3

DEMAND AND SUPPLY
A market is any arrangement that enables buyers and sellers to get information and do business with each other.

A competitive market is a market that has many buyers and many sellers so no single buyer or seller can influence the price ⇒ price cannot be manipulated or speculated.

The money price of a good is the amount of money needed to buy it.

The relative price of a good—the ratio of its money price to the money price of the next best alternative good—is its opportunity cost. ⇒ ratio
Demand

you demand something, then you

1. Want it,

2. Can afford it, and

3. Have made a definite plan to buy it.

*Wants* are the unlimited desires or wishes people have for goods and services. Demand reflects a decision about which wants to satisfy.

The **quantity demanded** of a good or service is the **amount** that consumers plan to buy during a particular **time period**, and at a particular **price**.
The Law of Demand

The law of demand states:

Other things remaining the same (ceteris paribus):

=> the higher the price of a good, the smaller is the quantity demanded; and …

=> the lower the price of a good, the larger is the quantity demanded.

PRICE ↑ : QUANTITY ↓
Demand

BECAUSE...

1. Substitution Effect

When the relative price (opportunity cost) of a good or service rises, people seek substitutes for it, so the quantity demanded of the good or service decreases.

E.g. coffee and tea

If the price of coffee increase, so the demand for tea will be increased
Demand

BECAUSE…

2. **Income Effect** => “purchasing power” value for money

When the price of a good or service rises relative to income, people cannot afford all the things they previously bought, so the quantity demanded of the good or service decreases.
Demand Curve and Demand Schedule

The term **demand** refers to the entire relationship between the price of the good and quantity demanded of the good.

A **demand curve** shows the **relationship** between the **quantity demanded of a good** and its **price** when all other influences on consumers’ planned purchases remain the same.
A rise in the price, other things remaining the same, brings:

- a decrease in the quantity demanded
- a movement up along the demand curve.

A fall in the price, other things remaining the same, brings an increase in the quantity demanded and a movement down along the demand curve.
Demand

Willingness and Ability to Pay

A demand curve is also a willingness-and-ability-to-pay curve.

The smaller the quantity available, the higher is the price that someone is willing to pay for another unit.

Willingness to pay measures marginal benefit.
A Change in Demand

When some influence on buying plans other than the price of the good changes, there is a change in demand for that good.

The quantity of the good that people plan to buy changes at each and every price, so there is a new demand curve.

- When demand increases, the demand curve shifts rightward.
- When demand decreases, the demand curve shifts leftward.
A Movement along the Demand Curve

When the price of the good changes and other things remain the same, the quantity demanded changes and there is a movement along the demand curve.
The six main factors that change demand of a good are:

- The prices of related goods produced
  - substitution i.e. tea-and-coffee
    ✓ The higher the price of tea, the greater the demand for coffee
  - complement i.e. car-and petrol (or spare part)
    ✓ The higher the price of petrol, the smaller the demand of car

- Expected future prices:
  ✓ The higher the expected prices, the greater the demand today
  ✓ The lower the expected prices, the lesser the demand today
Demand

The six main factors that change demand of a good are:

- **Income:**
  - ✔ The higher the income, the greater the demand

- **Expected future income:**
  - ✔ The higher the expected income, the greater the demand now

- **Population:**
  - ✔ The larger the population, the higher the demand

- **Preference**
  - ✔ The more the people have the same preference, the greater the demand
Prices of Related Goods

A **substitute** is a good that can be used in place of another good. E.g. tea and coffee

A **complement** is a good that is used in conjunction with another good. E.g. car and petrol

When the price of a substitute for an energy bar rises or when the price of a complement of an energy bar falls, the demand for energy bars increases.
Demand

Expected Future Prices

If the price of a good is expected to rise in the future, current demand for the good increases and the demand curve shifts rightward.

Income

When income increases, consumers buy more of most goods and the demand curve shifts rightward.

A normal good is one for which demand increases as income increases. Goods that have been used in common. E.g. potato

An inferior good is a good for which demand decreases as income increases. Goods that have been used by low income group of people. E.g. tapioca
Expected Future Income and Credit

When income is expected to increase in the future or when credit is easy to obtain, the demand might increase now.

Population

The larger the population, the greater is the demand for all goods.

Preferences

People with the same income have different demands if they have different preferences.
Demand

A Shift of the Demand Curve

If the price remains the same but one of the other influences on buyers’ plans changes:

- demand changes and the demand curve shifts.
Figure 3.2 shows an increase in demand.

Because an energy bar is a normal good, an increase in income increases the demand for energy bars.

