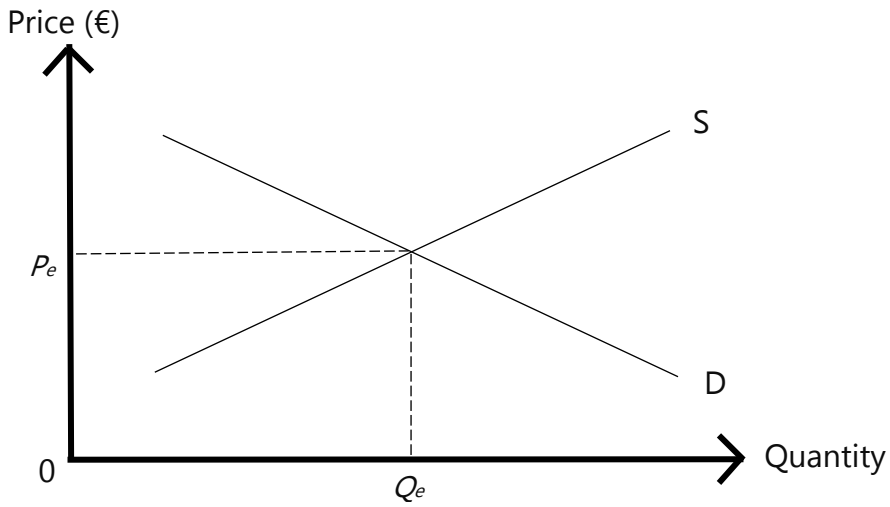
Topic 2 – The Price Mechanism and its application to particular markets



I can use my knowledge and understanding of the market forces of demand and supply and of the price elasticities of demand and supply to explain and predict price changes in a free market and to apply them to not only the commodities market but also to property market and the labour market.

Section A – Demand

Learning Outcomes:

1. Define effective demand.
2. State the law of demand.
3. Illustrate linear Demand curves (sketch, plot) with appropriate labelling of the axis to show the law of demand graphically.
4. Distinguish between an extension and a contraction of demand.

Demand refers to the *willingness* and *ability* of customers to buy a particular good or service at a particular price at a particular point in time.

- Willingness – consumers need to have a desire to want that good/service.
- Ability – they need to have enough money to buy the good/service they want.

For example, many people would be willing to buy a luxury car but they would not be considered as part of demand as they do not have the means to do so, that is, no ability. The higher the price of a product, the lower its demand tends to be.

Quantity Demanded – The amount of a good or service demanded at each price level.

The Law of Demand - In general, the quantity demanded falls as price rises while the quantity demanded rises at lower prices. For the vast majority of goods/services, the quantity demanded will rise each time the product price falls.

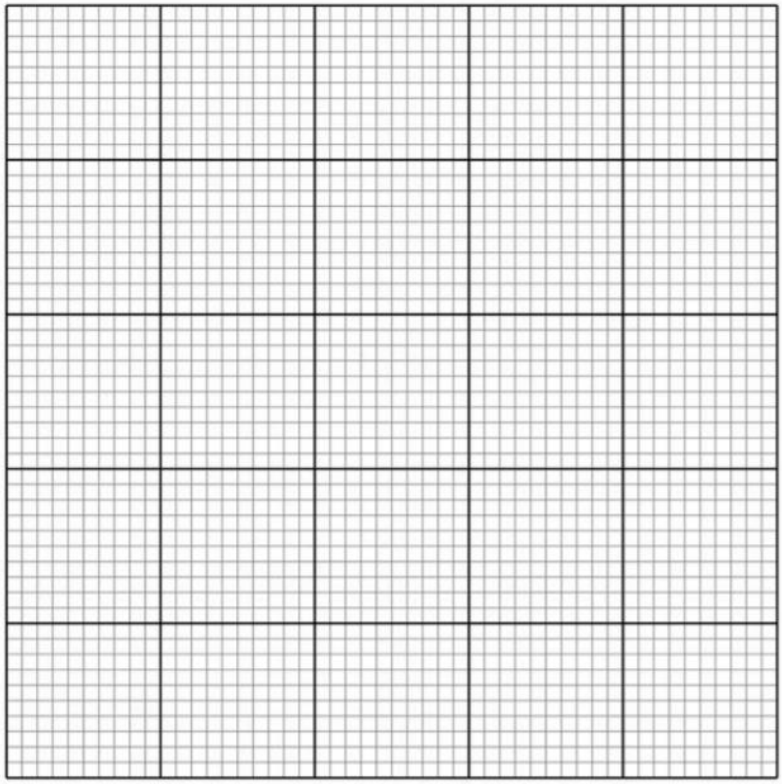
Read the following and answer the questions

Producers of Fila sliders have the following information about the number of sliders consumers will buy in a day given the possible prices. The market demand schedule is as follows:

Price (€)	Quantity Demanded (QTY D)
0	45
5	35
10	25
15	15
20	5

Questions

1. With price on the vertical axis, and quantity demanded per day along the horizontal axis, plot the market demand curve for Fila sliders and label it D.



2. Use the graph to work out how many sliders will be demanded at a price of
   - €18 - _____
   - €12 - _____

3. If Fila producers would like to sell the following amounts each day, at approximately what price should they be charged?
   - 40 sliders - _____
   - 18 sliders - _____

4. Comment on the shape of the demand curve. Why does it take this shape?

_____

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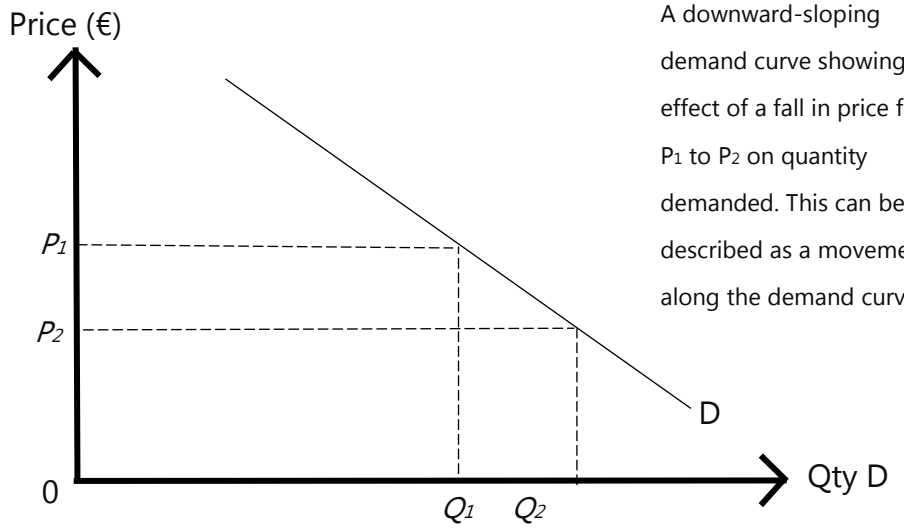
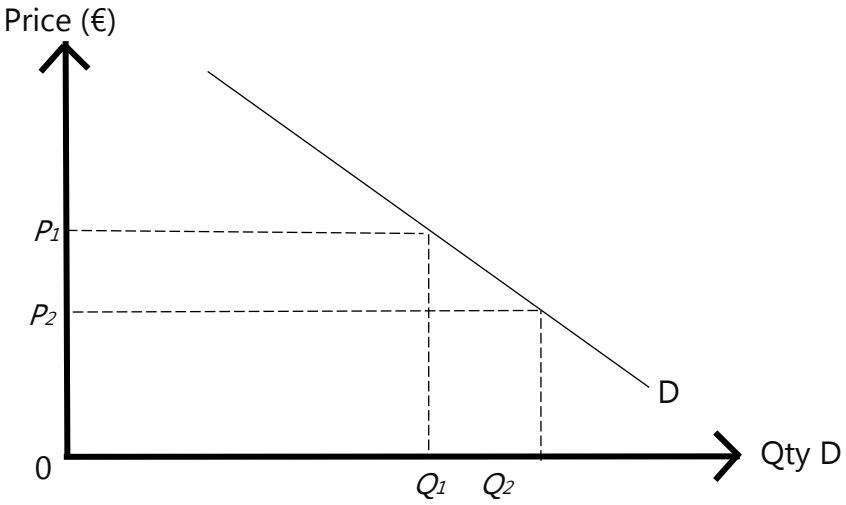


A downward-sloping demand curve showing the effect of a fall in price from P_1 to P_2 on quantity demanded. This can be described as a movement along the demand curve.

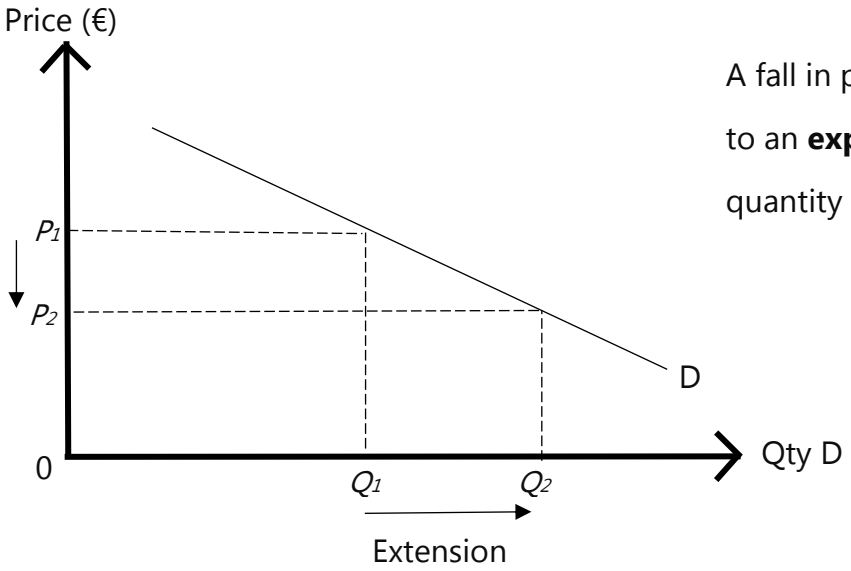
Movement along the Demand Curve – Extension or Contraction

The **Law of Demand** states that as price increases the quantity demanded for a particular product falls, and vice versa. The law of demand can also be shown by the downward sloping demand curve from left to right. It takes this form because of the **inverse** relationship between price and quantity.

