac{16}{8} = 2$$

Solving for Q^*:

$$Q^* = 18 - 3(2) = 12$$



Relative Prices and Inflation

The **absolute price** of a product is the amount of money that must be spent to acquire one unit of that product.

A **relative price** is the price of one good in terms of another.

Demand and supply curves are drawn in terms of **relative prices** rather than **absolute prices**.

Exercise

Early in 2011, the world price of copper reached a record high of over $ 10 000 per tonne. Two events appeared to lie behind this high price. First, China's rapid economic growth and the massive building of infrastructure. Second, an explosion closed a mayor Chilean port used for shipping a substantial fraction of the world's copper output.

Use a demand-and-supply diagram to illustrate these events in the copper market, and explain how each event shifts either the demand curve or the supply curve.

Exercise

There has been explosive growth in the demand for the green leafy vegetable kale in recent years, as consumers learned of its health benefits. The demand curve has shifted significantly to the right. However, the price of a bunch of kale in the grocery store has been fairly stable.

Draw a demand and supply diagram showing the market for kale and explain how the price of kale could remain stable in the face of such an enormous growth in demand.

Ice Storms, Hurricanes, and Economics

January 1998: Ice storm affecting Quebec, Eastern Ontario and parts of United States. Electric power systems devastated. Increase demand for portable gas-powered generators.

August 2005: Hurricane Katrina interrupted the local production of oil. Temporary reduction in the world supply of oil.