<table>
<thead>
<tr>
<th>Original demand schedule</th>
<th>New demand schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Original income</strong></td>
<td><strong>New higher income</strong></td>
</tr>
<tr>
<td>Price (dollars per bar)</td>
<td>Price (dollars per bar)</td>
</tr>
<tr>
<td>Quantity demanded</td>
<td>Quantity demanded</td>
</tr>
<tr>
<td>(millions of bars per week)</td>
<td>(millions of bars per week)</td>
</tr>
</tbody>
</table>

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.50</td>
<td>22</td>
<td>A'</td>
<td>0.50</td>
</tr>
<tr>
<td>B</td>
<td>1.00</td>
<td>15</td>
<td>B'</td>
<td>1.00</td>
</tr>
<tr>
<td>C</td>
<td>1.50</td>
<td>10</td>
<td>C'</td>
<td>1.50</td>
</tr>
<tr>
<td>D</td>
<td>2.00</td>
<td>7</td>
<td>D'</td>
<td>2.00</td>
</tr>
<tr>
<td>E</td>
<td>2.50</td>
<td>5</td>
<td>E'</td>
<td>2.50</td>
</tr>
</tbody>
</table>
If a firm supplies a good or service, then the firm
1. Has the **resources** and the **technology** to **produce** it,
2. Can **profit** from producing it, and
3. Has made a definite plan to produce and **sell** it.

**Resources** and **technology** determine what it is possible to produce. Supply reflects a decision about which technologically feasible items to produce.

The **quantity supplied of a good or service** is the amount that producers plan to **sell** during a given **time period** at a particular **price**.
The law of supply states:

Other things remaining the same,

- the higher the price of a good, the greater is the quantity supplied; and
- the lower the price of a good, the smaller is the quantity supplied.

The law of supply results from the general tendency for the marginal cost of producing a good or service to increase as the quantity produced increases (Chapter 2, page 35).

Producers are willing to supply a good only if they can at least cover their marginal cost of production.
Supply Curve and Supply Schedule

The term supply refers to the entire relationship between the quantity supplied and the price of a good.

The supply curve shows the relationship between the quantity supplied of a good and its price when all other influences on producers’ planned sales remain the same.
Figure 3.4 shows a supply curve of energy bars.

A rise in the price, other things remaining the same, brings an increase in the quantity supplied.
Supply

Minimum Supply Price

A supply curve is also a minimum-supply-price curve.

As the quantity produced increases, marginal cost increases.

- The lowest price at which someone is willing to sell an additional unit rises.
- This lowest price is marginal cost.

Willingness to sell at lowest price measures marginal cost.
A Change in Supply

When some influence on selling plans other than the price of the good changes, there is a change in supply of that good.

The quantity of the good that producers plan to sell changes at each and every price, so there is a new supply curve.

- When supply increases, the supply curve shifts rightward.
- When supply decreases, the supply curve shifts leftward.
A Movement Along the Supply Curve

When the price of the good changes and other influences on sellers’ plans remain the same, the quantity supplied changes and there is a movement along the supply curve.
Supply

The six main **factors that change supply** of a good are:

- The prices of factors of production ~ cost of production
  - The higher the cost, the smaller the supply

- The prices of related goods produced
  - ~ substitution i.e. tea-and-coffee
    - The higher the price of tea, the lower the supply of coffee
  - ~ complement i.e. car-and petrol (spare part)
    - The higher the price of petrol, the greater the supply of car
The six main factors that change supply of a good are:

- **Expected future prices:**
  - The higher the expected prices, the lesser the supply today

- **The number of suppliers:**
  - The more the suppliers, the more the supply

- **Technology:**
  - The better the technology, the higher the supply

- **State of nature e.g. weather, natural disaster – hurricane**
  - The more the natural disaster, the lower the supply
e.g. Increase in number of suppliers

<table>
<thead>
<tr>
<th>Original supply schedule</th>
<th>New supply schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old technology</td>
<td>New technology</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Price (dollars per bar)</strong></td>
<td><strong>Quantity supplied (millions of bars per week)</strong></td>
</tr>
<tr>
<td>A 0.50</td>
<td>0</td>
</tr>
<tr>
<td>B 1.00</td>
<td>6</td>
</tr>
<tr>
<td>C 1.50</td>
<td>10</td>
</tr>
<tr>
<td>D 2.00</td>
<td>13</td>
</tr>
<tr>
<td>E 2.50</td>
<td>15</td>
</tr>
</tbody>
</table>

Supply of energy bars (original) → Supply of energy bars (new)
Prices of Factors of Production

If the price of a factor of production used to produce a good rises, the minimum price that a supplier is willing to accept for producing each quantity of that good rises.

So a rise in the price of a factor of production decreases supply and shifts the supply curve leftward.
Prices of Related Goods Produced

A *substitute in production* for a good is another good that can be produced using the same resources.

The supply of a good increases if the price of a substitute in production falls.

Goods are *complements in production* if they must be produced together.

The supply of a good increases if the price of a complement in production rises.
Expected Future Prices

If the price of a good is expected to rise in the future, supply of the good today decreases and the supply curve shifts leftward.

The Number of Suppliers

The larger the number of suppliers of a good, the greater is the supply of the good. An increase in the number of suppliers shifts the supply curve rightward.
Technology

Advances in technology create new products and lower the cost of producing existing products.

So advances in technology increase supply and shift the supply curve rightward.

The State of Nature

The state of nature includes all the natural forces that influence production—for example, the weather.