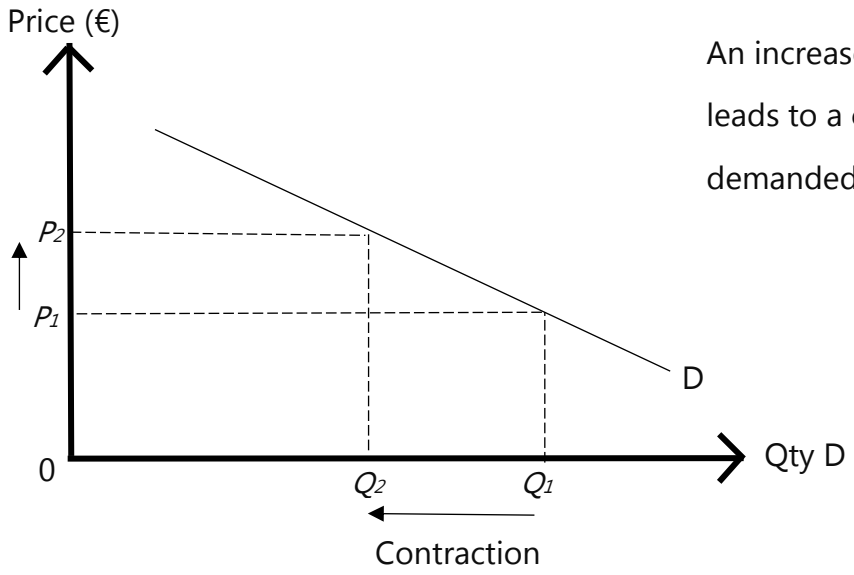
A change in the price of a good/service will cause a **movement** along the demand curve as shown by the diagram below. Consumers will move along their demand curve as price changes.



The **movement along** the demand curve can be of two types: an **extension** or **contraction**.

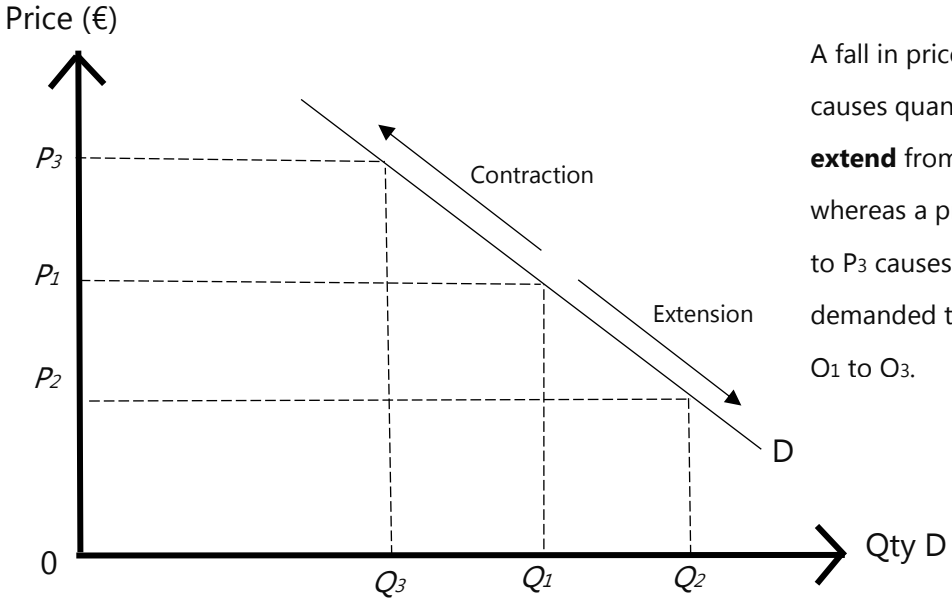


A fall in price from P_1 to P_2 leads to an **expansion/extension** in quantity demanded from Q_1 to Q_2.



An increase in price from P_1 to P_2 leads to a **contraction** in quantity demanded from Q_1 to Q_2.

Movement along the Demand curve - Recapitulation



A fall in price from P_1 to P_2 causes quantity demanded to **extend** from Q_1 to Q_2 whereas a price rise from P_1 to P_3 causes quantity demanded to **contract** from O_1 to O_3.

- A **Contraction** in demand means a fall in the quantity demanded for a product following an increase in price.
- An **Extension** in demand means an increase in the quantity demanded for a product following a fall in its price.

Exercise Set A

1. Plot a Demand Curve for heart-shaped mirrors from the demand schedule

Price (€)	Quantity Demanded
2	20
3	18
4	16
5	14
6	12
7	10
8	8

2. Answer the following questions

a. Define 'Demand'.

_____

_____

_____

b. Explain the difference between a 'human want' for a product and an 'effective demand' for a product.

_____

_____

_____

_____

c. Explain why market demand curves for most products are 'downward sloping'.

_____

_____

_____

Section B – Shifts in Demand

Learning Outcomes:

1. State the non-price factors that affect demand in commodity markets.
2. Explain what is meant by shifts of the Demand curve with or without using a graph.
3. Elaborate on the non-price factors that affect demand in commodity markets.
4. Relate shifts of the demand curve to changes in non-price factors in commodity markets.
5. Compare and contrast the non-price factors that affect demand in commodity markets.
6. Compare and contrast shifts of the Demand curve with movements along the Demand curve by means of a schedule and by means of a graph.

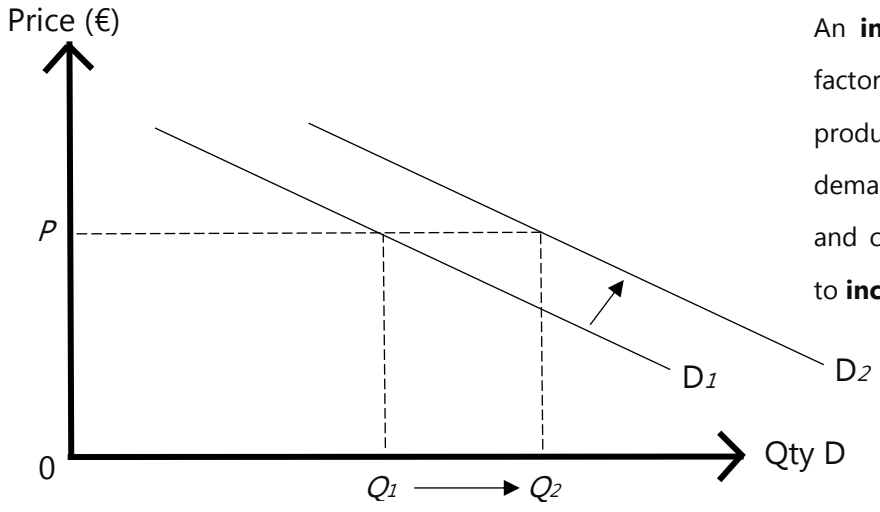
Up till now we have seen have seen how the quantity demand changes when there are changes in price. However, demand for a particular good/service can also change because of factors **other than a products' own price**. So, we are saying that a change in price is not the only factor that affects the quantity demanded.

Example - Let's compare the market demand for ice-creams in May with June

Price	Qty D in May	Qty D in June
5	10	20
4	15	25
3	22	32
2	31	41

The diagram above shows an _____ in demand for ice-cream even though the prices remained exactly the same. At each price, consumers are now willing to buy _____ ice-cream than before. So, we can say that the demand curve has _____ from _____.

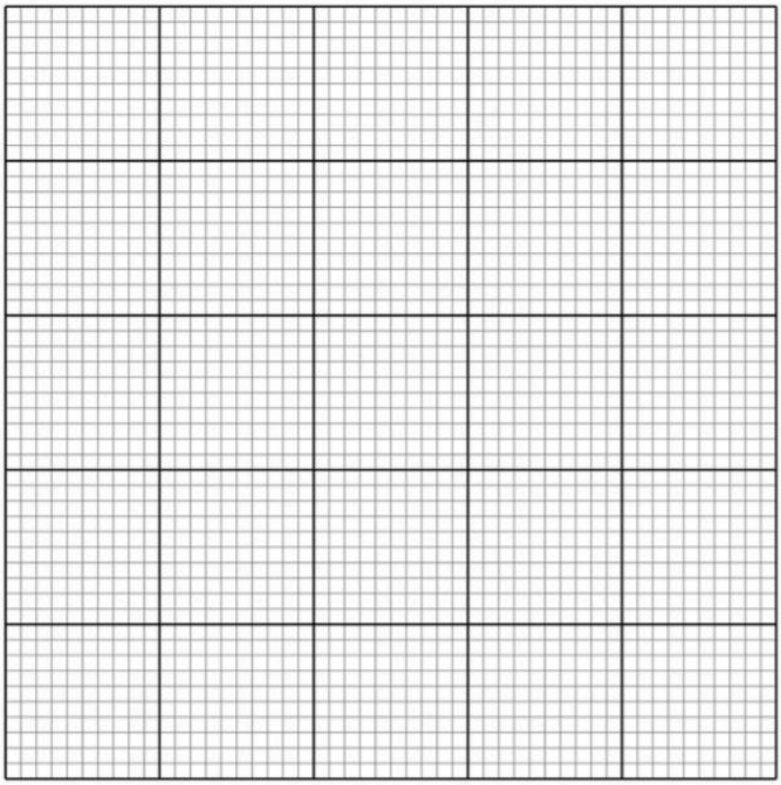
An **increase in demand** means that consumers now demand more of a product at every price than they did before. As a result, the market demand curve will **shift** outwards.



An **increase in demand** caused by factors other than changes in the product's own price causes the demand curve to **shift** from D_1 to D_2 and causing the quantity demanded to **increase** from Q_1 to Q_2.

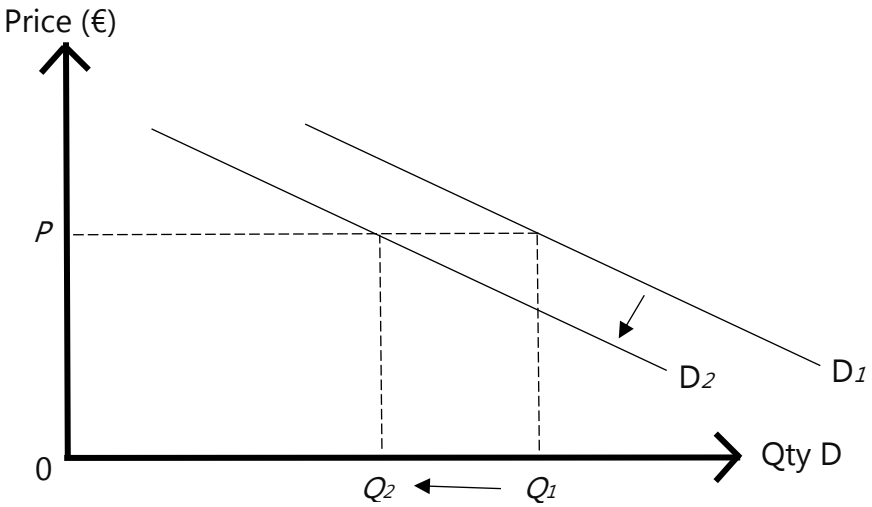
Example - Let's compare the market demand for ice-creams in September with October

Price	Qty D in Sept	Qty D in Oct
5	27	17
4	34	24
3	41	31
2	50	40



The diagram above shows an _____ in demand for ice-cream even though the prices remained exactly the same. At each price, consumers are now willing to buy _____ ice-cream than before. So, we can say that the demand curve has _____ from _____.