A natural disaster decreases supply and shifts the supply curve leftward.
A Shift of the Supply Curve

If the price remains the same but some other influence on sellers’ plans changes, supply changes and the supply curve shifts.
Market Equilibrium

**Equilibrium** is a situation in which opposing forces balance each other.

**Equilibrium** in a market occurs when the **price** balances the plans of buyers and sellers.

The **equilibrium price** is the price at which the **quantity demanded** equals the **quantity supplied**. \( Q_D = Q_S \)

The **equilibrium quantity** is the **quantity bought and sold** at the equilibrium price.

- Price regulates buying and selling plans.
- Price adjusts when plans don’t match.
Market Equilibrium

Figure 3.7 illustrates the market equilibrium—the price at which quantity demanded equals quantity supplied.

<table>
<thead>
<tr>
<th>Price (dollars per bar)</th>
<th>Quantity demanded (millions of bars per week)</th>
<th>Quantity supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>22</td>
<td>0</td>
</tr>
<tr>
<td>1.00</td>
<td>15</td>
<td>6</td>
</tr>
<tr>
<td>1.50</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>2.00</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>2.50</td>
<td>5</td>
<td>15</td>
</tr>
</tbody>
</table>
• Price Adjustments
  – At prices above the equilibrium price, a **surplus forces** the price down.
  – At prices below the equilibrium price, a **shortage forces** the price up.

<table>
<thead>
<tr>
<th>Price (dollars per bar)</th>
<th>Quantity demanded (millions of bars per week)</th>
<th>Quantity supplied (millions of bars per week)</th>
<th>Shortage (–) or surplus (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td>22</td>
<td>0</td>
<td>–22</td>
</tr>
<tr>
<td>1.00</td>
<td>15</td>
<td>6</td>
<td>–9</td>
</tr>
<tr>
<td><strong>1.50</strong></td>
<td><strong>10</strong></td>
<td><strong>10</strong></td>
<td><strong>0</strong></td>
</tr>
<tr>
<td>2.00</td>
<td>7</td>
<td>15</td>
<td>+6</td>
</tr>
<tr>
<td>2.50</td>
<td>5</td>
<td>5</td>
<td>+10</td>
</tr>
</tbody>
</table>

![Diagram showing supply and demand curves with equilibrium at $1.50 per bar.](diagram.png)
Predicting Changes in Price and Quantity

All Possible Changes in Demand and Supply

A change in demand or supply or both demand and supply changes the equilibrium price and the equilibrium quantity.
Predicting Changes in Price and Quantity

An Increase in Demand

Figure 3.8 shows that when demand increases the demand curve shifts rightward.

At the original price, there is now a shortage.

The price rises, and the quantity supplied increases along the supply curve.

\[ \text{DD} \uparrow : P \uparrow : Q_S \uparrow \]
Predicting Changes in Price and Quantity

Change in Demand with No Change in Supply

When demand increases, equilibrium price rises and the equilibrium quantity increases.
When demand decreases, the equilibrium price falls and the equilibrium quantity decreases.
Predicting Changes in Price and Quantity

An Increase in Supply

Figure 3.9 shows that when supply increases the supply curve shifts rightward.

At the original price, there is now a surplus. The price falls, and the quantity demanded increases along the demand curve.

SS $\rightarrow P \downarrow \rightarrow Q_D \uparrow$
Change in Supply with No Change in Demand

When supply increases, the equilibrium price falls and the equilibrium quantity increases.
When supply decreases, the equilibrium price *rises* and the equilibrium quantity *decreases*. 
An increase in demand and an increase in supply *increase* the equilibrium quantity.

The change in equilibrium price is *uncertain* because the increase in demand raises the equilibrium price and the increase in supply lowers it.

\[
\text{DD} < \text{SS} = \text{Ep decreases} \\
\text{DD} > \text{SS} = \text{Ep increases}
\]
Predicting Changes in Price and Quantity

Decrease in Both Demand and Supply

A decrease in both demand and supply decreases the equilibrium quantity.

The change in equilibrium price is uncertain because the decrease in demand lowers the equilibrium price and the decrease in supply raises it.

DD > SS = $E_p$ decreases
DD < SS = $E_p$ increases
Increase in Demand and Decrease in Supply

An increase in demand and a decrease in supply raises the equilibrium price.

The change in equilibrium quantity is uncertain because the increase in demand increases the equilibrium quantity and the decrease in supply decreases it.

\[ \uparrow \text{DD} < \downarrow \text{SS} = \text{Eq decreases} \]
\[ \uparrow \text{DD} > \downarrow \text{SS} = \text{Eq increases} \]
Predicting Changes in Price and Quantity

Decrease in Demand and Increase in Supply

A decrease in demand and an increase in supply *lowers the equilibrium price*.

The change in *equilibrium quantity* is *uncertain* because the decrease in demand decreases the equilibrium quantity and the increase in supply increases it.

\[
\text{DD} > \text{SS} = \text{Eq decreases} \\
\text{DD} < \text{SS} = \text{Eq increases}
\]
After studying this chapter, you will be able to:

- Describe a competitive market and think about a price as an opportunity cost
- Explain the influences on demand
- Explain the influences on supply
- Explain how demand and supply determine prices and quantities bought and sold
- Use the demand and supply model to make predictions about changes in prices and quantities