A **decrease in demand** means that consumers now demand less of a product at every price than they did before. As a result, the market demand curve shifts **inwards**.



A **fall in demand** caused by factors other than changes in the product's own price causes the demand curve to **shift** from D1 to D2 and causing the quantity demanded to **decrease** from Q1 to Q2.

Factors that cause changes/shifts in demand other than the product's own price

The non-price factors that affect demand are:

- Advertising
- Changes in Taste and Fashion
- Income
- Prices of complements
- Prices of substitutes
- Population

Advertising

Advertising is used to inform, remind, and persuade customers to buy a firm's product. For example, _____

_____

An effective **advertising** campaign will _____ demand causing an _____ shift of the demand curve.

Changes in Taste and Fashion

A good that has become fashionable means that consumers will _____the demand for the good. A good that is becoming out of trend, means that consumers will demand_____of the good.

Example – Read the following and fill-in where required

In Western Societies, people have decided to become much more health conscious and have started to take much more care of their health in order to live a healthy lifestyle. Nutrition advisors all over the world argue that the two main components of living a healthy lifestyle are: eating a well-balanced diet and to exercise for at least thirty minutes a day.

What will be the effect on demand for the following products?

- Pizza
- Gym membership
- Water bottles
- Fruits
- Running shoes
- Fizzy drinks
- Personal trainer service
- Fried chicken

Changes in Income

Disposable Income _____

_____

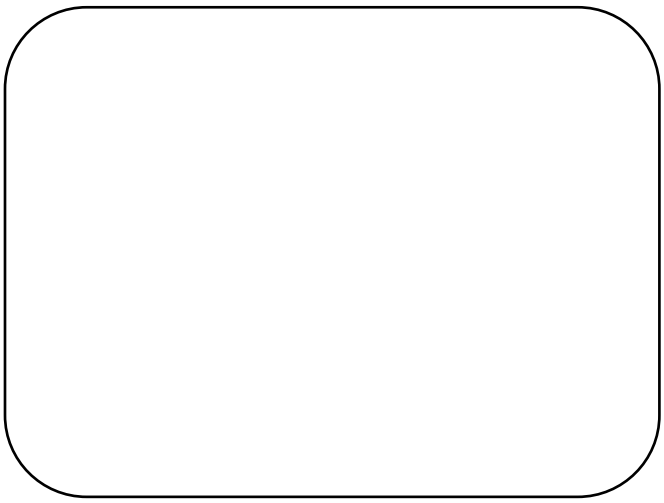
_____

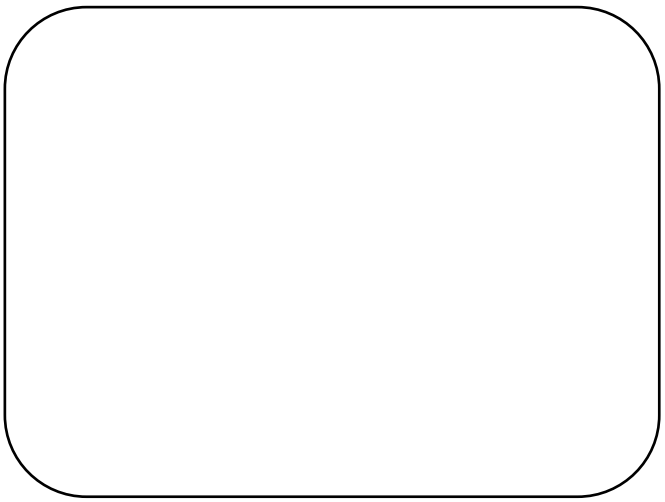
- Normal goods – Any good whose demand increases when income increases.
- Inferior goods – Any good whose demand increases when income falls.

Changes in Disposable Income – Normal Goods

An **increase** in the level of disposable income means that consumers have _____ money to spend. In the case of a normal good, Demand will _____ and so the Demand Curve will shift _____.

A **decrease** in the level of disposable income means that consumers have _____ money to spend. In the case of a normal good, Demand will _____ and so the Demand Curve will shift_____.

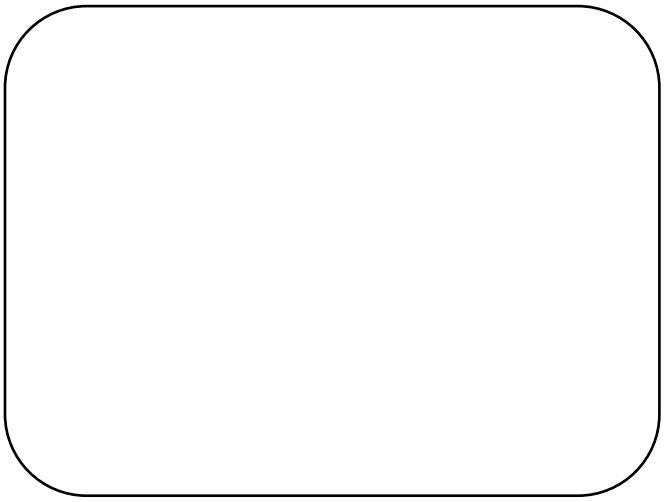


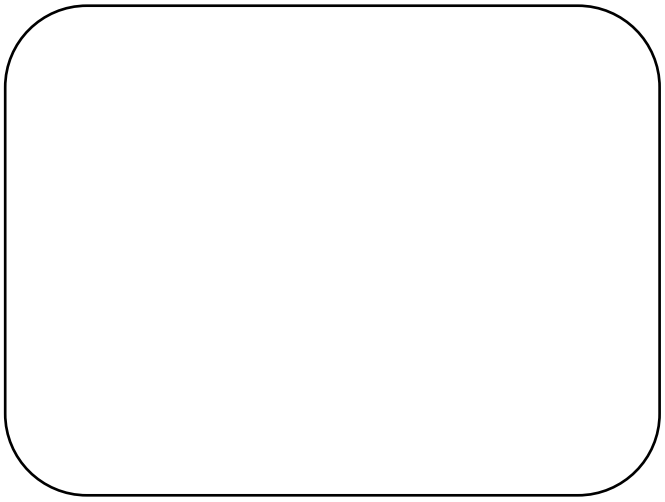


Changes in Disposable Income – Inferior Goods

An **increase** in the level of disposable income means that consumers have _____ money to spend. In the case of an inferior good, Demand will _____ and so the Demand Curve will shift _____.

A **decrease** in the level of disposable income means that consumers have _____ money to spend. In the case of an inferior good, Demand will _____ and so the Demand Curve will shift_____.





Prices of Substitutes and Complements

Substitutes are goods/services that can be used instead of each other, such as Coca-Cola or Pepsi and tea or coffee. In the eyes of consumers, such goods are similar and have the same use.

A fall in the price of a **substitute good** means a _____ in Demand for our product causing Demand to shift _____. Conversely, an increase in the price of a **substitute good** means an _____ in Demand for our product causing Demand to shift _____.

Complements are products that are jointly demanded and are often consumed together, such as tennis balls and tennis racquets or bread and butter.

A fall in the price of a **complementary good** means a _____ in Demand for our product causing Demand to shift _____. Conversely, an increase in the price of a **complementary good** means an _____ in Demand for our product causing Demand to shift _____.

Changes in Population

Population refers to the human inhabitants of a particular place. For example, the population of Malta is 495,000 and the population of the European Union is 446,000,000.

Changes in the population of a country come about in two ways:

1. By movements in **birth** and **death** rates.
2. By migration – the movement of people from one country to another.
   - **Immigration** - occurs when foreigners come to Malta to live and work here.
   - **Emigration** – occurs when Maltese people go to live and work abroad.

So, the changes in the population of a country can be explained by taking together the Natural Growth Rate (Birth – Deaths) and the Migration Rate (Immigration – Emigration).

At the moment, the population of Malta is increasing, so demand for products in general is _____.

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In Malta, population trends show that we have an **ageing population**. An ageing population is one where life expectancy is high and most people survive in the older age groups. As a result, demand for certain products will increase and demand for certain products will decrease due to the different needs and preferences of the elderly generation.

List down two goods or services that will see an increase in the demand for them, and list down another two goods or services that will see a decrease in the demand for them. Graphically show the shifts of the demand curve for each scenario.

Exercise Set B

1. Read and tick the appropriate column

The following table includes a different number of case scenarios. In each case you will have to identify whether the demand curve for the good/service being sold will shift inwards or outwards depending on the changes that have occurred.

	Inward Shift	Outward Shift
Winter is approaching for a deckchair operator at Blue Lagoon in Comino. The Demand curve for rental of deckchairs in Comino		
Kanye West has been regularly appearing in public wearing a blue baseball cap by a particular brand and the media has caught up on this. The Demand for the blue baseball cap		
Statistics show that people in 2020 had more Disposable Income. The Demand for processed noodles (inferior good)		
In Malta, it is estimated that 47 new cars are added to Maltese roads every day. The Demand for car fuel		
The population of Malta is increasing due to the number of foreigners who are coming to Malta to find employment. The Demand for milk		
The price of Pepsi has increased. The demand for Coca-Cola		
A firm producing coloured sand has produced a video for advertising purposes that has gone viral and is being sought out by consumers. The demand for coloured sand		

2. Using an appropriate demand diagram, explain the impact on the demand for Apple smartphones in the following cases

a. An increase in the price of Apple smartphones.
b. An increase in the price of Samsung smartphones.
c. An increase in consumer incomes.
d. A successful advertising campaign promoting Samsung's latest smartphones.

3. Read the following and answer the questions

The following demand schedule shows the price and quantity demanded of chocolate in June.

Price	Quantity Demanded
1	100
2	80
3	60
4	40
5	20

Questions

a. Plot the demand curve for chocolate on graph paper.
b. Chocolate is not as popular in July when compared to June because of summer heat. As a result, quantity demanded is reduced by 10 units at each price level. On the same graph, plot the demand curve for chocolates in July.
c. Explain why quantity demanded reduced by 10 at each price level from June to July.

4. Read the following and answer the question

A rise in the price of product A results in a fall in demand for product B and a rise in demand for product C. Which two of these products are complementary goods and which of the two products are substitutes?

Section C – Supply

Learning Outcomes:

1. Define Supply.
2. State the Law of Supply
3. Illustrate linear Supply Curves (sketch, plot) with appropriate labelling of the axis to show the law of supply graphically.
4. Distinguish between an extension and a contraction of supply.

Supply is the ability and willingness of firms to provide goods and services at given price levels. Firms will have more incentives to supply their products at higher prices so the higher the price, the more suppliers would be willing to supply on the market.

The Law of Supply states that the higher the price, the higher the quantity supplied. This happens for two main reasons:

1. Existing firms can earn higher profits if they supply more.
2. New firms are able to join the market if the higher price allows them to cover their production costs.

Read the following and answer the questions

The following table represents the market supply schedule for LCD Televisions each month.

Price (€)	Quantity Supplied (QTY S)
6	100
8	300
12	700
16	1,100
20	1,600

Questions

1. With price on the vertical axis, and quantity supplied along the horizontal axis, plot the market supply curve for televisions and label it S.

2. Use the graph to work out how many sliders will be demanded at a price of
   - €14 - _____
   - €10 - _____

3. If consumers wished to be able to buy 700 LCD televisions each month how much must they be prepared to pay for them? _____
   _____

4. The following table displays the costs and revenues involved in the production and sale of LCD televisions by all the producers in the market. Complete the table and explain why the market supply curve slopes upwards.

Output per month	Total Cost (€)	Total Revenue (€)	Profit (€)
100	600		
300	1,800		
700	4,000		
1,100	6,200		
1,600	9,000		

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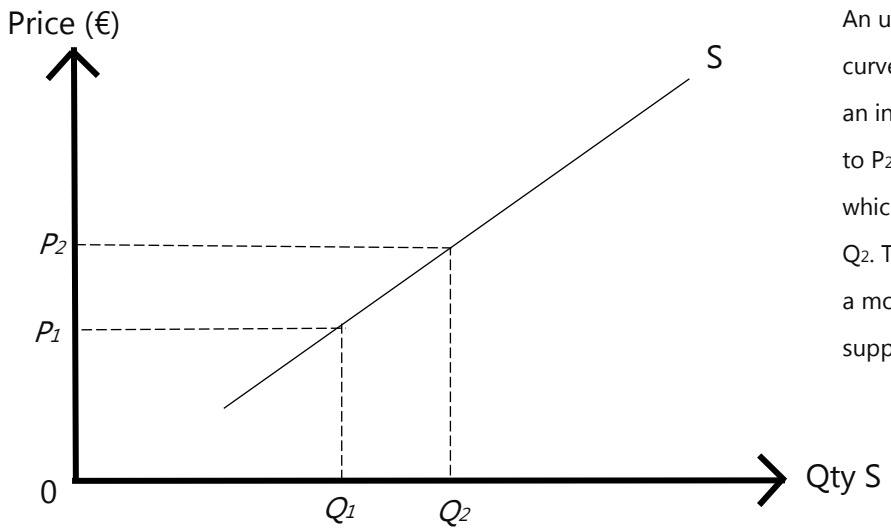


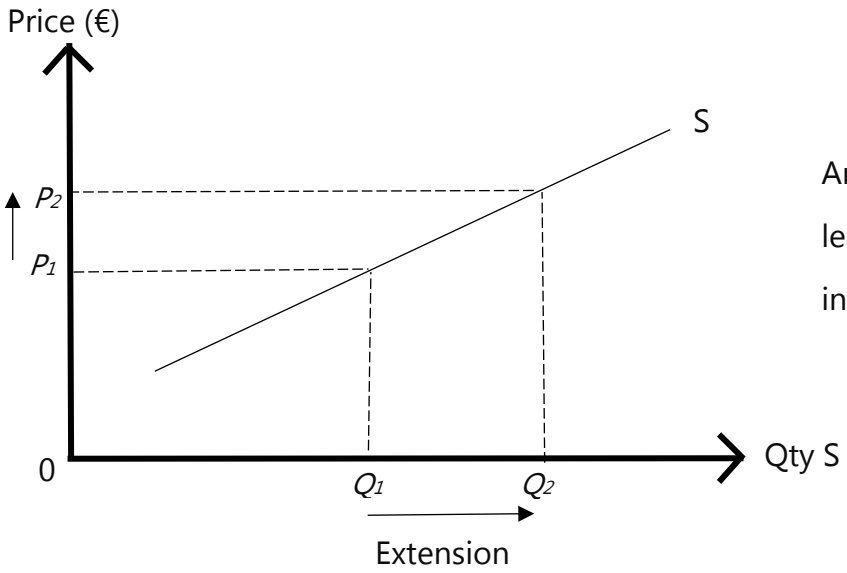
An upward-sloping supply curve showing the effect of an increase in price from P_1 to P_2 on quantity supplied which increased from Q_1 to Q_2. This can be described as a movement along the supply curve.

Movement along the Supply Curve – Extension or Contraction

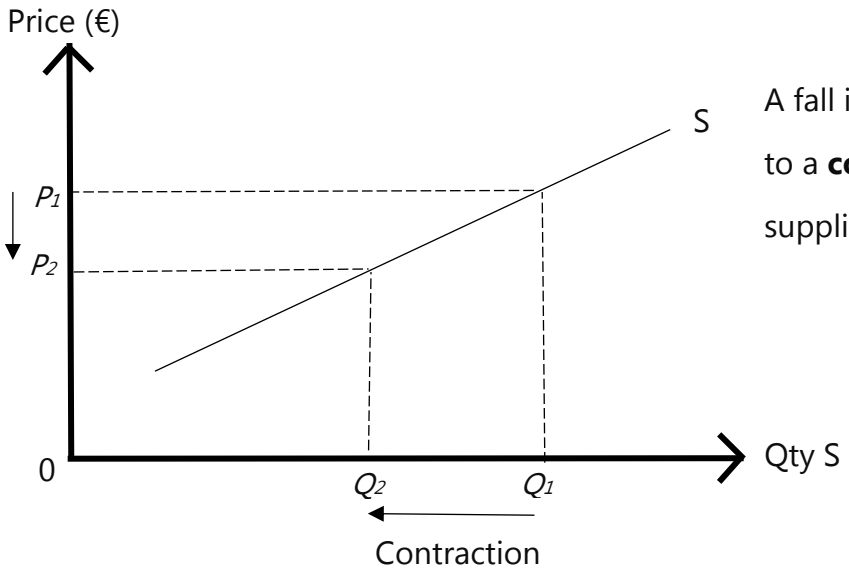
The Law of Supply states that the higher the price, the higher the quantity supplied. The law of supply can also be shown by the upward sloping supply curve from left to right. It takes this form because of the **direct** relationship between price and quantity supplied.

A change in the price of a good/service will cause a **movement** along the supply curve as shown by the diagram above. Suppliers will move along their supply curve as price changes.

The **movement along** the supply curve can be of two types: an **extension** or **contraction**.

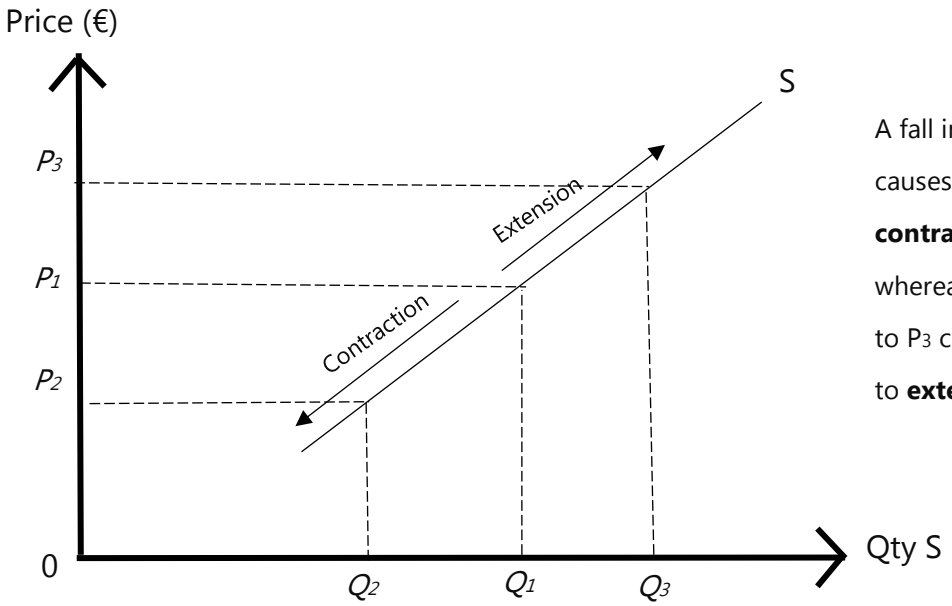


An increase in price from P_1 to P_2 leads to an **expansion/extension** in quantity supplied from Q_1 to Q_2.



A fall in price from P_1 to P_2 leads to a **contraction** in quantity supplied from Q_1 to Q_2.

Movement along the Supply curve - Recapitulation



A fall in price from P_1 to P_2 causes quantity supplied to **contract** from Q_1 to Q_2 whereas a price rise from P_1 to P_3 causes quantity supplied to **extend** from Q_1 to Q_3.

- An **extension** in Supply – as the price of a product rises, quantity supplied rises.
- A **contraction** in Supply – as the price of the product falls, quantity supplied falls.

Section D – Shifts in Supply

Learning Outcomes:

1. State the non-price factors that affect supply in commodity markets.
2. Explain what is meant by shifts of the Supply curve with or without using a graph.
3. Elaborate on the non-price factors that affect supply in commodity markets.
4. Relate shifts of the Supply curve to changes in non-price factors in commodity markets.
5. Compare and contrast the non-price factors that affect supply in commodity markets.
6. Compare and contrast shifts of the Supply curve with movements along the supply curve by means of a schedule and by means of a graph.

Up till now we have seen have seen how the quantity supplied changes when there are changes in price. However, supply for a particular good/service can also change because of factors **other than a products' own price**. So, we are saying that a change in price is not the only factor that affects the quantity supplied.

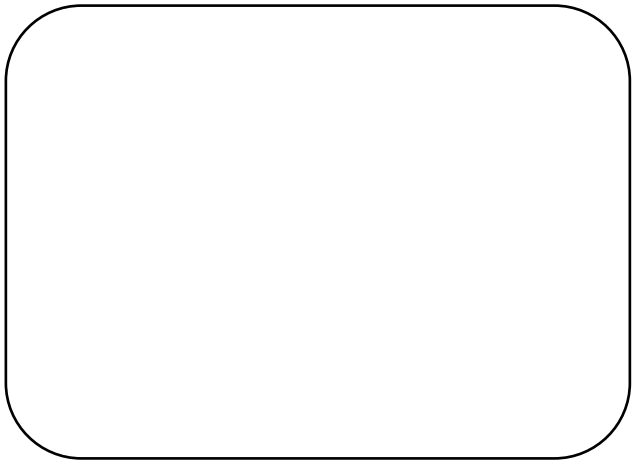
Factors that cause changes/shifts in supply other than the product's own price

The non-price factors that affect supply are:

- Technology
- Costs of production
- Indirect taxes
- Subsidies
- Natural factors

Technology

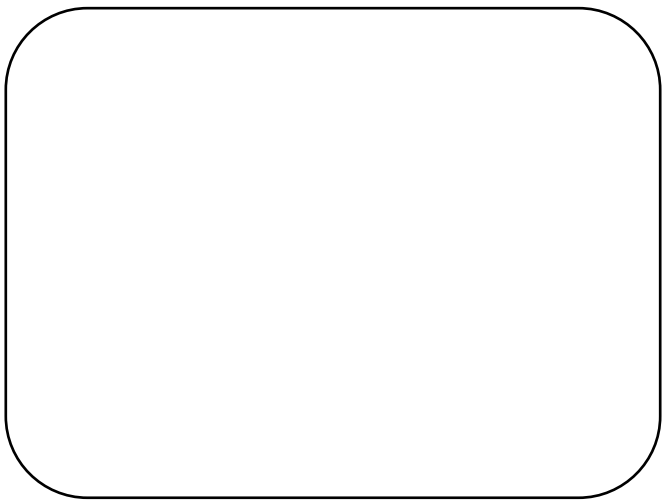
Technology is a science where knowledge is put in practice with the aim of making of making people's lives easier. Advancements in technology can improve the performance of machines, employees, and the methods of production that are used – make them more efficient. As a result of an advancement in technology, firms are able to produce (supply) more with available resources and will shift the supply curve _____.

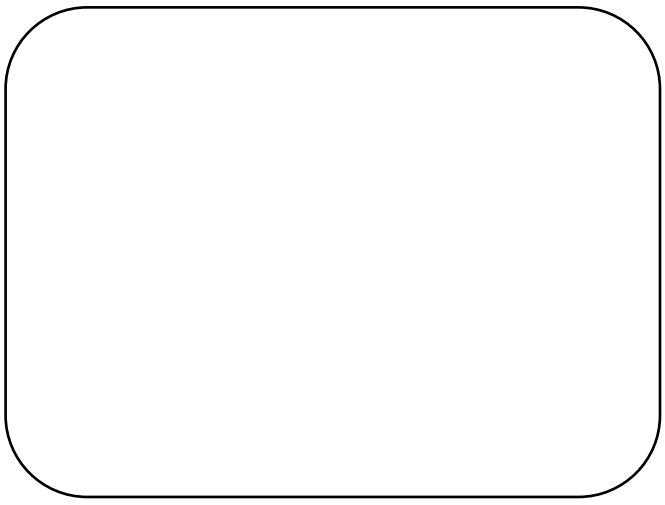


Costs of Production

Costs of production refers to all those costs involved in the production process of a good or service. Some examples include: _____.

If the cost of raw materials and other factors of production falls, then the supply curve will shift _____. Conversely, a rise in the costs of production will cause the supply curve to shift _____.





Indirect Taxation and Subsidies

Indirect taxation refers to taxation that is imposed on spending with the aim or increasing prices and reduce consumption of some products which may be considered as undesirable, such as cigarettes or alcohol. Some examples are V.A.T. and the excise duties on alcohol and tobacco. They are an additional cost of production to private firms and will therefore attempt to pass on the additional costs of these taxes by raising the prices of the products (will be explained further in detail later on). Thus, the addition of an indirect tax will shift supply _____.

A **Subsidy** is a financial support or payment provided by the government to private firms to encourage desirable activities. The effect of subsidies is to reduce the cost, and thus increase supply, shifting it _____.

Natural Factors

Natural disasters, diseases in crops and farm animals, forest fires, wars and terrorist attacks may all affect supply in these cases negatively. Changes in weather conditions affect mainly agricultural products. A good harvest means an increase in supply and, thus, an outward shift of the supply curve. A bad harvest means a decrease in supply.

Exercise Set C

1. Answer the following questions

a. What is meant by supply?

_____

_____

_____

b. What is the law of supply?

_____

_____

_____

c. How does a contraction in supply differ from an extension in supply?

_____

_____

_____

_____

d. What are the causes of shifts in the supply curve?

_____

_____

_____

Section E – Price Determination

Learning Outcomes:

1. Identify situations of equilibrium, excess demand (shortage), and excess supply from a schedule and from a graph.
2. Illustrate linear Demand and Supply curves (sketch and plot) to show situations of equilibrium, excess demand, and excess supply with appropriate labelling of the curves and the axis.
3. Distinguish between Demand and Supply.

The two market forces that determine the price of a product are Demand and Supply. If the two are combined, we can find the price at which quantity demanded equals quantity supplied – this is known as the **Market Equilibrium**.

The **Market Equilibrium** refers to the position where the demand for a product is equal to the supply of the product. At this point, an **equilibrium price** is established. This is the price at which there will be neither excess demand nor excess supply so an equilibrium is determined.

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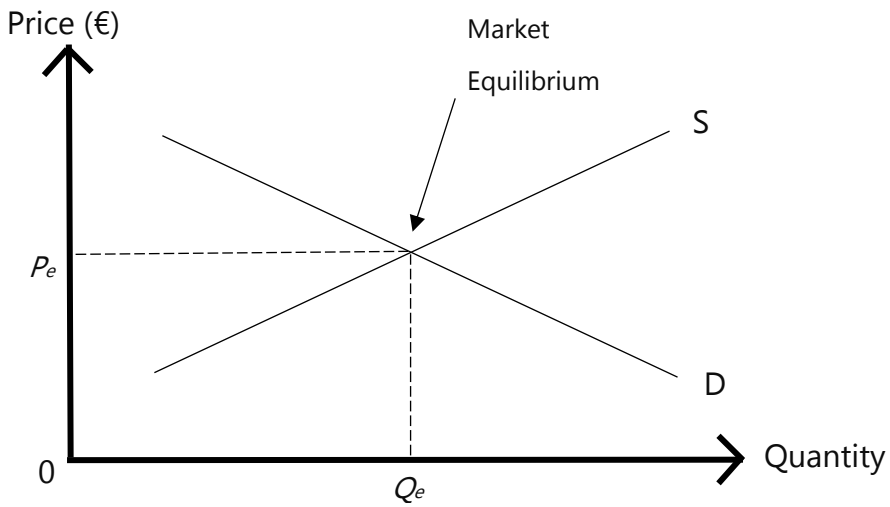
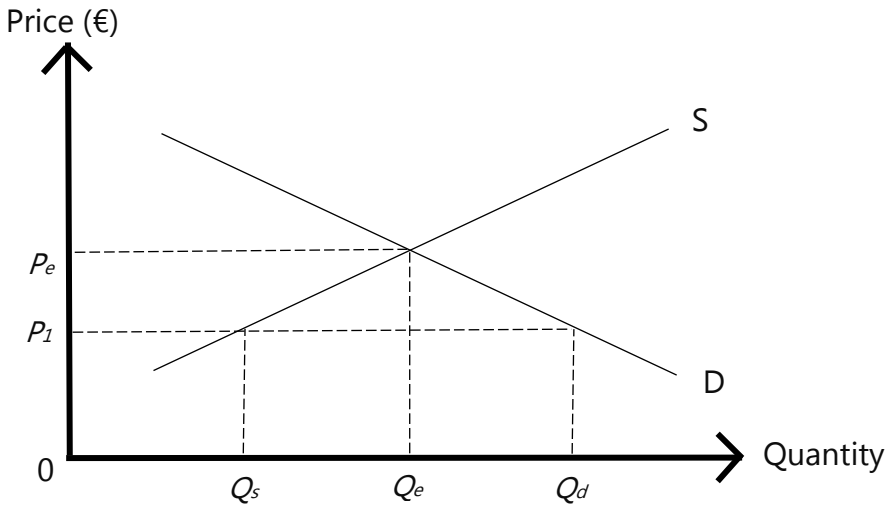


Market Disequilibrium occurs when the quantity demanded for a product is either higher or lower than the quantity supplied – this means that there could situations of shortage or wastage.

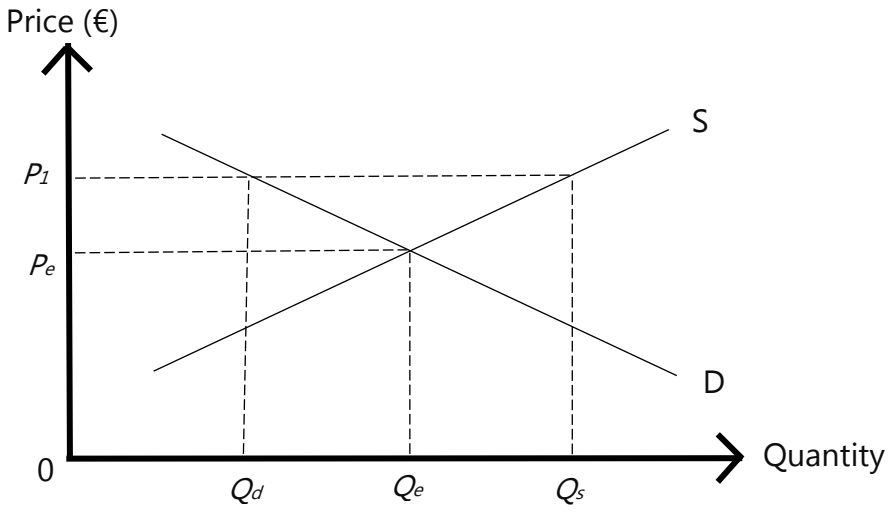
Excess Demand (Shortage)

Excess Demand refers to a situation where the selling price of the product is set too low – below the equilibrium price. As a result, a **shortage** is created where demand exceeds supply. At price P_1, demand is Q_d while supply is only Q_s. Thus, at this price, demand exceeds supply. This excess demand will tend to cause the price to rise back towards the equilibrium of price P_e.



Excess Supply (Surplus/Wastage)

Excess Supply refers to a situation where the selling price of the product is set too high – above the equilibrium price. As a result, a **surplus** is created where supply exceeds demand. At price P_1, demand is Q_s while supply is only Q_d. Thus, at this price, supply exceeds demand. This excess supply will tend to cause the price to fall back towards the equilibrium of price P_e.



Exercise Set D

1. Read the following and answer the questions

a. What is meant by market equilibrium?

_____

_____

b. What is the difference between excess demand and excess supply?

_____

_____

_____

_____

c. When do surpluses occur?

_____

_____

_____

d. When do shortages occur?

_____

_____

_____

2. Read the following and answer the questions

The table below shows the demand and supply schedule for a particular product.

Price (€)	Quantity Demanded	Quantity Supplied
0	80	0
10	60	20
20	40	40
30	20	60
40	0	80

a. Plot the demand and supply curves and identify the equilibrium price.

b. Calculate and identify the value of excess demand or supply if the price is €10.

_____

_____

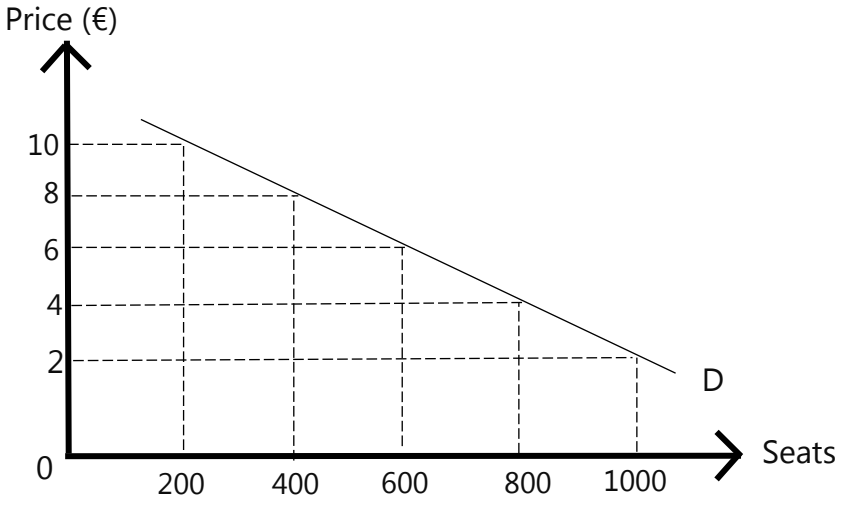
c. Calculate and identify the value of excess demand or supply if the price is €40.

_____

_____

3. Read the following and answer the questions

The Hall of Malta is a concert hall with a seating capacity of 800 seats. The graph shows the estimated demand for tickets when a Dixie D'Amelio is booked to give a performance in the hall.



a. What is the shape and position of the Supply curve?

b. What is the equilibrium price for the tickets?

c. If the organisers of the concert wish to obtain the maximum possible revenue, what price should they charge for the tickets? Explain your answer.

Section F – Price Changes

Learning Outcomes:

1. Assess the effect on the equilibrium price and equilibrium quantity of a shift of either the demand or supply curve or both as a result of a change in one or more non-price factors.
2. Compare and contrast a contraction or extension of demand with a contraction or extension of supply.
3. Compare and contrast shifts of demand and supply.

Changes in Market Prices will occur as a result of changes in demand or supply conditions – non-price factors that determine both supply and demand. Graphically, changes in price occurs because of **shifts** in the demand curve or the supply curve.

Shift in Demand

An increase in demand for a product can be caused by a number of reasons, such as

_____

_____

_____

Observation - _____

_____

_____

Book Page 64 Activity 2.12

Shift in Supply

An increase in supply for a product can be caused by a number of reasons, such as

_____

_____

_____

Observation - _____

_____

_____

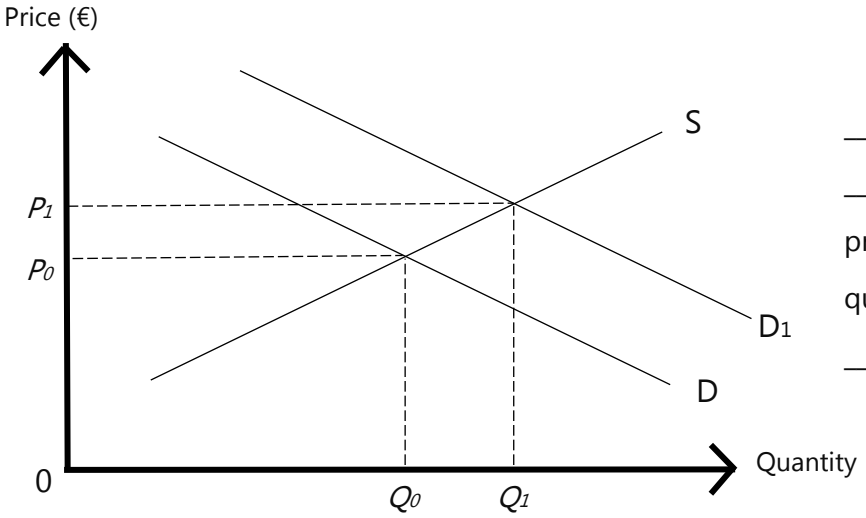
Book Page 65 Activity 2.13

Changes in demand and supply conditions will result in changes in the market and the allocation of resources to the production of goods and services.

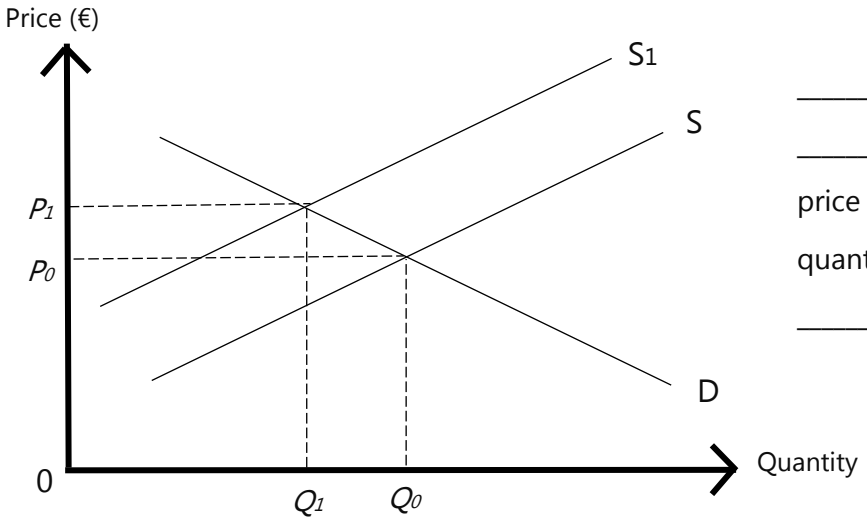
Exercise Set E

1. Read the following and fill-in the missing words

The diagrams below show the impact of changes in demand and supply conditions in two markets. For each one, fill in the missing words below to describe what has changes and the effect is has had on the equilibrium price and equilibrium quantity traded.



_____ has shifted _____. The equilibrium price has _____. The quantity traded has _____.



_____ has shifted _____. The equilibrium price has _____. The quantity traded has _____.

2. Using a demand and supply diagram, analyse the impact of the following on equilibrium price and equilibrium quantity

a. An increase in advertising for cosmetic products.
b. Bad weather affecting the harvest of avocadoes.
c. Backpacks becoming less fashionable in the eyes of consumers.

3. Read the following and answer the questions

The table below shows the supply of and demand for school bags.

Price (€)	Quantity Demanded (Units)	Quantity Supplied (Units)
20	100	10
30	90	30
40	80	50
50	70	70
60	60	90
70	50	110
80	40	130
90	30	150

Questions

a. Plot the demand and supply curves on graph paper.
b. What is the equilibrium price and equilibrium quantity? Show these on your graph.
c. List **TWO** factors that may shift the demand curve to the right and **ONE** factor that causes a movement along the demand curve.
d. What would happen to the original equilibrium price and quantity if the costs of production were to increase by €10 per unit?

Section G – Price Elasticity of Demand

Learning Outcomes:

1. Describe Price Elasticity of Demand (PED) and calculate the PED for different goods or services using the formula of PED.
2. Identify an elastic demand curve and inelastic demand curve.
3. Show, by way of the formula for PED, whether demand is relatively (fairly) elastic, relatively (fairly) inelastic, of unitary elasticity, perfectly elastic or perfectly inelastic.
4. Predict, by way of the determinants of PED, whether the demand for a given commodity is relatively elastic or relatively inelastic.
5. Show, by way of the relationship between the change in price and the change in total revenue/expenditure, whether demand is elastic, inelastic or unitary elastic and compare this result to calculations using the PED formula.
6. Evaluate the usefulness of knowing the PED of a commodity for the producers and for the government.

Elasticity of Demand measures the responsiveness or sensitivity of demand to a change in a variable that affects demand. For example:

- **Price Elasticity of Demand** (PED) measures the responsiveness/sensitivity of quantity demanded to a change in the product's own price.
- **Income Elasticity of Demand** (YED) measures the responsiveness/sensitivity of quantity demanded of a product to a change in disposable income.
- **Cross Elasticity of Demand** (XED) measures the responsiveness/sensitivity of quantity demanded of a product to a change in the price of ANOTHER product.

Price Elasticity of Demand (PED) measures the degree of responsiveness/sensitivity of quantity demanded of a product following a change in its own price.

- **Price Inelastic** – When a price change causes a relatively small change in quantity demanded. Buyers are not highly responsive to changes in the price of the product. This happens because of lack of substitutes for the product. For example, an increase in the price of electricity will not likely have a large effect on the demand for electricity.
- **Price Elastic** - When a price change causes a relatively substantial change in quantity demanded. Buyers are highly responsive to changes in the price of the product. This happens because of the availability of substitutes for the product. For example, an increase in the price of a vacation on a cruise liner to the Bahamas will have a large affect on its demand.

Products such as electricity and bread are essential items for many consumers. An increase in the price may only have a very small impact on the quantity demanded, Demand for such products is said to be relatively price inelastic. Conversely, demand for more luxurious, high-value products such as holidays or cars may decrease if their prices rise. Demand for these types of products tends to be price elastic.

Calculating PED

There are two approaches to measuring PED:

- $\text{PED} = \frac{\text{Percentage change in Quantity Demanded}}{\text{Percentage change in Price}}$

- $\text{PED} = \frac{\text{Original Price}}{\text{Original Quantity Demanded}} \times \frac{\Delta \text{ in Quantity Demanded}}{\Delta \text{ in Price}}$

Interpretation of results:

  - PED>1 ---- Elastic
  - PED<1 ---- Inelastic
  - PED=1 ---- Unitary Elastic – percentage change in price is proportionate to the percentage change in quantity demanded.
  - PED=0 – Perfectly Inelastic – a change in the price has no impact on quantity demanded.
  - PED=∞ --- Perfectly Elastic – a change in the price leads to zero quantity demanded.

Answer should always include a negative sign because of the negative relationship between price and quantity demanded – as price increases, qty demanded decreases – said to have an inverse relationship.

Diagram Sketches

Price Elasticity of Demand and Revenue

Revenue refers to the amount of money received by the supplier from the sale of a good and service and can be found by multiplying the price by the quantity sold.

A firm will wish to know if an increase in price will cause their total revenue to rise. However, if quantity demanded contacts a lot, revenue is more likely to fall.

Example – PED and Revenue

The two demand schedules below are for milk and a gaming console respectively.

Price per carton of milk	Quantity demanded per week
25 cents *	10,000
20 cents	10,500

Price per ABC-BOX	Quantity demanded per week
€ 500 *	1,000
€ 400	1,800

a. Calculate the PED for each product. Comment on their values.

b. Calculate the total revenue for milk and ABC-BOX at each price level.

_____

_____

_____

_____

_____

_____

_____

c. Would you advise milk sellers and ABC-BOX sellers to attempt the price-cut? Explain your answer.

_____

_____

_____

_____

_____

_____

_____

When demand is **inelastic**, total revenue changes in the same direction as prices, since the price change more than compensates for the change in quantity, which is represented by a steep demand curve. **Hence, increasing prices increases revenue.**

Elastic demand is much more sensitive to price, so small changes in price results in larger changes in quantities, changing revenue in the opposite direction to prices. **Hence, increasing prices decreases revenue**.

Determinants of PED

1. Degree of Necessity
   - The degree of necessity a product has will affect the value of its PED.
   - Products regarded as essentials (good, fuel, medicines⋯) tend to be relatively price _____ as people will still continue to buy them, even at higher prices.
2. Habit-forming goods
   - If a product is habit forming (addictive), then its PED tends to be relatively price _____.
3. The number of substitutes the product has
   - The greater the number of substitutes that are available and the closer they are, PED tends to be relatively price _____. This is because such products can easily be replaced if the price rises.
4. Proportion of income spent on the commodity
   - If a good or service requires the expenditure of a significant amount of a person's income (example car or kitchen), then the PED tends to relatively price _____.

Usefulness of PED

_____

_____

_____

_____

_____

_____

_____

Exercise Set F

1. Read the following and calculate PED

A cinema increases its average ticket price from €10 to €11. This leads to demand falling from 3,500 to 3,325 customers per week. Calculate PED and interpret your results.

2. Read the following and calculate PED

Assume the demand for football match tickets at €50 is 50,000 per week. If the football club raises its prices to €60 per ticket and demand subsequently falls to 45,000 per week, what is the value of PED?

3. Read the following and calculate PED

The following is the demand schedule for hairspray. Calculate PED assuming that the original price is €5.

Price of Hairspray	Quantity Demanded per week
€5	€100
€4	€110

4. Read the following and calculate PED

The following is the demand schedule for tin beans. Calculate PED assuming that the original price is 40 cents.

Price of Tin Beans	Quantity Demanded per week
40 cents	€1,000
30 cents	€1,500

5. Read the following and calculate PED

What is the Price Elasticity of Demand (PED) for a product for which a 10% price rise reduces sales volume by 5%?

6. Read the following and answer the questions

This question relates to Supply and Demand.

a. Define the terms 'Demand' and 'Supply' as used in microeconomics.
b. What is meant by Price Elasticity of Demand?
c. Draw a diagram of an inelastic demand curve.
d. Calculate the value of Price Elasticity of Demand for each of the following scenarios. Any percentage changes are to be worked out on the original figures.

i.	Price increases from €25 to €35 causing quantity demand to decrease from 100 to 40.
ii.	Price decreases from €75 to €50 causing quantity demanded to increase from 125 to 150.

e. With references to each of your answers in the question above, explain whether demand is inelastic, elastic or unitary elastic.
f. Why is it important for sellers to be aware of price elasticity of demand of the products they are selling?

7. Read the following and answer the questions

The reason why people reduce smoking in response to increase in the price of tobacco products has been a matter of some speculation. Depending on the size of the price increase, reduced consumption of tobacco products following increases in tobacco taxes can be quite substantial. In 1999, a World Bank review concluded that, all else being equal, price rises of about 10% would on average reduce tobacco consumption by about 4% in developed countries and about 8% in developing countries. The review conducted by the International Agency for Research on Cancer published in 2011 concluded that studies on the impact of price increases on total demand find a price elasticity of about –0.4.

(Source: http://www.tobaccoinaustralia.org.au)

a. What is 'price elasticity of demand'(PED)and how is it measured?
b. Name TWO determinants of PED and give ONE example of a product whose demand is 'price elastic' and ONE example of a product whose demand is 'price inelastic'.
c. From the information provided in the passage above, work out the 'price elasticity of demand' for tobacco and interpret your answer in:
    i. Developed countries. and
    ii. Developing countries.
d. The passage also refers to a 'price elasticity of total demand' of -0.4.
    i. What does a PED of -0.4mean? Is the demand for tobacco elastic or inelastic and what does it tell us about smokers' responsiveness to a change in price?
    ii. Is demand increasing or decreasing when price increases? How can you tell?
e. Explain the relevance of price elasticity of demand for a firm's total revenue. State if price should fall or increase in order for a firm's total revenue to increase when PED is:
    i. Elastic and
    ii. Inelastic.

8. Read the following and answer the questions

The following is the demand schedule for pairs of jogging shoes:

Price per Pair (€)	Quantity Demanded (Pairs)	Total Revenue/Expenditure (€)	Price Elasticity of Demand (PED)
140	2		n.a
120	6		
100	10		
80	14		
60	18		
40	22		
20	26		

a. Complete the table by calculating Total Revenue/Expenditure and PED for each price level.
b. Explain the relationship between Price, Total Revenue/Expenditure, and PED/ Illustrate your answer with examples form your calculations above.

Section H – Price Elasticity of Supply

Learning Outcomes:

1. Describe Price Elasticity of Supply (PES) and calculate the PES for different goods or services, using the formula.
2. Identify an elastic supply curve and/or an inelastic supply curve.
3. Show, by way of the formula for PES, whether supply is relatively elastic, relatively inelastic, of unitary elasticity, perfectly elastic, or perfectly inelastic.
4. Predict by way of the determinants of PES, whether the supply for a given commodity is relatively elastic or relatively inelastic.

Price Elasticity of Supply (PES) measures the degree of responsiveness of quantity supplied of a product following a change in price.

- **Price Elastic** – producers can quite easily increase supply without a time delay if there is an increase in the price of a product (ability to respond fast to changes in price).
- **Price Inelastic** – firms find it difficult to change production in a given time period due to a change in the market price.

Calculating PES

$$\text{PES} = \frac{\text{Percentage change in Quantity Supplied}}{\text{Percentage change in Price}}$$

Interpretation of results:

- PES>1 ---- Elastic
- PES<1 ---- Inelastic
- PES=1 ---- Unitary Elastic – percentage change in price is proportionate to the percentage change in quantity supplied.
- PED=0 – Perfectly Inelastic – a change in the price has no impact on quantity supplied.
- PED=∞ --- Perfectly Elastic – a change in the price leads to zero quantity supplied.

Answer should always be positive because of the positive relationship between price and quantity supplied – as price increases, qty supplied increases.

Determinants of PES

1. Degree of spare productive capacity.
    - If a firm has plenty of spare capacity, then it can increase supply with relative ease (and without increasing the costs of production).
    - Supply is relatively price elastic.
2. Level of stocks.
    - If the firm has unused/unsold inventories that are available for use, then a firm is able to respond more quickly to a change in price as it can supply these on the market.
    - The more the level of inventories, the more price elastic supply tend to be.
3. The time period.
    - Supply is less responsive to price changes in the short-run – relatively price inelastic.

- Supply is more likely to be price elastic in the long-run because firms can adjust their levels of production according to price changes in the market.

4. The ease and cost of factor substitution.
    - This refers to the extent at which it is possible to introduce additional factors of production in the production process.
    - The easier it is (occupationally mobile), the easier it is to increase supply – relatively price elastic supply.

Diagram Sketches

Exercise Set G

1. Read the following and calculate PES

Assume that when price increases from €20 to €30, quantity supplied for the product increased from 80 to 100 units. Calculate and interpret PES.

2. Read the following and calculate PES

Assume that wen price increases from €20 to €30, quantity supplied for the product increased from 40 to 70 units. Calculate and interpret PES.

3. Read the following and answer the questions

Suppose the market price of lemons increases from €4 per kg to €4.8 per kg, causing the quantity supplied to rise from 10,000 kg to 10,500 kg.

a. Calculate the price elasticity of supply for lemons.
b. Explain the results of your answer.

4. Read the following and answer the questions

The price elasticity of supply of chocolate in a particular country is known to be +0.95.

a. Describe what would happen to the supply of chocolate if the market price increases by 10%.
b. Explain one factor which affects the PES for chocolate.

5. Read the following and answer the questions

Pedali Ltd. Manufactures bicycles. One bicycle currently sells for €250 each. The owners of the company have stated that if the price was to rise to €275, they could increase production immediately from 1,000 to 1,200 per week using existing resources. If the market price remains at €275 thereafter, the company would invest in additional capacity over the next 12 months allowing it to increase production from 1,000 to 1,400 per week.

a. Calculate the initial price elasticity of supply.

b. Calculate what the company's price elasticity of supply could be after twelve months.
c. Explain why the price elasticity of supply at the company could be different next year.

Section I – The Property Market

Learning Outcomes:

1. State the key non-price factors that drive the property market.
2. Elaborate on the key non-price factors that drive the property market (excluding the rental property market).
3. Assess the effect on the equilibrium price and quantity of the property market as a result of a change in one non-price factor.

The property market can also be analysed using supply and demand analysis. This is because each transfer of property involves a buyer and a seller. The buyer places an offer to buy a property, leaving the seller to accept or reject the offer.

Demand for property can be defined as the willingness and ability of to buy a particular property at a particular price at a particular point in time. The people who demand property are:

_____

_____

_____

Supply of property can be defined as the willingness and ability of to sell property at a particular price at a particular point in time. The people who supply property are:

_____

_____

_____

The property market:

The property market follows the law of supply and demand:

- When there are more buyers than properties for sale, prices rise.
- When there is more property for sale than there are buyers, prices fall.

The non-price factors that drive the property market:

- Demographics
- Interest Rates
- The Economy
- Government policies and subsidies

Demographics

Demographics refers to composition of a population in terms of characteristics, such as age, race, gender, income, migration patterns, and population growth. The number of people in the market for homes impacts demand where an increase in new buyers increases the demand for property.

An increase in people looking to buy property

A decrease in people looking to buy property

Interest Rates

A substantial number of individuals who are looking to buy property usually take out loans in order to finance such a major purchase. The finance of loans requires the payment of interest according to an agreed rate of interest.

Example: A couple who takes out a €10,000 loan for 2% will have to pay €200 interest every year to the bank apart from loan repayments.

The higher the rate of interest, the more difficult prospective buyers will find it to acquire property. This leads to a _____ in demand.

The lower the rate of interest, the _____

_____

_____

The Economy

Another key factor that affects the value of real estate is the overall health of the economy. This is generally measured by economic indicators such as the GDP, employment data, manufacturing activity, the prices of goods, etc.

Broadly speaking, the property market changes with the health of the economy. These will be studied later in other topics.

Government Policies and subsidies

Government intervention in the property market happens Tax credits, deductions, and subsidies are some of the ways the government can temporarily boost demand for real estate for as long as they are in place.

Current policies in place relating to the property market:

- Reduction rate of the stamp duty for first time buyers (exempt from duty on the first 200,000 of the price of the property purchased)
- No capital gains tax or stamp duty on the purchase of properties that are more than 20 years old and have been vacant for seven years or more, in UCAs or built in the 'traditional style.
- First time buyers will receive €10,000 cash grant over 10 years, as long as the property price does not exceed €500,000 – this is a new property incentive introduced with this year's Malta Budget 2023
- First-time buyers will receive a grant of €15,000 for purchase of properties that are more than 20 years old and have been vacant for seven years or more, in UCAs or built in the 'traditional style'. That grant rises to €30,000 for Gozitan couples who buy such properties in Gozo.

Section J – The Labour Market

Learning Outcomes:

1. Define derived demand.
2. Show, by way of real-world examples, that the demand for labour is a derived demand.
3. State the factors that affect the demand for labour, both wage and non-wage factors.
4. State the factors that affect the supply of labour, both wage and non-wage factors.
5. Illustrate linear Demand and Supply curves (sketch, plot) to show situations of equilibrium, excess demand (Vacancies) and/or excess supply (Unemployment) in labour markets with appropriate labelling of the axis and the curves.
6. Assess the effect on the equilibrium wage and equilibrium quantity of labour of a shift of either the demand or supply curve or both as a result of a change in one or more non-wage factor.
7. Give reasons for wage differentials between occupations by reference to the factors affecting the demand and supply of labour.
8. Give reasons for wage differentials within the same occupation (including SDG 5, SDG 10; Fair Trade Principle 4).

The wage rate is the price paid by firms to people offering their services. In a free economic system, the wage rate is determined by the forces of _____ and _____.

The Demand for Labour (Employer's Perspective)

The demand for labour is the number of workers firms are willing and able to employ at a given wage rate. The demand for labour follows the law of demand, that is, as wage rate falls, the demand for labour will _____, whereas as the wage rate increases, the demand for labour will _____.

A change in the wage rate will affect the demand for labour and it will be shown by a _____ the same demand curve.

Factors affecting the demand for labour (shifts of the demand curve)

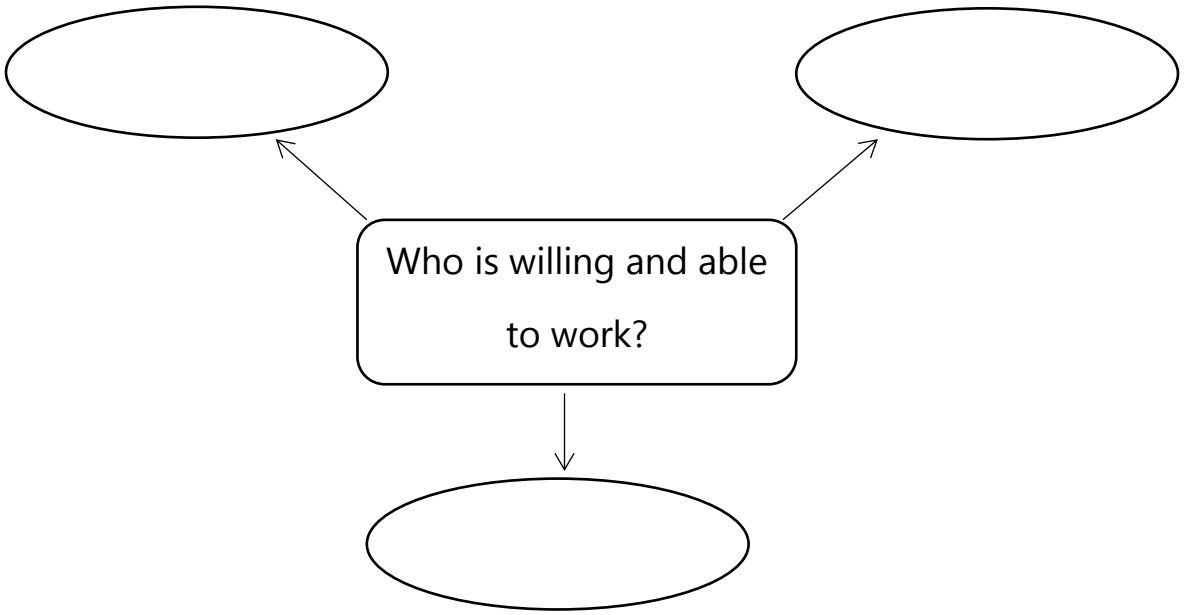
i. The demand for labour is a **Derived demand** – the demand for labour is demanded for the goods and services it produces and not for itself. For example, chefs are demanded for the food they cook, not for the sake of employing chefs.

ii. The demand for labour is affected by technology. For example, if machinery and technology could save money for firms in the long run, firms may be influenced to replace workers with machinery thereby affecting the demand for labour.

The Supply of Labour (Employee's Perspective)

The supply of labour is the number of people who are willing and able to work at a given wage rate.

Who are the people are willing and able to work?



Who is not willing and able to work?

1. _____
2. _____
3. _____
4. _____
5. _____

The market supply of labour follows the law of supply, where, the supply of labour will _____ as the wage rate increases. Conversely, the supply of labour will_____ as the wage rate decreases.

A change in the wage rate will affect the supply of labour and it will be shown by a _____ the same supply curve.

Factors affecting the supply of labour (shifts of the labour supply curve)

i. The number of full time and part time workers in the labour force.

ii. The age structure of the workforce.

iii. The number of workers in the workforce.

iv. The official retirement age of the country.

Determination of Wage Rate

As in commodity markets, the wage rate in free labour markets will tend towards Equilibrium, that is, that wage rate which equates the demand for labour with the amount that households wish to supply to that particular industry or occupation. The equilibrium is situation where the number of workers that households want to supply to this industry or occupation is equal to the number that firms want to employ at that wage rate. At this wage, there will be no unemployment and no unfilled vacancies.

When the wage rate is lower than the equilibrium, demand will be higher than supply, i.e. there will be **unfilled vacancies**. When the wage rate is higher, supply will be greater than demand, i.e. there will be workers without a job (unemployment).

Wage Differentials

People tend to earn different amounts of income. This is because the income earned by an individual is influenced by a number of factors. These factors are known as wage differentials.

Wage differentials between different occupations

Qualifications and Level of Education

Workers do not have the same the level of education. Certain jobs require a high level of education which would take many years of study to attain. As a result, the wages for jobs that require a lot of years of studying would be higher than those jobs who require less years of studying.

For example, studying to become an accountant takes more year than to become a cashier. As a result, an accountant is paid more than a cashier. This is because if both people were to be paid the same amounts, very few people would be willing to study to become an accountant.

Level of skills and training

Certain jobs require skills that take long to master. As a result, those jobs that require skills that take a long time to master will have more wages than those jobs that require skills that take less time.

Certain people may have skills that are extremely difficult to find and as a result will be able to fetch very high wages. For example: heart surgeon

Level of risk involved

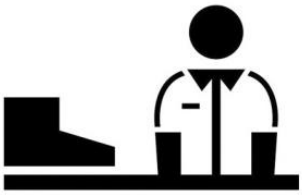
Jobs that are considered to be high risk must attract workers by offering a high wage. For example: construction work

Amount of responsibility involved

Jobs that are considered to involve a high level of responsibility must attract workers by offering high wages.

Unsociable and Long Hours

Some people may have to work nights or other unsociable hours and may be paid to compensate for this.



Wage differentials within the same job

People within the same jobs can earn very different amounts. This happens because of the following wage differentials:

Seniority and Level of Experience

Seniority refers to a privileged position earned serving a long number of years within an organisation. Many firms have pay scales that offer pay increases with the number of years. So, the more the worker has stayed employed within the same firm, the more the likelihood of having a higher pay.

Number of hours worked per week

Generally, the more hours that are worked, the higher pay.

Type of Remuneration

Different employees may have different pay agreements. Different payment agreements include: wages, salaries, commission-based remuneration, and bonus schemes.

Different responsibility

A person may be working within the same job but may have different responsibilities. The more the responsibilities, the more pay.

Discrimination

Workers doing the same job may be treated differently by different employers simply because of gender, age, race, and religion. This practice is illegal.

Career Prospects

Firms vary in size. Those employees working in small firms will have l a lower chance of being promoted to a higher position than those in larger firms due to the number of jobs available.

Fair Trade Principle 4 (Fair Payment)

This principle emphasises the importance of equitable and fair remuneration for workers. In instances where this principle is not adhered to, wage differentials can be observed within the same occupation based on various factors, including gender, race, and social status.